

U.S. DEPARTMENT OF COMMERCE

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COMMERCE SPECTRUM MANAGEMENT ADVISORY
COMMITTEE (CSMAC)

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MEETING

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FRIDAY,
MARCH 28, 2014

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The Committee met at the U.S. Department of Commerce, Herbert C. Hoover Building, Room 4830, 1401 Constitution Avenue, N.W., Washington, D.C., at 1:00 p.m., Brian Fontes and Gregory Rosston, Co-Chairs, presiding.

PRESENT:

BRIAN FONTES, Co-Chair
GREGORY ROSSTON, Co-Chair
LARRY ALDER, Member (by phone)
MICHAEL CALABRESE, Member
MARK E. CROSBY, Member
THOMAS S. DOMBROWSKY, JR., Member
DAVID L. DONOVAN, Member
HAROLD FURCHTGOTT-ROTH, Member
H. MARK GIBSON, Member
DALE N. HATFIELD, Member (by phone)
DOUG MCGINNIS, Member (by phone)
MARK A. MCHENRY, Member
JANICE OBUCHOWSKI, Member
ROBERT PEPPER, Member (by phone)
CARL POVELITES, Member

DENNIS A. ROBERSON, Member

TOM SUGRUE, Member

BRYAN N. TRAMONT, ESQ., Member

ALSO PRESENT:

LAWRENCE E. STRICKLING, Assistant Secretary
of Commerce for Communications and
Information

KARL B. NEBBIA

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

(1:07 p.m.)

CO-CHAIR ROSSTON: So, I guess we will get started as people roll in.

The first thing on the agenda is welcome and opening remarks, Larry.

ASST SECY STRICKLING: Well, thank you, Greg. I will be brief. I want to welcome everybody to this last session of the current term of CSMAC. I will tell you I think this particular CSMAC has been the most productive of any we have ever had. I think you have broken a lot of new territory, in terms of the work on spectrum sharing and the work in particular overseeing the agency-industry discussions that consumed much of the last year on the 1695 and 1755 bands but that was critically important work as we move to this new paradigm of how a spectrum can be used to meet the needs both of government agencies and industry. And so I think you all should be really proud of having participated

1 in this. And hopefully all of you will
2 remember this as a peak moment, in terms of
3 work on spectrum over the last many years.

4 And in particular, I would like to
5 thank Greg and Brian for their expert
6 leadership chairing this group over the last
7 couple of years. We are going to miss that.
8 Both of them are stepping down. But again, I
9 think you two, in particular, should feel a
10 lot of pride in the terms of the
11 accomplishments of this committee over the
12 last two years. So, thank you to both of you
13 for your work and sacrifice and contributions
14 in this area. Thanks.

15 CO-CHAIR ROSSTON: Thank you. I
16 just hope it is not a peak that is starting,
17 as we keep going on this because there has
18 been a lot of great work from the committee.

19 CO-CHAIR FONTES: Shall we find
20 out who is on the call just to -- unless it
21 has already been done, just so we know.

22 CO-CHAIR ROSSTON: Pepper, are you

1 on?

2 MEMBER PEPPER: I am, indeed. I
3 am here.

4 CO-CHAIR ROSSTON: Are there any
5 other members on the phone? Dale?

6 MEMBER ALDER: Yes, this is Larry
7 Alder.

8 CO-CHAIR ROSSTON: Any other
9 members on the line?

10 MEMBER MCGINNIS: Doug McGinnis is
11 here.

12 CO-CHAIR ROSSTON: Okay. Just in
13 case someone had it on mute -- go ahead.

14 MEMBER ALDER: Greg, did you hear
15 me? This is Larry. I'm not sure you could
16 hear me or not.

17 CO-CHAIR ROSSTON: Yes, I was just
18 going to say, in case people had it on mute,
19 I have three people, Larry Alder, Bob Pepper,
20 and Doug McGinnis. Is there anyone else who
21 is by phone?

22 MEMBER OBUCHOWSKI: Is Jennifer

1 Warren in Dubai? I'm not sure. Pepper, is
2 Jennifer with you?

3 MEMBER PEPPER: I haven't seen her
4 yet. I don't know. I assume she will be here
5 but I haven't seen her.

6 CO-CHAIR ROSSTON: Okay.

7 MEMBER ROBERSON: Apparently Dale
8 is quite ill.

9 CO-CHAIR ROSSTON: He just said he
10 was sick as a dog, was his expression in his
11 email.

12 CO-CHAIR FONTES: Okay. So,
13 anybody just periodically checking on him,
14 just to make sure that --

15 MEMBER CROSBY: About an hour ago
16 I said if you need me, let me know.

17 CO-CHAIR FONTES: It is just good
18 that -- you know he is traveling. He is out
19 of town. He is in a hotel. It is always good
20 to check every now and then just to make sure
21 he is okay.

22 Just a housekeeping. So, when we

1 do speak on the mike, I ask that you identify
2 yourself so the folks on the call can put the
3 name and voice together with those who are
4 providing comments.

5 I just, too, wanted to follow up
6 on Larry's comment. So, I just wanted to
7 thank Larry and Greg and this guy at the very
8 end over here for the work that he has done.
9 And Bruce Washington is probably -- there he
10 is, right on cue, for all the work that -- and
11 just the organization.

12 And one of the things I wanted to
13 express appreciation for was the change in the
14 structure in how we do work. I think that
15 allowing the flexibility of this work to come
16 up with questions and answers and issuing
17 reports throughout the process has been, I
18 think, very constructive. So, I very much
19 appreciate that. I appreciate the leadership.

20 And Bruce, I was just commenting
21 on the fact that in your position you get all
22 the complaints and little of the glory. And

1 I just wanted to say thank you for all the
2 work that you have been doing to keep us
3 working and to deal with all the complaints in
4 a very professional manner. So, thank you.

5 CO-CHAIR ROSSTON: I guess Bruce
6 is a special guess. He is in the visitor's
7 seat.

8 (Laughter.)

9 CO-CHAIR ROSSTON: Okay, so I
10 think we can move on to the subcommittee
11 reports, starting with the Enforcement Group,
12 which I think is Mark.

13 MEMBER CROSBY: You mean me?

14 CO-CHAIR ROSSTON: I can say Mark
15 and I will get all of them right, I think.

16 (Laughter.)

17 CO-CHAIR ROSSTON: Mark Crosby for
18 those on the phone.

19 MEMBER CROSBY: The work of many
20 of these working groups is never one person.
21 So I have on the front page of my report Larry
22 Alder, David Donovan, Dale Hatfield, Janice

1 Obuchowski, Steve Sharkey, Jennifer Warren,
2 Tom Dombrowsky, Mark McHenry, Dennis Roberson,
3 and Bryan Tramont, who have been very active
4 with their suggestions and comments.

5 Of course I am remiss that I got
6 scolded by Mr. Sharkey that I should have put
7 Tom Sugrue's name on there. I apologize for
8 that, Tom.

9 MEMBER SUGRUE: It would have been
10 an easy lapse.

11 MEMBER CROSBY: Tom has been a
12 very valued member of the working group as
13 well with Steve's input.

14 We have been busy. I worry about
15 sometimes that we seem to be spinning our
16 wheels, which always makes me a little nervous
17 when we are tasked with a rather substantial
18 objective to help NTIA. So, we have had three
19 or four meetings. We get into very, very
20 productive discussions. At the end of the day
21 the chairperson, I may get a little nervous.
22 I go okay, these are all great conversations

1 but I would like to put some things down that
2 would benefit NTIA and the CSMAC so they can
3 participate. So, I took a leap of faith at
4 this last one and said, you know what? I am
5 going to write some recommendations down,
6 which I think that sort of does facilitate
7 almost instantaneously from the members of the
8 working group some substantive
9 recommendations, comments, other emails that
10 I can't report for the record and things like
11 that but we are trying.

12 So, this is a lot and I will just
13 go through this a little bit and then I will
14 stop talking and absolutely look forward to
15 the comments and input from the other members
16 of the working group.

17 Dale has been, obviously,
18 extremely active in this with his great
19 thoughts and recommendations and comments on
20 our efforts. So, one of the first things we
21 have done and we did this about a month or two
22 ago is we have identified some critical

1 questions that we think need to be answered
2 that would provide value for NTIA and CSMAC
3 and those are in the first part of the
4 document, you know critical questions and
5 critical assumptions.

6 You will note that we don't have
7 any, although which again makes me nervous,
8 answers. And I am one of these guys. I like
9 answers and results. I don't have to be right
10 but you have got to put something forth that
11 has guidance so that people that are smarter
12 than me can say Mark, you really should, these
13 are some of the answers.

14 So, I would like to commit, on
15 behalf of the working group that the next time
16 we meet, we will have some perhaps some straw
17 man answers to many of these questions and for
18 discussion improvement. And maybe there are
19 other questions and other things but I would
20 like to have some substance and answers to
21 these questions.

22 So, I don't plan on going through

1 these today.

2 I think why it is relevant is when
3 Karl submits specific examples of where he
4 needs assistance at 1695 to 1710 and 5 GHz,
5 this is a real world case study. And we noted
6 that the questions that Karl is asking
7 mirrored ours in many respects. And again, I
8 take this very serious and to me, as the EWA,
9 some of the answers to these questions are
10 extremely obvious to me. But it is a working
11 group, so I might next time craft some answers
12 and I will rely on the working group members
13 to help the answers to be better and clear.

14 And by the way, the boldface on
15 this was not mine. And by whom, that was
16 Karl's boldface.

17 MR. NEBBIA: And that was
18 completely accidental.

19 (Laughter.)

20 MR. NEBBIA: But you have repeated
21 it. So, I guess now it's taken on special
22 powers.

1 MEMBER CROSBY: It takes special
2 powers. I take it seriously what Karl says.
3 I had better attention. I pay attention to
4 this.

5 So, Karl, I want to work on these
6 very quickly, so even before the next CSMAC,
7 we will convene a call and see if we can get
8 some positive comments and suggestions for
9 this because I know these are up-front and
10 center.

11 In the back of the document, we
12 have a report that was drafted by a gentleman,
13 Bill Cook or something. I think that is
14 something. John Cook, sorry. The working
15 group hasn't vetted it but everybody sort of
16 has gone through it a lot. But it is sort of
17 a very good summary of the attention
18 enforcement has received in certain
19 proceedings or lack of attention. It is
20 always mentioned but in various -- so, I
21 thought this was a great summary research
22 document that the working group, we, thought

1 should be -- it is not approved but it is a
2 draft and we take this for informational
3 purposes at this point very good research on
4 the extent to which enforcement is addressed
5 in certain proceedings or the lack of kind of
6 thing.

7 So, for that purpose, it is
8 valuable in the working group or the working
9 group thought it would be valuable for
10 distribution. And we will probably discuss it
11 later inside the working group. And of
12 course, we are always welcome to questions and
13 how it may be used or how we may add it from
14 the CSMAC.

15 I think the gut of today's
16 presentation, however, are the
17 recommendations. And so we have had --

18 MR. NEBBIA: Could everybody that
19 is on the phone, please make sure your phone
20 is muted.

21 MEMBER CROSBY: I had mine off. I
22 am happy to shut this rascal off.

1 MR. NEBBIA: I know that was Bob
2 Pepper in Dubai.

3 MEMBER ROBERSON: You have to be
4 that far away to get that kind of delay. How
5 did you sound to yourself, Mark?

6 MEMBER CROSBY: Well, sort of
7 profound. Profound or authoritative or some
8 other adjectives.

9 So, I want to make it very clear
10 right now, though, these are recommendations.
11 They have not been approved by the working
12 group. So somebody said these were like state
13 of play right now.

14 And what I thought was -- I guess
15 I should have expected this. I take, again,
16 very seriously when Karl says and Bruce says
17 I want recommendations. I said okay, we got
18 it. And so we have had a lot of
19 conversations. And so we just sort of framed,
20 I think what our recommendations would be.

21 And of course, sort have is the
22 tier of the first draft. So, you sort of

1 write them. And you know that when you send
2 them to the working group, you might as well
3 just duck because this is where the
4 substantive feedback comes back from the
5 members and they go, this is good but you need
6 more detail or some of them come in and go are
7 you kidding me. And I go no, I am trying to
8 be productive.

9 And so I took all those comments
10 from everybody that submitted them in the
11 working group to the best of my ability and
12 reframed the recommendations again, trying to
13 incorporate everybody's thought and sincere
14 comments and helpful hints and things. And we
15 arrived at these recommendations. We have
16 still not officially approved those yet,
17 though, by the working group.

18 And I think if I could just go
19 through them briefly, the first one is sort of
20 critical and the preliminary recommendation is
21 before I think you get into sharing spectrum
22 with commercial and others, it is probably a

1 good idea to have up-front what the ground
2 rules are on that sharing and how you might
3 identify the interference, and how might
4 mitigate it, and how you might identify it,
5 and how you are going to fix things. And in
6 the event you can't fix things, what the
7 enforcement processes are going to be. Have
8 all that done up-front. Now, whether that is
9 in an MOA, or an MOU, or whether it is in the
10 rules, I don't know whether that is the
11 Enforcement Working Group's decision because
12 I think it may vary, depending on what band,
13 who is sharing, and whatever and where, and
14 whatever.

15 So, there probably isn't any one
16 way to do it correctly. And I am going to
17 sort of assume that the federal agencies that
18 are involved and the commercial people
19 involved are smart enough to figure out how
20 that all can be crafted. But if there is a
21 recommendation, do it beforehand, not during
22 or after. Because during and after, you are

1 probably a little too late.

2 And some of the other more
3 difficult things and we have had this -- where
4 is David -- we have had this conversation. It
5 is really good when you are dealing with
6 professionals, people who know the ropes and
7 know where things are you can shut things on,
8 have technicians capturing the bad people.

9 And that was even in Karl's
10 question. That is the challenge. What do you
11 do about the people that open up their PCs to
12 fix them to go on -- I go, you know, there
13 isn't any magic dust that you can try to
14 sprinkle over it to make it work. It is
15 blocking and tackling. And you probably, off
16 the top of my head, go you probably if you try
17 to jerry-rig one of the PCs, it dismantles it
18 and it no longer works. Maybe the type
19 accepted process could be addressed so that
20 the equipment can be type accepted so to
21 prohibit people futzing with the equipment to
22 operate in noncompliance with the rules.

1 And then the other one that sort
2 of brought a lot of feedback from the members
3 of the working group is maybe since -- listen,
4 the FCC is working very hard on enforcement.
5 They don't necessarily, in my humble opinion,
6 have the resources, at this point in time, to
7 assume a much more significant enforcement
8 process, especially when it comes to federal
9 sharing and spectrum and those type of issues.
10 But that said, somebody has got to do the
11 enforcement.

12 I mean we found out at a meeting
13 -- where is Dennis -- we were at a meeting and
14 their monitoring equipment or detection
15 equipment doesn't go above 3 GHz. And we go,
16 really? So, what do you do if there is an
17 interference issue at 5 GHz? I don't know.
18 We don't have any equipment to do it.

19 MEMBER ROBERSON: Or more
20 pertinent right now, 3.5 GHz.

21 MEMBER CROSBY: Or 3.5. They
22 don't have the equipment to track things down.

1 So, we are sitting there going well, this is
2 great. So, we put in a recommendation maybe
3 there ought to be some funding somehow for
4 enforcement activities and for assets and
5 maybe gasoline for the vehicles and things
6 like this, just basics so that we can do this.
7 But we think it ought to be addressed up-
8 front, not afterwards.

9 And there is some outstanding
10 issues here. And some of these, some of the
11 questions, I don't know whether the working
12 group is the best one to answer these, how do
13 they enforce and so forth. And I don't know
14 whether that is the working group's -- I don't
15 know if we can really give a recommendation on
16 that. But we would think that the carriers
17 and the federal agencies are the best people
18 equipped to come up with those type of
19 answers.

20 But Dale and others really wants
21 to prepare a process flow chart. I don't know
22 how big this will be but my instincts tell me

1 that this is a big effort. It is one of those
2 where you are going to start it, I don't know
3 if you are ever going to finish it, and where
4 it is going to go, and the bands sort of
5 change the processes, and who the players are.

6 Dale, are you on the phone yet?

7 MEMBER HATFIELD: Yes, I am here.

8 MEMBER CROSBY: Awesome. So, I am
9 going to let you speak at this point on the
10 benefits of the process flow chart. I can't
11 say it as well as Dale. So, Dale, if you are
12 up to it, if you could share recommendations
13 regarding the process flow chart, I think that
14 would be helpful.

15 MEMBER HATFIELD: Well, I would
16 say two things. One, I think people may have
17 interpreted that I was talking about something
18 an awful lot more formal than I was. But a
19 flow chart is just a tool that systems
20 engineers use when designing a complex system.
21 It is the goes intos and goes outtas and who
22 interfaces to what, what information is

1 exchanged over that interface, those types of
2 things. So, it is a tool.

3 I mean maybe I am just slow but it
4 is very difficult for me to get my arms around
5 a project this big of this complexity without
6 using a tool like that that lays out the
7 various interfaces, who the various players
8 are, what their responsibilities are so you
9 can tackle it at least in a somewhat
10 systematic fashion.

11 MEMBER CROSBY: So we have that as
12 one of our recommendations. And Dale, you and
13 I, we have got to figure out who is going to
14 take the first swag at this.

15 MEMBER ROBERSON: You know there
16 actually was very first swag of this out of
17 the TAC. So, I thought this would come up at
18 the meeting. But they all did a first pass
19 and it is a template pass that needs to now be
20 hatched. But he has actually done a one-page
21 version.

22 MEMBER CROSBY: Okay, I need to

1 send that to the working group then and we can
2 weigh in. Okay.

3 MEMBER HATFIELD: Thank you,
4 Dennis. And I would just add to that that
5 dealt with the commercial to commercial not
6 the commercial to government or vice-versa.
7 And when you go across that boundary, there
8 are, obviously some jurisdictional issues that
9 arise that don't arise, I think, when it is
10 all within spectrum that is under the FCC.

11 MEMBER ROBERSON: That is
12 important but it is good to get that out so
13 that -- I think to help with Dale's point to
14 get a better feeling of what this might look
15 like. But it is, as we move into this regime,
16 it is quite different than we did in the TAC.
17 But I think it at least illustrates what this
18 kind of sort of looks like.

19 MEMBER CROSBY: Okay, understood.

20 And these weren't in necessarily
21 order of priority but the other one is
22 definition of harmful interference.

1 And Dale, I have to admit that
2 eventually the light went off for me and the
3 application and how a "Harms Claim Threshold"
4 would be applied, I apologize for being slow.
5 And I think that was when you provided for
6 illustrative purposes the threshold for the
7 MOU between AT&T and Sirius. Coming up with
8 a definition of harmful interference is
9 virtually impossible. I mean we have been
10 working at it, what, since 1934, when the Com
11 Act came out? We have never really gotten a
12 successful one that would be applied across
13 the board.

14 So, it is almost like -- Dale jump
15 in here -- but it finally dawned on me.
16 Depending on who is sharing what and where,
17 there is a level where it becomes intolerable
18 or the interference becomes intolerable for
19 either the incumbent or for the new user. And
20 so there is a line in the sand. And the line
21 in the sand is the harms claim threshold. And
22 if you go beyond that threshold, hopefully,

1 beforehand if you have all the terms and
2 conditions on how you resolve things, you then
3 the resources and the assets and the people
4 that care resolve it. If you don't get to
5 that level, then everything is fine and it is
6 sort of like understood that it is not really
7 harmful and it is not even interference,
8 necessarily.

9 So, I think this needs to be -- I
10 think the harms claim threshold is applicable
11 and needs to be identified for the certain
12 bands that are being shared.

13 And Dale, I don't think that we
14 can necessarily come up with what those levels
15 are but, certainly, the parties sharing
16 spectrum are probably the best equipped to
17 come those levels.

18 MEMBER HATFIELD: Yes, hopefully,
19 we could get as far as setting up the
20 technical structure for that. And I would
21 also say that the TAC is looking into this and
22 it published some papers on the topic. And

1 also, looking at what the -- Dennis please
2 jump is -- is looking at what the multi-
3 stakeholder, who it might look like to be able
4 to come up with the actual values.

5 MEMBER ROBERSON: I think that is
6 the key. The key, as you described it, is the
7 line that is established. And it has to be
8 established through a multi-stakeholder
9 process, the people, the interested parties.
10 It isn't something that can be dictated on
11 high. And it will be different for every band
12 boundary.

13 MEMBER CROSBY: Well, it might
14 need to be evaluated over time as new --

15 MEMBER ROBERSON: Yes. Hopefully,
16 they are anticipating what might be in the
17 adjacent bands but there will come a time when
18 that has to be reviewed again. But it does --
19 it is critical. It really says who needs to
20 do the work, just as you described it. If you
21 exceed the level, then the person doing the
22 transmitting has to deal with it.

1 If you have interference, as you
2 see it, as a receiver and you are below the
3 threshold, then you have got a problem as a
4 receiver and you have got to fix your problem.
5 So that just defines who needs to do the work.

6 MEMBER CROSBY: The fourth
7 recommendation is sort of an observation. And
8 it is like there doesn't appear to be
9 sufficient funding in place today to
10 accommodate perhaps the necessary level of
11 enforcement that needs to be done.

12 And given the demands for sharing,
13 this is something that needs to be addressed
14 sooner than probably later. And so the
15 recommendation is, without being officially
16 approved here, is that maybe we should explore
17 regulatory regimes or other type of processes
18 to help fund enforcement. And there may be a
19 variety of ways. It could be through a piece
20 of the auction revenues. It could be through
21 fees. It could be in a variety of ways. But
22 it is sort of critical. We can talk about it.

1 Enforcement is one of the legs on
2 the stool and without funding, we can't get
3 there. So, we think we need to address this.

4 MEMBER ROBERSON: And one of the
5 startling things that we have seen is where
6 some of the other nations are, doing
7 competitive analysis, if you will, on a
8 nation-state basis. And it was quite
9 startling, I think, to some number of us to
10 discover that Germany seems to have about 50
11 percent more resources, both dollars,
12 equipment, and people, than the United States.
13 And the last I checked, Germany was not quite
14 the same size as the United States.

15 Similarly, several of the Asian
16 countries have, by proportion per capita, have
17 much more extensive resources deployed in this
18 area. But as we move into a sharing regime,
19 we at least need to catch up with the other
20 nations in the world that are pursuing these
21 areas. And, obviously, our goal would be to
22 be a leader in this area. So, say we need to

1 go beyond that, not necessarily the case that
2 we have to have demonstrably more resources in
3 terms of even dollars and people but we have
4 to have a demonstrated way in which our
5 effectiveness and efficiency is such that we
6 are going to be able to have the same scope of
7 capabilities. Either way, we do it at these
8 me level of efficiency, we need to have more
9 resources, find a way to be extremely
10 efficient and effective and be able to
11 demonstrate that, and, thereby, use less
12 resources. Either of those approaches is
13 acceptable. But there has to be some way that
14 we can demonstrate to ourselves that we are
15 going to be able to function in this area.

16 MEMBER CROSBY: We were at the
17 Enforcement Bureau briefing recently and one
18 of the stunning things was somebody asked do
19 you have monitoring facilities now. Correct
20 me if I am wrong. And they go well, we do.
21 We have like four of them and they were
22 installed in 1939.

1 And this is the kind of stuff
2 where you go, 1939? Maybe there has been
3 technical advancements in monitoring since
4 1939.

5 MEMBER OBUCHOWSKI: You know but I
6 have to agree with what everybody said. And
7 I know Bryan Tramont made the same point in
8 your email commentary.

9 I don't think the onus is so much
10 -- I mean of course the onus is on the FCC but
11 this is a funding question. It is a huge
12 resources question. And for folks who are
13 proponents of sharing, including myself, it
14 falls upon those proponents to solve the
15 problem of funds both for people and
16 equipment. Because the reality is that you
17 look at the recon on UNII-2 and the 5 GHz
18 band, there is a lot of good work done on it
19 but it was private companies that stepped up
20 and paid for it. And that works but that is
21 an ad hoc approach that we can't depend on as
22 a country.

1 And the reality of it is if you
2 don't have the enforcement tools, the whole
3 process lags and what that does is it hurts
4 the early out equipment suppliers who are
5 seeking to abide by it but kind of get dragged
6 into the muck of a generic proceeding, trying
7 to figure out what to do.

8 CO-CHAIR FONTES: And that was
9 Janet Obuchowski.

10 MEMBER OBUCHOWSKI: Oh, sorry.

11 CO-CHAIR FONTES: Again, I
12 encourage people to mention their names before
13 they speak.

14 MEMBER OBUCHOWSKI: So, I do want
15 to endorse that point of view.

16 I also wanted to make a sort of
17 general observation for stuff. Thanks to
18 people like Dale who have really thought
19 deeply about this topic and took it to a new
20 height, this is a whole new world we are
21 operating in, in terms of sharing. I am glad
22 we are going to have the flow charts and I

1 think it is very important to do sort of ante-
2 regulation here, where the equipment suppliers
3 have very tight requirements to abide by so
4 you don't have so many of these problems.

5 But the reality is, I mean
6 licensing regulations sort of evolve by common
7 law. And I think this is going to sort of
8 evolve by common law in the sense that yes, we
9 can have generic principles. Yes, it has got
10 to be in the equipment. Yes, we have got to
11 put more into enforcement. But each one of
12 these cases is going to be a learning
13 situation and they are not all going to be
14 resolved in the same way.

15 I mean we have had sort of
16 historical practices which, again, are sort of
17 the common law of spectrum. You know, Karl
18 Nebbia calls it jewelizing up. And the issue of
19 the fact that Karl doesn't have enforcement
20 tools, he has got his ways of getting things
21 done.

22 (Laughter.)

1 MEMBER OBUCHOWSKI: Anyway, the
2 bottom line here is I don't want to be overly
3 prescriptive. We are not going to solve for
4 every situation. Getting some principles out
5 there, putting some money out there, and then
6 making sure a lot of this is solved by
7 building the right equipment from the start,
8 is about as far as I think we are going to
9 get. And then you have got to trust that,
10 with the proper resources, people are going to
11 resolve this case at the time.

12 MEMBER CROSBY: Let me get my
13 last, fifth recommendation then we will --
14 Mark Crosby.

15 And the last one is to help
16 enforcement, whatever that process evolves in,
17 there needs to be bigger guns, so to speak, or
18 bigger -- we need leverage. And one of them
19 is perhaps some changes to who you can hold
20 accountable for violations of certain things
21 for enforcement. And this issue has been --
22 a big fan of this position is David. So,

1 Dave, if you would, when we are done. When I
2 am done now, the members of the working group
3 can add their comments and views on all these
4 things.

5 So, that is where we are at this
6 point and we have more work to do. And again,
7 my intent is to make sure we help NTIA and
8 CSMAC.

9 So, I will stop talking.

10 CO-CHAIR ROSSTON: Bryan Tramont
11 is about to jump out of his seat.

12 MEMBER CROSBY: Yes, I know.

13 MEMBER TRAMONT: Bryan Tramont. I
14 just wanted to follow up a little bit on the
15 enforcement thing. I do think what we are
16 envisioning is that every time the Commission
17 opens up a band or say opens up a band to
18 sharing that there is a conversation and this
19 is the glory of the John Cook paper. There is
20 a conversation about how they envision
21 enforcement working, not only like what tools
22 you are going to use but where are the

1 resources and that that is part and parcel of
2 the regulatory process.

3 So, you are going to say at 3.5 we
4 are going to do with these monitoring stations
5 or this, or we are going to have these
6 vehicles at that, or whatever the equipment
7 is, we are going to do it this often, and this
8 is where the money is going to come from. And
9 it is going to be a price of doing business
10 for each band in which you open up this kind
11 of sharing because it has to be.

12 And it might be that we are wrong
13 and that we have to do a common law approach
14 because we are going to guess wrong about how
15 enforcement is going to work at 3.5 or we are
16 going to guess wrong about how it is going to
17 work with VSATs and radar detectors but we
18 just have to have a vision of how it is going
19 to work.

20 And reg fees are one possible way
21 that can work. Equipment certification fees
22 is another possible way it can work. Or if it

1 is auctioned spectrum, then that can certainly
2 can be a way it can work but there has to be
3 a path to getting the kind of resources
4 because otherwise you are sort of inherently
5 setting it up for failure, which really you
6 are not institutionally capable of handling
7 the kind of challenge that we are asking the
8 Enforcement Bureau and others in government to
9 take on.

10 So, with that --

11 MEMBER ROBERSON: Well, I want to
12 add just one more piece to this. Dennis
13 Roberson. Sorry.

14 One more piece to this and this is
15 getting close to home. But within NTIA, you
16 have the ITS Lab in Colorado which really has
17 a lot of capability to provide some of the
18 leadership in this area. They are not going
19 to do enforcement. That is not their role.
20 But to be able to provide the tools and
21 techniques and guidance, technical guidance,
22 I think it is really an important aspect of

1 the ITS mission and the larger mission, as you
2 are putting together the center with NIST.
3 So, I wanted to make sure that we got that on
4 the record as well because that really is a
5 component of this and the efficiency, the
6 effectiveness side.

7 CO-CHAIR ROSSTON: David, did you
8 -- you don't have to pull it towards you,
9 according to the people.

10 This is David Donovan.

11 MEMBER DONOVAN: David Donovan. I
12 want to thank Mark and folks on the committee.
13 We touched on enforcement I think two and
14 three years ago when I first came on the CSMAC
15 and we had a chapter that was devoted to
16 certain things. And without this, I think we
17 run into some serious, serious problems. But
18 just a couple of thoughts on the last piece.

19 I have the fortunate or
20 unfortunate distinction of having to deal with
21 this on a daily basis in New York and in which
22 I am dealing with true bad guys. And to give

1 you a sense of how bad it is, the Commission,
2 I think in 2013 issued about 60 notices of
3 unlicensed operation in the New York City,
4 Northern New Jersey area. And as far as we
5 can tell, it really hasn't had any effect.

6 To go get in rem seizure of
7 illegal equipment requires cooperation with
8 the U.S. Attorney's Office. That requires a
9 tremendous amount of paperwork. The law has,
10 frankly, rights and privileges that are built
11 into it that one must observe in our society.

12 So, I think there are some things
13 that we can look at, some things that we may
14 want to change. For example, maybe perhaps
15 even having the FCC go to Federal District
16 Court by itself to enforce these issues and
17 not have to go through the U.S. Attorney's
18 Office in some cases, very much like what it
19 does in the appeals process right now. It is
20 one of the few agencies that can directly go
21 to the appeals.

22 The other piece of this is what we

1 are finding, just to give you a feel for this,
2 we are finding that to put up an illegal and
3 transmitting antenna on a roof in New York
4 City, you get paid about \$400 a month for
5 that. So, if one wants to start sharing and
6 someone really wants to put up, if you are
7 sharing with the federal system and someone
8 wants to put up another competitive or
9 completely unauthorized system, there is a
10 market for it. And there are willing people
11 who are willing to put these on their roofs.
12 And so, you have to track them down.

13 A lot of the -- and even if you
14 know where the transmitter is, you have to
15 track down who the real bad guy is. Sometimes
16 it is by cable. Now, it is all being fed by
17 microwave, which is also unlicensed.

18 So, it just begins to build on
19 itself. So, I think the work that we are
20 doing here is incredibly important because my
21 fear is as we get down into this, there will
22 be some major problems that are going develop.

1 And I am not saying we shouldn't do sharing
2 before we get all the enforcement worked out,
3 all of this is -- we are going to work this
4 out as we go along. But I just want to
5 emphasize how important that is.

6 And even for some of the systems
7 that we are approaching, such as using a
8 memorandum of understanding or a contractual
9 approach between the parties, there are some
10 enforcement issues that creep into that, who
11 has jurisdiction, are you going to federal
12 district court. Is the FCC going to have
13 nationwide enforcement action over this?
14 Maybe there are template things that we, every
15 contract should have, such as, Janice, you
16 talked about it early on a year or two ago,
17 for example, having a TRO-type process if
18 someone is completely violating the terms of
19 their agreement.

20 So, there is a lot of stuff that
21 we can do here and I think Mark and the
22 committee and Dale, in particular with the

1 harm threshold stuff, has done a phenomenal
2 job and look forward to trying to reach some
3 resolution here. But, I am living illegal
4 stuff every day and it is a lot scarier than
5 I ever thought. Thank you.

6 CO-CHAIR FONTES: Mark, this Brian
7 Fontes. I just have a quick question. I
8 don't know if your group in your first
9 recommendation has considered this. I
10 certainly appreciate the whole notion of
11 trying to nail everything down that you could
12 possibly nail down prior to the actual
13 sharing. Inevitably, there is going to be
14 surprises.

15 And so, is there some type of
16 process or procedure that can be built in to
17 kind of expedite the surprises that occurred
18 during the process, so there is a way of
19 addressing that? Because inevitably, they
20 will occur. Just a thought.

21 MEMBER CROSBY: I am sure we can
22 put this up for recommendations. But I would

1 assume that the parties would always be --
2 have some sort of structure so that they are
3 communicating all the time or there is some
4 sort of mechanism of who they can get a hold
5 of in these type of things and to accommodate
6 those kind of -- but we can give them a more
7 formal on our recommendation, absolutely.

8 CO-CHAIR ROSSTON: Mark McHenry.

9 MEMBER MCHENRY: Well, it seems
10 like there should be more pilot projects
11 versus you have a big national decision of
12 sharing this band, some type of small pilot
13 projects. You know six months' ahead time we
14 will set up some little pilot thing and work
15 through these surprise things. I mean, I
16 can't believe they would do a nationwide thing
17 without doing a pilot project.

18 MEMBER CROSBY: Mark Crosby again.
19 But again, the surprises are going to be in
20 the form of technical, administrative,
21 communications, bad apples, there is all kinds
22 of surprises. Right? And I guess we just

1 have to sort of figure out where they can dive
2 out of the sun at you from and from whom but
3 the surprises will take many forms.

4 CO-CHAIR ROSSTON: Mark Gibson.

5 MEMBER GIBSON: Hi, it is Mark
6 Gibson. I had two questions. I mean this is
7 fascinating work but you mention in here the
8 role of the Spectrum Access System. And I was
9 wondering if you had drilled down any further
10 and were thinking about that in the
11 enforcement role.

12 You know with the White Space, we
13 have sort of an ex-ante enforcement role,
14 whereas we are not allowed to enable devices
15 who don't have a valid FCC ID. So, you could
16 say that is ex-ante, maybe.

17 But do you see any role or do you
18 think you have got any role of the SAS in
19 enforcement, further than just enabling
20 devices?

21 MEMBER CROSBY: I would think you
22 would also have the ability to disable

1 devices.

2 MEMBER GIBSON: Disable, yes.

3 MEMBER CROSBY: I think that would
4 be a part of it.

5 MEMBER GIBSON: Well, the question
6 is more one of regulatory authority, whether
7 you are going to -- and that got to my second
8 question. In terms of enforcement, have you
9 thought about or are you considering the role
10 of third parties in enforcement?

11 On one hand, the Commission has
12 the wherewithal to enforce the regs, you would
13 think, from the other -- alright, maybe. That
14 wouldn't be the Commission, though.

15 On the other hand, the biggest
16 problem, the long pole in the tent, we have
17 heard a lot is finding this problem. And we
18 just did a measurement not too long ago with
19 a light ballast issue of, I forget where it
20 was.

21 So, it strikes me as an issue more
22 of resources actually do find interference.

1 And I don't say it is bounty hunting, per se
2 but if the Commission gets a report of an
3 interfering problem, if they have third
4 parties they can mobilize with the gear and
5 with the authority at least to do the
6 measurements, is there some role that a third
7 party would have in that effort and then work
8 with the Commission for the actual enforcement
9 action? Are you looking at that, too?

10 MEMBER HATFIELD: This is Dale, if
11 I could jump in, Mark. Those are really
12 questions and we have thought about them. We
13 have not addressed them nearly adequately, at
14 this point.

15 There is the issue then, for
16 example, if there is an option and there is
17 stuff in the band, you know, is that the
18 responsibility of government to absorb the
19 cost of cleaning that up or is the
20 responsibility of the party getting the
21 spectrum to spend money doing what you are
22 doing to clean it up? Those are pretty darn

1 fundamental issues but your points are very
2 well taken.

3 MEMBER GIBSON: Thanks.

4 CO-CHAIR ROSSTON: Tom Sugrue.

5 MEMBER SUGRUE: Tome Sugrue. I
6 just wanted to -- in light of discussion and
7 people are aware of this difference and it
8 ties into something Mark said but it does
9 strike me that the tools and the remedies and
10 the process could be radically different,
11 depending on whether it is a situation like
12 David is describing where you have rogue,
13 unlawful, borderline criminal interferers,
14 borderline, and two licensees are in the band
15 operating pursuant to authorizations, whether
16 two private licensees from the FCC or federal
17 and a private licensee, where you have got
18 people in front of you, you have got people
19 with licenses. You can do things through a
20 regulatory process that this is not amenable
21 to.

22 I mean I remember back in the old

1 days, I am sure David does, the FCC used to
2 have raids. I remember there would be boats
3 going out to these pirate radio stations and
4 FCC officials in flak jackets with the FBI and
5 so forth, rather dramatic. I always wanted to
6 go on one of those.

7 (Laughter.)

8 MEMBER DOMBROWSKY: They
9 authorized some FCC U-boats.

10 MEMBER SUGRUE: Now they would
11 have to rent it to Staten Island Ferry, I
12 think, before they can make a U-turn or
13 something.

14 But anyway, just because the two
15 discussions could lead to apples and oranges
16 in how you approach it and so forth. They are
17 both important but they are different in terms
18 of their both origin and their remedies.

19 MEMBER DONOVAN: Tom, Dave
20 Donovan. Yes, the committee is fundamentally
21 aware of that distinction. I mean, you have
22 folks who want to play by the rules who are

1 stakeholders and have an interest. And their
2 approach is going to be markedly different.
3 I guess the only question that I have is that
4 as more and more federal spectrum gets opened
5 up to commercial private activity, will we
6 actually see an increase in the number of bad
7 guys essentially trying to jump that band.
8 Now, we may not in some. We may in others.
9 That is really the issue.

10 CO-CHAIR ROSSTON: Michael
11 Calabrese.

12 MEMBER CALABRESE: Yes, Michael
13 Calabrese.

14 Yes, I think I wanted to follow up
15 on Mark Gibson's point with a question which
16 is in the critical assumptions, you know, the
17 second and third say sharing is between a
18 commercial system and a federal government
19 system and the commercial systems are under
20 the control of a network operating system.

21 And so those two assumptions and
22 recommendation number one seem to be speaking

1 to the sort of scenario in 1755 band or maybe
2 1695 to 1710 band. But I am wondering if you
3 anticipate -- you do mention the Spectrum
4 Access System, so I am wondering if you
5 anticipate also addressing the sort of
6 situation we will have, for example, under the
7 PCAST recommendations in 3.5 GHz band, where
8 just Monday, Chairman Wheeler confirmed that
9 the Commission is going ahead with not only
10 priority access licensing which would fit
11 those assumptions but general authorized
12 access as well, which will not be systems that
13 are under the control of a network operating
14 system. In other words, they may well be
15 under control to a greater degree or less of
16 a spectrum access system. But that was, as
17 Mark was saying, an entirely different thing.

18 So anyway, I was just wondering,
19 not to give you more work or headaches, but
20 that is kind of an important distinction.

21 MEMBER CROSBY: This is Mark. I
22 can get this working group to address

1 unlicensed generally authorized. I think we
2 have to do that. We haven't so far yet. I
3 mean that is really tough. I mean that is
4 where I think you will have -- I mean when you
5 have got people fussing with the equipment, I
6 mean there isn't any magic wand. It is hard
7 to find them, almost virtually impossible, if
8 they don't want to be found. Right?

9 MEMBER CALABRESE: Oh, I am sure.

10 MEMBER CROSBY: So the only way
11 you can do it is somehow, I think, disable the
12 equipment so that if they try to manipulate
13 it. I don't know. It is very tough. We
14 haven't gotten there yet.

15 Dale, we need to get there.

16 CO-CHAIR ROSSTON: Dennis?

17 MEMBER ROBERSON: I would note
18 that, if I could just say one quick thing.
19 Which wand? You know Mark mentioned the role
20 that the Spectrum Access System could play in
21 enforcement, potentially, ex-ante at a minimum
22 but also you know I think the PCAST definitely

1 anticipated that the SAS would have the
2 ability to turn systems or the license off,
3 essentially.

4 But in addition to that, another
5 wand, although it is not magic, would be
6 tighter certification requirements. Because
7 although you case study the terminal Doppler
8 weather radar issue, as I understand it, a big
9 part of that problem was simply that the FCC
10 had certified the foreign-made devices --
11 devices that were made for foreign markets
12 that simply had a switch inside that you could
13 go to different frequencies and up the power.
14 And quite frankly, they shouldn't have
15 certified those devices for sale in the United
16 States. You wouldn't have had this problem.
17 It wasn't like there were these incredible
18 ingenious hackers. They simply opened the
19 thing up and flipped a switch.

20 MEMBER CROSBY: We don't let
21 switches in VHF, UHF in part but why would
22 they do it there? It's amazing.

1 CO-CHAIR ROSSTON: Dennis?

2 MEMBER ROBERSON: Dennis Roberson
3 here. One of the points that is really
4 important to note is the transformation that
5 is occurring in, in quotes, "unlicensed band."

6 In the not too distant future, the
7 preponderance of the Wi-Fi access points will
8 be controlled by Comcast, or the cable
9 industry in general, AT&T and Verizon. So,
10 while we think of unlicensed as being the
11 things in our homes that we got from Best Buy
12 or wherever, as you look forward to the brave
13 new world that we are facing, the unlicensed
14 general access devices in the majority will
15 be, in fact, controlled by a network operating
16 system. So, this restriction, while it may
17 sound like it doesn't include the unlicensed
18 devices, it really does, in terms of the
19 devices that are actually deployed. They will
20 be controlled by a very major operator, either
21 one of the traditional cellular operators or
22 increasingly by the cable industry.

1 This has been one of the
2 surprising things for the FCC because
3 unlicensed, when we think of unlicensed, we do
4 not think of AT&T, Verizon, and Comcast. That
5 is not a normal group. And with Tom here,
6 certainly T-Mobile and Sprint and others as
7 well. But that is clearly the direction that
8 things are taking, in general access.

9 CO-CHAIR ROSSTON: Karl.

10 MR. NEBBIA: So, let me just give
11 you a few thoughts back. First, I did want to
12 mention that NTI does have an enforcement
13 authority, we just don't have people
14 specifically set aside to do it. So, if we
15 find out there is a problem, we are able to
16 tell an agency shut your system off and they
17 will respond to that. We just don't have an
18 enforcement bureau or something set aside to
19 go chase people down. We do, in fact, use our
20 ITS people once in a while to identify
21 problems.

22 But anyway, I want to mention I

1 appreciate what Mark said. Ultimately, in
2 this process of federal advisory committees,
3 ultimately, we need very specific identifiable
4 recommendations that go on a list that we then
5 have to report. Here are the recommendations.
6 We can't give them a long report and say
7 somewhere in this report there are lots of
8 recommendations, lots of good thinking. In
9 the end, what we have to report is here are
10 the specific recommendations and what did we
11 do with them.

12 So, as we go through the effort,
13 and I think all the thinking is helpful, it is
14 all important, ultimately, it does have to get
15 boiled down to the kinds of bullets that Mark
16 is pulling out here that is an essential end
17 game of the process. It doesn't mean I am not
18 going to read the rest of it. But it does
19 mean that that is what we are going to pull
20 off and put on a list that we then track and
21 that sort of thing.

22 So, I want to encourage you along

1 that line to think that way.

2 Also, in this context, enforcement
3 is a very, very big subject. It has been on
4 the table for years and years, the folks that
5 David is struggling with have been there for
6 years and years. So, in what you are looking
7 at, as much as you can, please identify the
8 things and discuss the things that are, I
9 think, particular to this new shared
10 environment.

11 So, I know that, for instance,
12 receiver characteristics are an issue in all
13 kinds of things, all kinds of places.
14 However, if it is not somehow different in
15 this environment, I don't want this to become
16 part of the very broad discussion on receiver
17 standards.

18 The same thing even as we start
19 talking about the harmful interference levels.
20 Once again, I want to be careful about trying
21 to treat this as much as possible. What are
22 the things that are very specific to this kind

1 of sharing environment?

2 For instance as we talked about 5
3 GHz issue, I mean I have been doing this work
4 for a long time. This is the first case I
5 have come up to where we just can't stop
6 playing Whack-A-Mole because of the
7 environment that we have. We have a situation
8 that is unlike any other that I have dealt
9 with and, as Mark was saying, there was
10 somewhat of a problem early on with a software
11 switch, where you could pick U.S. or other on
12 the device. And when you picked other, it
13 turned DFS off, which is an important
14 component thing.

15 However, the real ongoing problems
16 tend to be wireless internet service providers
17 that are out tuning the equipment down into
18 the DFS or into the DFS band with equipment
19 that doesn't have DFS on it, changing the
20 antennas of the system, so that they are
21 beaming directly at Newark Airport or wherever
22 from the Empire State Building. So, it is not

1 a teenager playing around. These are major
2 issues.

3 But this is something that has
4 been created because of what we have created.
5 And as we move this forward, it is a critical
6 thing for people who, in the future, and that
7 includes government agencies, that we are
8 asking to jump off the cliff into this new
9 world. And they are asking, well, where is
10 the -- is the net set up? Is all that stuff
11 already to go? And so these questions, I
12 think, do we get it all resolved ahead of
13 time? I mean, the Commission would love to
14 put the two groups in a room and let them work
15 it out together and so on. Are we going to
16 head in that direction? Are we going to put
17 more in rules and so on?

18 But as much as you can keep this
19 focused on we are talking about a new
20 environment and the kind of things that we
21 have here. Working Group 3 came up with just
22 such a case in their review, where the

1 satellite users say we are willing to work
2 with you guys and we are going to interfere
3 with your local wireless broadband stuff
4 coming up. What we are concerned about is the
5 fact that your growth over many years may
6 ultimately impact our satellites. It doesn't
7 now but it may ultimately. How do we deal
8 with that aggregate signal that I can't blame
9 on Verizon, I can't blame on AT&T, I can't
10 even blame on the United States? It may be
11 Mexico and Canada all playing in it. And if
12 you can't tell them that, they are anxious
13 well, do I really want to move forward if I
14 could get in a spot where the limits start
15 being exceeded and I don't have anybody to
16 blame anymore. It has just outgrown me.

17 So, these are the kinds of new
18 things that we come up in this shared
19 environment. And I appreciate the thoughts
20 here that you have about let's work out what
21 the arrangements are, whether it is part of
22 the rules or elsewhere. I think we do have

1 some big questions about whether actual
2 enforcement and the funding that goes into
3 that is going to be an issue. We have to look
4 at that, I think. As Janice said, certainly,
5 getting those who are trying to get in the
6 band to work through that, I think are
7 important.

8 But I appreciate the work being
9 done. Let's stay driving toward marks smaller
10 specific recommendations.

11 And the last thing I wanted to
12 mention along that line, if you come to the
13 next meeting and you have one of them that you
14 really think is great, let's put it on the
15 table and let's move it onto the list. I
16 don't have to wait for a year to get all of
17 them. So, please just, as you get them, let's
18 deal with them and let's get agreement and so
19 on. Thanks.

20 Oh, Karl Nebbia.

21 (Laughter.)

22 CO-CHAIR FONTES: Thank you, Mark,

1 for the presentation. Now, we are going to --

2 MEMBER SUGRUE: I took three-
3 quarters of the allotted time.

4 CO-CHAIR FONTES: We need to
5 enforce the time limits here.

6 So, now speaking of sharing. We
7 will move to Mark for transitional sharing.
8 Mark Gibson.

9 MEMBER GIBSON: Well, you know, it
10 goes from Mark to Mark.

11 This is a status update, picking
12 up on the work we briefed on last time. We
13 have done some work but at the moment, just
14 taking the lead from one of the other Marks in
15 the room, I would like to just thank the
16 people that have worked on this, which
17 includes Tom Dombrowsky, my August co-chair,
18 Janice, Dale Hatfield, Tom Sugrue, and Steve
19 Sharkey, Carl Povelites, and if I forgot
20 anybody, you can come get me.

21 So, the first four slides of the
22 deck are the exact same things we presented

1 last time. So, I would like to ask you just
2 to turn to slide number five or page number
3 five.

4 And so what we did is this is
5 basically an update from the last time. What
6 we decided we thought would be a good thing,
7 I think this was Janice's suggestion is it is
8 hard to have a sharing discussion without
9 people with whom you are sharing discussing
10 it.

11 And so what we thought it would be
12 a good idea to get the federal users in the
13 room. Unfortunately, we caught them at a time
14 when they were knee-deep, if not ear-deep in
15 their transition planning work and so we
16 really didn't have any federal users, per se.
17 Carl stood in in one of the discussions we had
18 and kind of gave us a sense of some of the
19 questions we need to be focusing on and Bob
20 Martin who works for Alion and represents a
21 lot of federal users, primarily DoD.

22 So, it wasn't in a vacuum but,

1 nonetheless, we still, in the ongoing future
2 work, would like to include the federal users
3 in the discussion, just so they get a sense to
4 weigh in on it.

5 However, that being said, what we
6 did do is work on a set of draft
7 recommendations that we think we will try to
8 hone in on the ongoing time. So, those you
9 will find starting on page number six.

10 So, I will just walk through them
11 real quick. At the top of that list was the
12 portal. And so the recommendation is that we
13 develop a single portal to support, among
14 other things, data exchange, interference and
15 sharing analyses, the communications of
16 analysis results, and the portal could be used
17 to provide commercial input into band-sharing
18 discussions. Now, there is a diagram on slide
19 seven I will get to in a second.

20 The interesting thing about this
21 point is that when we were talking about the
22 portal or thinking about the portal, we were

1 thinking about the portal in the context of
2 what was stood up for AWS-1, which was a
3 fairly specific portal to help with the
4 exchange of data for one set of -- not one
5 set of but the DoD users. DOJ, the Justice
6 Department used the portal but not the
7 analysis behind it. But we were thinking
8 initially in terms of that.

9 Carl suggested that we take it up
10 a level and think of about it in terms of
11 overall transitional sharing and how a portal
12 might be able to be useful to help with the
13 IRAC process, to help as spectrum becomes
14 available to facilitate the discussion. So,
15 that gave us some more to think about, which
16 makes ten the work of the group. Nonetheless,
17 we put together a bit of a slide to talk about
18 that, which we will get to on slide number
19 seven.

20 The other thing here with respect
21 to the portal is to -- obviously, the portal,
22 at least initially, will be useful or used for

1 the commercial interaction with federal users.
2 And so the recommendation is to include the
3 commercial folks in the discussion of how the
4 portal would get set up. And not just
5 commercial users but maybe other stakeholders,
6 including the regulators or -- well, I am not
7 sure who is left on that. But all
8 stakeholders might have a stake in it.

9 You got to slide number seven.
10 This is sort of our take on what a really
11 generalized portal structure might look like
12 in the context of being a portal that will
13 facilitate transitional sharing for all bands
14 for which there is transitional sharing. So,
15 it is sort of the grand unified sharing portal
16 or the GUP, since we like acronyms.

17 So, the idea is that commercials
18 users would come into the portal and they
19 would choose the band of interest. And so we
20 have three bands of interest there and we just
21 sort of a put an ellipses for other bands that
22 might be of interest. the 1695-1710, 1755-

1 1780, 3.5 GHz band.

2 And then this portal will act as a
3 means for the commercial users or outside
4 stakeholders to interface and interact with
5 agencies for data exchange. So, the request
6 would go in for specific information on the
7 operational information for wherever could be
8 an area-wide or could be specific types of
9 assets.

10 The other thing that could happen
11 within the portal would be an analysis of
12 interference, harmful interference, similarly
13 like what happened with AWS-1.

14 And then analysis results could be
15 made available through the portal as well.
16 The other thing that could be made available
17 through the portal is objections that agencies
18 may have with anything that happens, either
19 the data exchange or analysis or whatever.

20 The other thing, too, we had a
21 discussion with some of the folks in the
22 enforcement working group and they suggested

1 that we may be able to use this portal also to
2 help with interference reporting such that if
3 an agency or a commercial user is experiencing
4 interference, then the occasion of that
5 interference might be communicated through the
6 portal, even up to an including providing
7 information on the stop buzzard. In other
8 words if somebody is operating and there could
9 be potential or there may be potential for
10 interference, then you know who to contact the
11 24-hour stop buzzard.

12 So, this is very high-level sort
13 of a generalized architecture for what a
14 portal would look like but we will keep
15 working on it.

16 Slide eight gets into specific --
17 it was more specific for AWS-3 but we think we
18 could use this in other constructs as well.
19 But the idea is to hold a series of
20 coordination symposia. You may remember in
21 AWS-1, there were three coordination symposia
22 that were conducted. CTIA held them at their

1 headquarters here in D.C. and the idea was to
2 have sort of an easy way to engage both
3 parties in a semi-neutral environment and
4 semi-neutral only because CTIA generally
5 represents commercial carriers. But they used
6 it as a way to make available a place where
7 both sides can engage in a free discussion in
8 exchange of ideas on how to do sharing.

9 And so these lists of criteria or
10 at least objectives are here. Primarily
11 again, the suppose would be to get everybody
12 together in a room and talk things through.

13 The other thing it would be good
14 for is to have the commercial carriers better
15 understand the agency's issues. We got a lot
16 of that in the last iteration of the working
17 groups. This might be a way to get into more
18 detail. We had discussed the coordination
19 process or at least straw man process,
20 processes that might be unique to specific
21 types of applications or general processes but
22 begin to work out some of the issues.

1 And just finally, just share ideas
2 on how this could work. If we are talking
3 about sharing, it seems to make sense to get
4 in a room and talk about sharing.

5 So, then on slide nine -- we have
6 more than I thought we had. We did a lot of
7 work!

8 The other things which we wanted
9 to suggest, although the horse may be out of
10 the barn on this one is to include the Trusted
11 Agents in the transition plan. Early
12 distribution of transition plans. Everybody
13 remembers the Trusted Agents have gone through
14 a vetting process where all of us have signed
15 NDAs. So, there is some level of trust in the
16 trusted agent -- implied trust in the trusted
17 agent process.

18 So, is there a way that the
19 trusted agents could see the transition plans
20 before they are made available? And the idea
21 is just to get some a priori knowledge of what
22 is going on so that the Trusted Agents could

1 be then working on what it would take to
2 facilitate the sharing.

3 And then finally -- I think it is
4 finally -- yes, it is. Finally, hold regular
5 meetings with all stakeholders, not
6 necessarily under CSMAC. And this would
7 include the regulatory stakeholders, the
8 commercial stakeholders, and the federal
9 stakeholders to begin to discuss conceptual
10 issues. These are different than the
11 coordination symposia. The coordination
12 symposia are more agenda-driven for a specific
13 transitional sharing issue, like AWS-1. These
14 meetings would be more conceptual in the sense
15 of commercial licensees getting together with
16 federal licenses and just talking about what
17 new spectrum is coming up that may be needed.
18 So, to try and get out in front of some of the
19 sharing issues through this means.

20 And it could dovetail with the
21 coordination symposia but we put them both out
22 there so that we could work on them together.

1 So that was the recommendations.
2 The last page or the second to the last page
3 has the next steps that we are going to work
4 on, which includes refine the portal details.
5 We want to put a little more flesh on the
6 bones, as it were, with some of these issues
7 you see here.

8 One of the concerns, I think,
9 everybody had in this discussion is what IRAC
10 implications there may be in this. We want to
11 go too far down the road and sort of get messy
12 with that.

13 We also want to include the
14 federal users in the discussions, at some
15 point, hopefully not until after the
16 transition plans are done. We also want to
17 refine the recommendations for the regular
18 working meetings, not the symposia but the
19 working meetings. And then refine the
20 transitional sharing flow diagram, which is
21 the diagram on slide 11, which hasn't been
22 changed since we put it up last time.

1 So, that is what we have got.

2 CO-CHAIR FONTES: Great. Thank
3 you.

4 Mark, a quick question on page
5 nine, the first bullet. And under that it
6 says should include non-redacted information
7 or do want unredacted.

8 MEMBER GIBSON: Unredacted, yes.
9 Should it be unredacted? It should include
10 information that hasn't been redacted.

11 CO-CHAIR FONTES: Got you.

12 CO-CHAIR ROSSTON: They would have
13 redacted for non-Trusted Agents.

14 MEMBER GIBSON: All information.
15 That is a much simpler way of putting it.
16 Thank you.

17 (Laughter.)

18 CO-CHAIR FONTES: I just wanted
19 some clarification on that.

20 MEMBER GIBSON: Yes, thank you.
21 That is why he is co-chair.

22 CO-CHAIR ROSSTON: There you go.

1 Are there questions for Mark? Wow!

2 So, the General Occupancy
3 Measurement. Is that you guys?

4 MEMBER GIBSON: Oh, you know what?
5 That might be the one you and I are supposed
6 be chairing.

7 MEMBER CROSBY: Is it really?

8 MEMBER GIBSON: We haven't done
9 anything on it because --

10 MEMBER CROSBY: I thought Mark was
11 going to do it.

12 MEMBER GIBSON: Yes, well, I
13 thought Mark was going to do it. So, you
14 know, this I the one we keep talking about.
15 This is Mark Gibson, by the way.

16 You know and I really wanted to do
17 something on it but I just think that it has
18 been OBE. So, maybe it one of those things,
19 and you mentioned this, Karl, last time, that
20 we carry on into the next, just because there
21 are too many other things going on. And a lot
22 of us are chairing or co-chairing different

1 working groups.

2 So, that is my story, at least so
3 far. I'm sorry.

4 MEMBER CROSBY: Great. We just
5 wanted a working group with two Marks on it.

6 MEMBER DOMBROWSKY: Didn't you
7 guys file some occupancy stuff into the record
8 from some other measurements that were done?
9 You know obviously, specific measurements --
10 I'm sorry. It's Tom Dombrowsky.

11 MEMBER GIBSON: Well, not the
12 CSMAC. There were occupancy measurements that
13 were filed by a group of carriers that
14 Comsearch performed not related to any CSMAC
15 work. And they showed general spectrum
16 occupancy for several bands, 1.7 and others.
17 I forget exactly what they were. They are
18 commercial bands, as well as the 1755 to I
19 think 1850 MHZ at altitudes between 3,000 and
20 10,000 feet in the D.C. area and in Norfolk.

21 And it was a test plan that was
22 worked on with -- we developed a test plan and

1 worked on it with the carriers as well what
2 got input from some DoD folks. And so the
3 measurements were completed and they were
4 filed under ex parte with the FCC. And I
5 think there was a meeting with NTIA back in
6 January.

7 So, the results that were put on
8 ex parte, obviously, are public. I don't know
9 the status of the report. Once we completed
10 the report, it was given over to the carriers
11 and I think they own those data.

12 So, to the extent we could pull
13 that into the discussion, we can try but I
14 need to look into that. So, thanks.

15 MEMBER DOMBROWSKY: I just wanted
16 to show that you weren't doing nothing.

17 MEMBER GIBSON: Weren't doing
18 nothing, yes.

19 MEMBER CROSBY: This is Mark
20 Crosby. I haven't looked at it for a while.
21 I need to see what the objectives were and
22 what are the results or what is the output

1 that you want to -- you know I need to look at
2 that again.

3 MEMBER GIBSON: Yes, okay.

4 CO-CHAIR ROSSTON: So spectrum
5 management via databases. This is Mark
6 Gibson.

7 MEMBER GIBSON: Mark Gibson. This
8 is all about Marks.

9 This working group we started off
10 strong and then kind of like the transitional
11 sharing working group, we wanted to include
12 federal users in the discussion in sort of a
13 test case and ran into some of the same issues
14 with that as we did with transitional sharing
15 is they are really busy, understandably so,
16 with their transition plans.

17 So, if you look at, I guess it is
18 page number two, there is our Charter, which
19 is primarily we are working in this working
20 group on how we can protect classified
21 information through a process that still
22 provides results.

1 There is many, many issues
2 associated with how you would use databases in
3 spectrum sharing. You heard about one of them
4 in the enforcement discussion. We were
5 drilling down on how we can protect sensitive
6 classified data in this whole process. So,
7 that has been our overriding objective.

8 You see an update on slide three.
9 We started early on, shortly after the working
10 group got engaged, having lots of discussions
11 about what does sharing look like. We looked
12 back at, and Larry reported on this last time,
13 we looked back at some other methodologies
14 that are used for sharing like the 70 to 80 to
15 90 GHz, the White Space, some of the thoughts
16 and concepts behind the Spectrum Access System
17 that is being thought about for 3.5 GHz. And
18 I think we also looked a little bit at some of
19 the thoughts that are being batted around in
20 the 5 GHz band for DFS.

21 So, we wanted to sort of just do a
22 collection of some of the methodologies out

1 there and what they run into. And so the
2 working group wanted to engage DoD on sort of
3 a case study. And we thought well, we will
4 use the ship borne SPY radar. And SPY radar
5 not used necessarily for spy operations. SPY
6 is an acronym that I don't know. Maybe
7 somebody around here knows. But the idea is
8 that we wanted just to engage a ship borne
9 radar as a test case.

10 We still want to do that but the
11 DoD who would own that are not available to
12 engage in that. So, we are going to continue
13 on probably at least in a vacuum for the time-
14 being.

15 So, that is kind of a background
16 on the work we are doing for the most part.

17 The other thing we did is we sent
18 a set of questions, if you look on slide four,
19 to the DoD. Actually, a set of questions came
20 out of the DoD, I believe, or maybe they were
21 put together between us and DoD. I think it
22 came out of some things that Karl asked us.

1 And I won't walk through all of
2 these questions. What we, hopefully, with DoD
3 will work through these questions and try to
4 answer them in the near-term. The near-term
5 being within the next month, we hope.

6 Some of us within the working
7 group are going to take an action to at least
8 begin to put answers to these questions, if
9 nothing more than straw man. But you can kind
10 of see some of the issues that the working
11 group is dealing with as it relates to using
12 databases to safeguard classified information.

13 A lot of the stuff we have been
14 working through, we have had some discussions
15 -- I wouldn't say briefs but discussion from
16 people somewhat in the know of the nature of
17 classified data. So, we are at least getting
18 a sense of what the issues we are facing.
19 These are the questions we are trying to deal
20 with.

21 If you look at slide five, the
22 next steps, and again, I won't read it. But

1 we are hopefully going to work with DoD on
2 this. Hopefully, the little bit of the heat
3 is up from the transition plan work and maybe
4 we can work with Karl or some of the folks
5 here in that regard.

6 And we will continue to try to
7 address the questions you saw in the last
8 slide as best as possible. And that will
9 generate the final recommendations.

10 And Larry put in a month. Maybe
11 Larry is going to do this but I think a month
12 is a little ambitious. No sooner than a
13 month. I can tell you that. But we are going
14 to try to get it done sooner than later.

15 Larry, did you want to add
16 anything to that?

17 MEMBER ALDER: No, I think that is
18 good. The month was -- not the word
19 "approximately" in front of it. So, I just
20 wanted to kind of say that we didn't want this
21 go to on indefinitely. We are going to take
22 a crack at the questions. This still is a

1 recommendation.

2 CO-CHAIR ROSSTON: Okay, comments
3 or questions?

4 Yes, Dennis.

5 MEMBER ROBERSON: Dennis Roberson.
6 A lot of the questions were really at least
7 addressed in the workshop that was held at the
8 FCC on the 3.5. So, I am sure we are going to
9 take full advantage of all of the information
10 that came out of that workshop.

11 MEMBER GIBSON: This is Mark
12 Gibson again. That is a good point. I think
13 the questions -- in the workshop, there may be
14 answers put to the questions. I'm not sure
15 they are definitive but I think it is a good
16 point to start at least looking for some
17 answers to the questions. So yes, we can
18 certainly use that and other public fora as a
19 way to gather some of the information.

20 So, that is a very good point.

21 Thanks.

22 MEMBER ROBERSON: Yes, Dennis

1 Roberson again. I think my point was not that
2 we grab the answers that we are given and run
3 with them because, as you point out, there
4 were a set of answers. But I think the
5 activity of the working group would be to vet
6 those answers and to prioritize them, suggest
7 things that really might work and things that
8 might not work out of the proposed solutions
9 that have been given.

10 But there is a great amount of
11 grist for the mill that has been provided out
12 there. And I think taking that as a starting
13 point and just listing all of the proposed
14 solutions, because at one point there was the
15 question are there solutions. And now it is
16 more there are a preponderance of solutions
17 but some of them, obviously, much better than
18 others. And to vet them I think is more where
19 the value would come from this working group.

20 MEMBER GIBSON: And this is Mark
21 Gibson again. There is other places to look
22 as well. There has been some interesting work

1 done, presented in the Winn Forum a couple of
2 weeks ago. There was -- and there was a DARPA
3 program going on called SSPARC, which is an
4 acronym which stands for basically spectrum
5 sharing of radar and communication systems.

6 There may be some work coming out
7 of that. DySPAN, which is an IEEE dynamic
8 spectrum environment seminar is next week.
9 There will be some interesting stuff coming
10 out of that. In fact, there is an entire
11 track in that on policy. In fact, some
12 people here may be leading some of that.

13 And so I don't think we are going
14 to be looking for ways to answer the
15 questions. I think the challenge is going to
16 be, as you said, finding a way to constrain
17 the amount of answers and make them useful.

18 CO-CHAIR ROSSTON: Tom.

19 MEMBER DOMBROWSKY: Tom

20 Dombrowsky. Just one thing I am struck by is
21 I think the enforcement transitional sharing
22 and now the spectrum management and databases

1 are now getting very intertwined, much more
2 than I thought we were going to be in the
3 first. And I think a lot of that has to do
4 with the fact that this portal idea has got
5 some legs.

6 And if you are going down and
7 putting resources towards that, it sort of
8 incorporates both of these as well. So, I
9 think we have to take that into account when
10 we look at these recommendations to make sure
11 the sort of three groups and we do have some
12 overlap, but there is some coordination there
13 to get to a common recommendation that sort of
14 incorporates all three of those issues
15 together.

16 CO-CHAIR ROSSTON: Karl.

17 MR. NEBBIA: Karl Nebbia. I just
18 wanted to mention a few things.

19 First of all, as we are having
20 this interaction back and forth trying to get
21 DoD actually to participate in the discussion,
22 they said well, first of all, take a look at

1 a list of questions that we have been running
2 in among ourselves that we feel like would
3 need to be satisfied in this environment for
4 us to move forward. And that is kind of like
5 how the list came about to present that.

6 My understanding and some of our
7 background in having this public access to
8 government databases is that, at least without
9 special approaches, you can't link public
10 access to a classified database. Now, I think
11 there are ways of doing it but it is not an
12 easy thing and not one that would probably be
13 in the hands of the commercial side users and
14 so on.

15 Sensitive is a little different.
16 In fact, we were able to put the 70, 80, 90
17 GHz system up because there were no classified
18 records. If there had been, we would have
19 done something different. But sensitive is a
20 different thing. You can have access to
21 sensitive information, as long as the users
22 can't get directly a hold of that information.

1 So, if they interact somehow with a database
2 that they can't actually get hold of, they may
3 have some flexibility there.

4 But ultimately, the government and
5 particularly DoD is going to want to know how
6 any information, if it is part of a database
7 system, how it is going to be controlled. We
8 talked about the portals right now.

9 Everything they are talking about is they are
10 going to be controlling their own data, not
11 that data is made available to the public.

12 So, that is a whole different system. But if
13 we are starting to look toward an SAS or maybe
14 there is a commercial entity running it, then
15 you create a different environment.

16 And as far as I know in the
17 workshop, a lot of that discussion was about
18 how the various levels of commercial users
19 would interact through the SAS, not so much on
20 how the government was going to get
21 specifically protected.

22 But so you get into these things.

1 It would be easy at 3.5 to create a database-
2 driven system where all the exclusionaries
3 were built into the database, nobody got to
4 transmit there. It is a much bigger thing if
5 you are actually going to be tracking ship
6 movements to determine when you can turn on
7 and turn off.

8 On the other hand, even though DoD
9 may say well, we don't want to play in that,
10 there is nothing stopping the commercial
11 community from lining the coastline with
12 monitors picking up when their radars are
13 coming into town. So, that would be a whole
14 -- that is mentioned in our questions and so
15 on.

16 So, those types of things could be
17 approached as well, if we don't want to go
18 this way, we go with some other commercially-
19 generated approach. So anyway, I think it is
20 a really important topic and the portal
21 effort, I think, at least from our standpoint,
22 represents the possibility of a whole new

1 future in spectrum management with federal and
2 non-federal interacting with each other and
3 getting around the traditional processes of
4 you take a license; you ship it to the
5 Commission; they ship it down to NTIA; they
6 ship it over to the FAS. You go through a
7 process and it goes back and so on. It could
8 be much closer to real-time in dealing with
9 real live information.

10 MEMBER GIBSON: Can I make just
11 one -- oh, I'm sorry.

12 CO-CHAIR ROSSTON: Dennis. Do you
13 want to respond and then --

14 MEMBER GIBSON: Let me just
15 respond to one thing. This is Mark Gibson.

16 The safeguarding of data for like
17 radar systems, I think this was -- because I
18 just did two of them in the Spectrum
19 Management via Databases Working Group. One
20 of the things, and maybe I didn't articulate
21 this very well, we are looking to is, again,
22 in the safeguarding of classified information,

1 the question is does that analysis get done by
2 a commercial entity or a non-commercial
3 entity? And if the analysis is done by the
4 non-commercial entity, then what information
5 is made available and what is done with that
6 information? That is the overriding question
7 we have.

8 I think we all got a sense
9 strongly that there is no way, even you can't
10 make classified data available through a
11 commercial system. So, the idea is how do we
12 fix that through a process where somebody,
13 maybe the federal guys are doing the analysis
14 and actually interfacing with the devices.
15 And in the Commission's workshop, there were
16 two companies that presented on this. I did
17 one of them for Comsearch and we talked about
18 something we called the Federal Spectrum
19 Access System or the Federal SAS. And then
20 Federated Wireless presented something that
21 they called the Federated SAS. And we didn't
22 talk to each other beforehand.

1 But both of us presented the
2 concept of that specific thing where perhaps
3 the federal or at least a federal-authorized
4 third party is doing the analysis,
5 safeguarding that data, and then possibly even
6 going so far as interfacing with devices,
7 perhaps maybe through the commercial SASSs.

8 So, there is a lots of ifs in that
9 but that is part of what we are trying to look
10 at. And I am reminded at what Tom said
11 because we are talking kind of about the
12 portal and the databases sort of all in the
13 same context, yet there are two different
14 working groups. So, maybe we changed it. I
15 don't know.

16 CO-CHAIR ROSSTON: Dennis.

17 MEMBER ROBERSON: Dennis Roberson.
18 I think we don't want to be prescriptive here
19 but I think this notion that Mark and others
20 have suggested of having an SAS system that is
21 bifurcated, where there is a classified side,
22 a government controlled side. It may not even

1 be classified. It may just be all the
2 government spectrum that is held within the
3 government and then information through a
4 process as presented. And it may be totally
5 obfuscated in order to insure the safety. And
6 that obfuscation even can be changed with
7 time, if we are in a period of high alert
8 using the Homeland Security kinds of alert
9 structure. We might tune up the obfuscation
10 so that there is a significant level of
11 obfuscation, even to the extreme of anywhere
12 there might be a ship, you know, don't go
13 there. Whereas, in other time periods, it
14 could be relaxed and the spectrum be made more
15 available.

16 But I think that control within
17 the government side is an important concept in
18 the whole SAS that we really ought to deal
19 with. And I think that it is even in the
20 benefit of the government side to have such a
21 system to discourage commercial folks from
22 lining the coast with the antennas that you

1 described because you would rather not have
2 that circumstance and it will be much easier
3 and much less expensive for the commercial
4 entities if they get the information they need
5 and are able to use it. So, that would be
6 moving the ball down the path. We don't want
7 to go too much further probably from the
8 working group standpoint but I think that
9 begins to sketch out some of the direction
10 that we need to be taking.

11 CO-CHAIR ROSSTON: Karl.

12 MR. NEBBIA: Karl Nebbia. Just
13 one thing I wanted to mention along that line.
14 I think that approach works really well under
15 the PCAST concept that there is going to be a
16 lot of spectrum available. And when these
17 things come along and say I am turning you off
18 in this sector in this frequency range, that
19 that works great.

20 If you end up with vendors who say
21 I have invested in 3.5 to 3.6 service and that
22 is my business, and then are you are wiping

1 them out for periods of time or we have a
2 declared, like you said Homeland Security
3 issue where suddenly all the exclusion areas
4 are enforced as they are, people completely
5 lose their business access, you are going to
6 get a lot of complaining. I think that kind
7 of thing is a concern to the government. They
8 want to be sure that there is sufficient room
9 and flexibility in this that when they have to
10 interact with it, it is not going to result in
11 immediate complaints by people. So, they are
12 losing their service because the government
13 has suddenly done something. It has got to
14 have room to work and tying into other bands
15 and other access and that sort of thing.

16 So, thank you.

17 CO-CHAIR FONTES: Any other
18 comments?

19 Great, our next person up will be
20 Janice, dealing with the issue of federal
21 access to non-federal bands.

22 MEMBER OBUCHOWSKI: Okay, we have

1 a report and we also have a slide. If you
2 look at both the -- we did not achieve
3 consensus on, I think, some material points.
4 And so especially in the report, but even in
5 the slide where you will see some brackets,
6 basically reflecting work and contribution
7 that we left on the record but we are not sure
8 it is going to go forward to the ending
9 document.

10 We certainly tried our best to
11 answer the questions on the table. I believe
12 we met telephonically a minimum of eight times
13 since September. I thank all the people on
14 the group, Steve Sharkey/Tom Sugrue, Mary
15 Greczyn, who is my Steve Sharkey.

16 (Laughter.)

17 MEMBER OBUCHOWSKI: Shut down the
18 commentary, guys. Shut down the commentary
19 before it even starts.

20 Carl Povelites, Bryan Tramont, and
21 Bryan you had able assistance from a few of
22 your colleagues on the calls, Michael

1 Calabrese, Jennifer Warren, who co-chaired
2 with me, and also I want to give a shout out
3 to Karl Nebbia, who joined the call to answer
4 some questions for us. There are a few
5 members of the OSM staff that also
6 participated in the process.

7 Basically, NTIAS asked us four
8 questions. They are on the next slide.

9 What methods can be used to allow
10 federal agency access of non-federal bands,
11 particularly for large, intermittent exercises
12 and emergency use?

13 Would federal users be expected to
14 pay for this temporary spectrum access?

15 Would such access only be
16 available if the non-federal licensee does not
17 have an immediate, short-term or long-term
18 need to operate in the spectrum and location
19 in question?

20 And then number four, what band
21 and location combinations can support large
22 federal exercises or emergency use?

1 Actually, we sought guidance from
2 Karl and then decided to kind of remove four
3 from consideration. This is a complex topic
4 enough and there is almost countless potential
5 band combinations. So, going forward, we will
6 very willing to look at specific combinations
7 of specific issues that present.

8 In fact, Karl sort of put us back
9 on to the band and combination that is going
10 to be on the FCC docket Monday the AWS-III
11 auction band plan. And basically what that
12 yielded is a lot of brackets because when it
13 really comes to something such as that, the
14 rubber begins to meet the road. And I think
15 the substantial areas of disagreement between
16 people who are heavily oriented toward sharing
17 and people who see the value of dedicated
18 spectrum really kind of, that issue was joined
19 rather strongly.

20 I have to congratulate everybody
21 in the group for the caliber of the comments,
22 as well as the civility with which we

1 approached some pretty dicey issues in this
2 field.

3 I also want to make a couple of
4 remarks. One is that some of the work this
5 group did accomplish and probably needs to be
6 memorialized somewhere is getting some
7 foundational issues out on the table.
8 Frankly, there is not a whole lot of public
9 knowledge about how the NTIA rules work or how
10 NTIA interfaces with FCC. And just specific
11 rules like I guess is it in the Red Book,
12 2.103, which pertains to public safety, which
13 kind of opens up much more sharing in that
14 context in certain conditions.

15 That just was a rule, really, that
16 I can't say I knew much about. It might be a
17 template for other forms of kind of short-term
18 sharing. But again, I don't think almost
19 anybody, perhaps Jennifer and a few others
20 might have even known about this rule.

21 And then sort of a basic question
22 well, how does the FCC operate in unlicensed?

1 Honestly, I never really thought about it too
2 much. I mean how does NTIA operate? It turns
3 out, and Karl, you can correct if I am wrong,
4 non-federal users can operate like any other
5 unlicensed user.

6 And going forward, as we look at
7 these kind of different types of licensed
8 bands that also may operate, and I think all
9 of us in the group may agree, that may operate
10 as something of a safety valve in terms of the
11 world in which these two kinds of services,
12 both attain value.

13 And then frankly, we got sort of
14 bogged down. I mean there are a lot of
15 different theoretical ways that feds can
16 access commercial spectrum. And the question
17 becomes are they workable, how do they work.
18 So, we wound up spending quite a bit of time
19 just getting on paper a taxonomy of different
20 ways that federal users can access commercial
21 spectrum.

22 And I would salute Carl for

1 getting a lot of that work on the table, Carl
2 Povelites. And then I always say I did it but
3 I have to say it is my Steve Sharkey, Mary
4 Greczyn, who helped me with putting this into
5 a much more -- well, for me, anyway, a more
6 accessible way. Just basically a chart which
7 may or may not make it into the final document
8 but it kind of breaks out the different kinds
9 of methods that are on the table.

10 And of course, there was a
11 difference of opinion in our group as to how
12 useful these methods are or are not, why they
13 work, why they don't. But at least we got
14 that out on the table.

15 So, then to the sort of bottom
16 line up-front, areas of agreement. The
17 question of should feds pay for temporary
18 access, the answer is, it depends. It depends
19 on the nature of the commercial spectrum,
20 presence of incumbents, impact of incumbent
21 operations, time period.

22 I would say those who are more or

1 less in the broader sharing camp would say
2 time periods ought to be extended. Because if
3 you are talking about federal investment in
4 the technology, the idea that maybe you can
5 use it for a week could be useful but it may
6 not give you the requisite confidence to put
7 something through the, obviously, cumbersome
8 federal budgetary process. But anyway, time
9 periods.

10 Taxonomy of potential methods for
11 federal access to non-federal spectrum, we
12 basically agree on the methods. We had some
13 difference about how useful they were or how
14 they would work historically. That debate
15 went on quite a bit about secondary markets.
16 Federal, at least contracts to federal users,
17 and potentially the rules can be changed that
18 federal users could buy -- there is, I think,
19 legislation on this, you know buy on the
20 resale market commercial use.

21 Clearly, that is going to move
22 forward. But there is a general agreement on

1 the constructs.

2 Approaches to evaluate whether
3 access is only available if non-federal
4 licensee does not have a need to operate in
5 the spectrum. And again, there were the folks
6 on the committee that were in the use or share
7 camp. And then were there those who would be
8 more likely to say well, you know, we know how
9 the game of spectrum is played. We like
10 optionality. We bought and paid for this
11 spectrum and we may not be planning to use it
12 tomorrow but we may want to sell it tomorrow.

13 And the new buyer may not be happy
14 to have a variety of federal squatters in
15 there. Not the words used. That was my
16 vernacular.

17 But in general, we agreed on that.
18 We also agreed that going forward, it would be
19 good to have an NTIA-FCC statement of
20 principles for this kind of sharing, at least
21 a place to begin. And we agreed that we
22 should work toward modification of existing

1 FCC and NTIA rules, kind of getting to the
2 point about the Red Book.

3 Since we are going to be in a
4 world of better sharing, however comprehensive
5 or not it may be, the rules probably on the
6 NTIA side and the FCC side have to be
7 sharpened up.

8 As far as non-consensus, the big
9 one I guess I would say was the implementation
10 of sharing principles in open proceedings.
11 That is where the rubber meets the road and it
12 is harder to talk theoretically.

13 And then in the possibility of
14 including in the federal NTIA-FCC sharing
15 principles, a guiding principle and factors
16 that would be needed to facilitate sharing
17 agreements.

18 So, we looked at the summary of
19 options, options to encourage sharing. One
20 were the big the one we have already covered
21 is the policy statement. Modifications to
22 existing rules are one of the options, which

1 would be a possible expansion of rule 2.103 of
2 the Red Book, which is the one I mentioned
3 about public safety being extended to apply to
4 other kinds of federal use of commercial
5 spectrum and potential updates to the FCC
6 secondary licensing regulations to broaden
7 eligibility to federal entities.

8 Right now, if you want access to
9 that spectrum, you would typically go through
10 your contractor, find a contractor who will
11 buy the spectrum and then it is a business
12 deal with that contractor. That may or may
13 not be the only desirable outcome.

14 And then putting brackets around
15 implementation of sharing principles and open
16 proceedings. There have been some proposals
17 put on the table, including by NTIA. That was
18 just kind of too hot to handle. We handled
19 it, we just couldn't really agree.

20 So then we got into potential
21 methods of access to non-federal bands. They
22 are basically articulated here. Secondary

1 easements, license rights, voluntary
2 licensing, modifications by incumbents,
3 depending on whether it is a short or a long-
4 term lease. Involuntary by incumbents. Is
5 there ever a sort of eminent domain that
6 should go to work in the spectrum environment?

7 So, we have articulated on the
8 next slide considerations, taxonomy. You will
9 see nothing is simple, we know, in the
10 spectrum environment. When you start talking
11 about sharing, all of these factors become
12 relevant. Time periods, size of area,
13 demographics, how much spectrum, best band for
14 intended purpose, nature of federal access,
15 nature of use. I mean that is just kind of
16 part of it.

17 Question of paying, Jennifer is
18 probably winging her way to Dubai but she kind
19 of herded us to some good conclusions on
20 payment, I think areas of kind of common
21 vision that if the access is temporary, that
22 there is no planned or existing incumbent

1 operations, no major constraints on
2 incumbents, didn't feel the need to -- nobody
3 felt the need to exact payment. And somehow
4 we need to codify that, I guess. I typically
5 happens in an STA environment. So, I think it
6 sometimes happen in real-time.

7 And then the question of temporary
8 potential impact on incumbents. There is, of
9 course, resistance to not paying in that
10 environment. Secondary markets, regulatory
11 framework are potential options going forward.

12 And then the question of permanent
13 options. And that, again, kind of gets to one
14 of the problems I think that federal systems
15 serve with these sort of intermittent
16 solutions because unfortunately, their budget
17 cycles are not particularly fluid.

18 Access to share license spectrum,
19 existing shared spectrum, again, quite a bit
20 of agreement around the fact that if it is
21 temporary and non-impacting, no need to pay.
22 I think there is a lot of good will around

1 that. As the access gets ratcheted up, the
2 concern about payment, obviously, does as
3 well.

4 The next page, question three,
5 access only if non-federal licensee does not
6 have a need to operate in the spectrum. Well,
7 I think that was an area of disagreement. A
8 lot of considerations to really focus on to
9 see if there is really a conflict or whether
10 this is kind of perhaps overly conservative
11 judgment.

12 Is the access going to be
13 geographically restricted? Is it going to be
14 -- is sharing going to be temporal in time?
15 Secondary market mechanisms, are they
16 available? How useful? And how the service
17 provider relationships might work this
18 through.

19 Again, I think service providers
20 have indicated some willingness. It always
21 depends, I suppose, on the specific carriers,
22 the circumstances and also the issue of

1 optionalty.

2 I think optionalty is the
3 toughest issue of all. Very few people who
4 have licensed spectrum are anxious to give up
5 optionalty. And that is kind of an
6 understandable concern.

7 And then finally, this combination
8 of bands we just didn't reach it. There were
9 just too many variables. And the one band
10 right on the table was just, I think probably
11 a little too hot to handle in this committee
12 and there were very strong differences of
13 opinion.

14 So, that concludes our report.
15 And any other committee members like to
16 comment?

17 Tom.

18 MEMBER SUGRUE: On the use of
19 temporary access, you mentioned the STA.

20 MEMBER OBUCHOWSKI: Right.

21 MEMBER SUGRUE: And the STA
22 environment normally contemplates notice to

1 the licensee that would be granted to the STA
2 and that would be important to us. And we
3 grant STAs in those circumstances but I just
4 wanted to clarify that. It is a little
5 clearer in the report.

6 MEMBER OBUCHOWSKI: I'm sorry.

7 MEMBER TRAMONT: Bryan Tramont.
8 When you look at the text of the report where
9 we talk about access to exclusive license
10 spectrum temporary where no planned or
11 existing incumbent operations and/or no
12 constraints, et cetera, et cetera, all those
13 things contemplate an assessment by the
14 licensee.

15 And so I think it is really
16 important to emphasize that it would have to
17 be in consultation with. It is not an
18 independent action.

19 MEMBER OBUCHOWSKI: Any other
20 members?

21 CO-CHAIR ROSSTON: Karl.

22 MR. NEBBIA: Okay, Karl Nebbia.

1 The only thing I ask, Janice, as you finalize
2 the work, is that you would look at each of
3 the things that you have recommended and look
4 to see that they stand out as individual
5 recommendations.

6 MEMBER OBUCHOWSKI: Okay.

7 MR. NEBBIA: So, if I have asked
8 you what are the methods in the end,
9 unfortunately, it has to be written in, we
10 recommend that these specific methods be used
11 when considering the possibility of
12 federal/non-federal sharing or something along
13 that lines where it actually turns it into a
14 pure recommendation, as opposed to kind of
15 text hidden within the list.

16 And I should mention here
17 certainly under current rules, when federal
18 agencies work in non-federal spectrum, they
19 still have to get an authorization from NTIA
20 and vice-versa. They have to get a -- the
21 non-federals have to get an authorization from
22 the Commission to operate in our spectrum.

1 We do have places where we
2 actually share spectrum and infrastructure,
3 primarily with public safety entities, where
4 they have MOUs and maybe we provide the
5 spectrum and they provide the polls around the
6 state and so on that the feds take advantage
7 of.

8 Recently, under a number of
9 emergency circumstances where the local
10 infrastructure has been temporarily wiped out,
11 the government has come in with cell on wheels
12 systems that in fact, at least in the initial
13 operation were only there to support federal
14 public safety people getting into the
15 environment, so that they, basically, created
16 their own cell on wheels system to start doing
17 relief work. But as soon as the carriers were
18 coming back up, they were supposed to get off
19 of those channels.

20 The great thing about is they went
21 in with AWS or cellular systems, where they
22 already had the cell phones from working with

1 them normally. And they would just go into
2 the area the cells would work and they could
3 talk through them and so on. But we have got
4 to set up a way that really clear that they
5 get out as soon as the cell system starts
6 coming back up.

7 But I think the biggest issue,
8 however, is if we are going to continue to
9 talk about the inefficiency of government use
10 and the reality that they have got sporadic
11 requirements for the most part but can have,
12 either on an emergency basis or certainly on
13 a major operation training basis, that sort of
14 thing, intense operations that you don't want
15 to reserve the spectrum for, then you have got
16 to come up with somewhere for them to go. And
17 the answer can't be go up to 10 GHz or 20 GHz.
18 They have to be able to -- they are looking
19 for mobile operations the same way you are.

20 So, we have got to look at this
21 very closely and see what the way forward you
22 will note in the record in AWS-III, our letter

1 saying that DoD, the largest proponent of
2 this, had to, themselves, step back and say we
3 are not quite ready to grasp it yet.

4 So, it is a significant issue, one
5 I hope we can move forward. But thanks for
6 your work, Janice.

7 CO-CHAIR ROSSTON: This is Greg
8 Rosston. It seemed like the idea of no
9 payment was when there was no opportunity
10 cost, sort of the language of that, I think
11 should sort of find its way into the report in
12 thinking about when you do cause an
13 opportunity or not cause an opportunity cost.
14 That would be my suggestion on that.

15 Did I just preempt what you were
16 going to say Harold?

17 MEMBER FURCHTGOTT-ROTH: Only a
18 very small part of it.

19 CO-CHAIR ROSSTON: Okay, go ahead.

20 MEMBER FURCHTGOTT-ROTH: This is
21 Harold Furchtogott-Roth. First of all, I was
22 not on the committee and I commend the

1 members. There are some very difficult issues
2 you all have been grappling with and I think
3 this is a very reasoned presentation that you
4 put forward and I think we are all learning
5 from it.

6 I would urge you to think about a
7 couple of things. One is that I think to some
8 extent one way of looking at this issue is
9 does the federal government have a different
10 legal status than another entity in society
11 that wants to use that firm -- that wants to
12 use non-commercial spectrum either in the
13 secondary market or an STA?

14 And I, personally, think there is
15 good reason to say yes, that the federal
16 government should have some elevated priority
17 status. And I think most licensees would be
18 more willing to try to accommodate a federal
19 user than another commercial user or something
20 like that.

21 The other is, and I think this
22 goes to Greg's comment as well, I think the

1 language of the report that we ultimately
2 approve needs to be carefully considered to
3 not send any type of unintended negative
4 signal to people thinking about making
5 investments in spectrum; that they not think
6 that the government is somehow inadvertently
7 going to think about things such as looking at
8 whether spectrum is unused commercially. That
9 term, unused commercially will send very
10 negative signals to investors in commercial
11 spectrum. They will think that people are
12 going to be looking at how intensively the
13 spectrum is. And I realize the language may
14 say this is a judgment made by the licensee
15 but it is completely unintended.

16 And I think that what could be
17 done to actually potentially enhance the value
18 of the spectrum is to say look, a lot of this
19 is about how can federal government users get,
20 let's say to the front of the line in
21 consideration for STAs, or get to the front of
22 the line in secondary markets, get to the

1 front of the line in terms of emergency use.

2 And I think everybody would be in
3 favor of that. And I think at the same time,
4 what you don't want to do is inadvertently put
5 language out that is going to cause doubts in
6 investors' mind about the bundle of rights
7 that they are going to be investing in with
8 the spectrum license.

9 CO-CHAIR ROSSTON: Other comments?
10 Dennis.

11 MEMBER ROBERSON: Dennis Roberson.
12 I thought that was a terrific report. I
13 think, Janice, you and the team did a great
14 job in wrestling with an extremely difficult
15 and sometimes almost intractable problem but
16 I think it is a really worthy problem as well.
17 And Karl, you said it very well as for
18 continuing to find ways to utilize this scarce
19 natural resource of spectrum. It has to be a
20 shared problem.

21 But my one item of disappointment
22 is that we actually didn't address the

1 question four. Because I think that question
2 four really is where the proverbial rubber
3 meets the road. And I think maybe there
4 aren't solutions there but at least coming to
5 a point of looking at the one that everyone
6 was worried about, the cellular bands, but
7 also looking at the land mobile bands, looking
8 at, I will go over one of my own personal
9 options, the educational bands that are out
10 there. There are lots of places to look and
11 to give the pros and cons. And I think going
12 to that level would be really quite valuable.
13 And it doesn't have to be every band but there
14 are enough bands that just getting a template
15 of the pros and cons, the value which has
16 already been mentioned, if you are operating
17 in a cellular band, you can use cellular
18 devices. There a plethora of devices so that
19 is a natural plus. A natural minus is you
20 have people who have paid a lot of money for
21 those bands and really want to preserve the
22 value and the opportunity costs and all the

1 rest.

2 But trying to go through that on
3 the bands I think really would be a very
4 valuable exercise, maybe not coming to
5 conclusion but simply registering the pros and
6 cons to sort of put a little bit of reality
7 into the landscape and even the unlicensed
8 bands, since I am sitting next to Michael.

9 Does that make sense to others or
10 no?

11 MEMBER OBUCHOWSKI: Yes, it does.
12 It does. It is, as I say, the one band that
13 was most on the table was kind of too hot to
14 handle.

15 MEMBER ROBERSON: Sure, but there
16 are lots of other bands.

17 MEMBER OBUCHOWSKI: And there are.
18 And you know you do look at it differently,
19 depending, no auction versus non, et cetera,
20 et cetera.

21 But yes, we should do that. We
22 can do that.

1 MEMBER ROBERSON: And even in TV
2 bands. A lot of places that are of interest,
3 television is not -- the channels are not
4 there. And TV White Space, the fact that it
5 is TV White Space that you are now taking --
6 the federal government taking the lead on the
7 TV White Space.

8 MEMBER DOMBROWSKY: Just stand in
9 line.

10 MEMBER ROBERSON: Sorry, David.

11 (Laughter.)

12 MEMBER ROBERSON: I just wanted to
13 make sure that everybody talks equally around
14 the table, unlicensed, it is educational
15 bands. Hit all of them.

16 MR. NEBBIA: We'll be going twice
17 already.

18 MEMBER CROSBY: Mark Crosby.
19 Really want to mention the amateur bands.

20 MEMBER ROBERSON: Sure. That is
21 one I failed to -- I'm sorry.

22 CO-CHAIR FONTES: Any other

1 comments for Janice? Great.

2 MEMBER OBUCHOWSKI: Now, we will
3 continue to grind away at this. And I take
4 your point, Dennis, about perhaps coming up
5 with a couple of case studies and just putting
6 the pros and cons on the record.

7 MEMBER ROBERSON: Yes, at that
8 level.

9 CO-CHAIR ROSSTON: Great, thank
10 you.

11 So, we have spectrum sharing and
12 cost recovery. Is this you, Michael? Do you
13 have a report?

14 MEMBER CALABRESE: Yes, let me
15 give -- it can be very quick because,
16 unfortunately, we haven't moved forward very
17 much. Mostly my fault for being too busy just
18 recently.

19 But also, we reached the point
20 where we decided what we needed was really
21 more research into a number of options and I
22 have been doing some of that. Then we found

1 out that OSTP was putting out its paper on
2 alternatives, you know incentives for federal
3 users by the Institute for Defense Analysis,
4 which I would recommend for people. It is a
5 good compilation of things about basically
6 incentives. And it picks up, to some degree,
7 where our Incentives Subcommittee had left
8 off.

9 And so they were actually -- that
10 came out last month, they were actually going
11 into a lot of the same things that we were
12 considering. Although it is interesting, as
13 it turned out, they actually didn't get much
14 further than our various efforts have because
15 they ended up, I think in terms of cost
16 recovery, they ended up talking about
17 emphasizing primarily to generalize the
18 spectrum relocation fund, which our Incentive
19 Subcommittee -- in fact they cite and quote
20 our Incentive Subcommittee from 2011, talking
21 about a spectrum incentive fund and how that
22 might operate. And then they also said that

1 the PSCAST had built on that and they talked
2 about the PCAST had recommended spectrum
3 currency as sort of a proxy for federal
4 spectrum user fees. And then to have a
5 spectrum efficiency fund, where you could sort
6 of redeem that for actual reimbursements. And
7 they also talked about dynamic federal
8 secondary markets, which could generate
9 potentially funds.

10 For example, under the PCAST
11 three-tier approach, the priority access
12 licensees, if you are going to pay for a pal,
13 such as the Commission has recommended now for
14 3.5, conceivably, some of those funds could go
15 into a fund like this.

16 So, these were among the things we
17 were already discussing and we wanted to see
18 if they shed a lot of light, since that was
19 already coming out and was, obviously, going
20 to be a more comprehensive look than we would
21 be able to do in a short time as a
22 subcommittee.

1 But I think that now that we know
2 where that stands and we can look at the
3 comments that have been filed, I hope that you
4 haven't asked Tom Power yet if they can share
5 that, but I think they do plan to post that
6 online. We can look at those comments and go
7 forward from here. So, we definitely will rev
8 that up and try to get some recommendations,
9 certainly by the next meeting.

10 MEMBER OBUCHOWSKI: I would want
11 to make an observation on that study. I
12 haven't read it in sort of totally close
13 fashion. I think there are some interesting
14 ideas. I have to say I don't know that they
15 even interviewed the federal users in writing
16 it. And in terms of talking about things
17 where the rubber doesn't meet the road, some
18 of these ideas, while they were theoretically
19 interesting, don't kind of add up. It is
20 really hard -- and I think people are trying
21 to grapple with this. But a lot of these
22 ideas like spectrum currency, et cetera, et

1 cetera, they have been tried in the UK. You
2 know, secondary market on federal spectrum
3 tried in the UK, essentially, have not worked
4 anywhere near as well as the theoreticians
5 have them work, partially because when you are
6 talking about a federal band, you are talking
7 about ten different users from ten different
8 agencies and eight might be very happy to
9 leave for a price and two don't.

10 So, I found that that report was
11 kind of a little bit symptomatic of what
12 happens whenever people talk about federal
13 users. They bring a set of theoretical biases
14 to the table they amplify upon and then they
15 make it sound like gee whiz, had these people
16 only been as smart as to come up with this
17 earlier, it would have already happened.

18 There are reasons why this isn't
19 terribly workable and particularly in an era
20 of down-turning budgets. You know as in
21 companies, people fight for budget. There
22 they fight for budget. I know that I think

1 Intel has a proposal. They are kind of
2 walking where you could sort of put some of
3 these funds into a federal project that would
4 not happen in the budget circumstance but for
5 this.

6 I mean if you are in an agency and
7 you have got a program and you know you are
8 going to give away that spectrum but you know
9 that the funds are going to go to a submarine,
10 you are going to fight like heck.

11 So, those are the sort of
12 realities I think that a lot of times when you
13 put a study out there, it sounds pretty good
14 but it is better as a doctoral dissertation
15 than as a living document.

16 MEMBER CALABRESE: Yes, your
17 comment --

18 MEMBER OBUCHOWSKI: I mean it is -
19 -

20 MEMBER CALABRESE: No, I agree
21 with you. In fact, one of the most major
22 things that is overlooked in many of these

1 proposals that look good on the surface is
2 what Karl often shares here, is that the
3 federal users are already sharing. You know
4 you have so many different federal users in
5 the same band, which we all found, to our
6 chagrin, in 1755, where it so damn
7 complicated. Right? Because there is so many
8 different federal users. But that also
9 complicates many of these other solutions.

10 So, at the same time, though, I
11 think this spectrum sharing cost recovery, it
12 is increasingly clear how important it is at
13 the same time. Because not only -- you know,
14 I think the motivation to some degree, or the
15 mandate that we were given in the NTIA
16 question was concerning I think particularly
17 unlicensed, if you are going to allow general
18 authorized access, where nobody is actually
19 paying at an auction, for example, where do
20 you find the money to reimburse federal users
21 for the cost of that.

22 But the need for that cost

1 recovery, it would also be very good,
2 obviously, for promoting federal spectrum
3 efficiency, whether or not there is commercial
4 use because often the federal users don't have
5 the incentive to operate more spectrum
6 efficient, if that would increase their cost
7 without promoting their mission.

8 And then earlier we talked about
9 enforcement. So, if the cost of enforcement
10 for sharing is substantial, where does that
11 come from? Because you can't ask the federal
12 users to pay for that. And it is not clear,
13 maybe the FCC can begin to pick that up but,
14 if not, it would be nice to have a revolving
15 fund that might also be used for some of those
16 costs.

17 MEMBER OBUCHOWSKI: This is Janice
18 Obuchowski. I do think that is a legitimate,
19 very legitimate topic of the study and it kind
20 of keeps coming back as a theme.

21 I mean any degree of sharing is
22 going to require vastly more sophisticated

1 enforcement. And who is going to pay for
2 that? Not to mention this isn't cheap
3 capital. This is human capital and really
4 pretty sophisticated human capital that you
5 are going to be shopping for as a government
6 agency against companies that can pay pretty
7 well for the type of people that are going to
8 do this work. And then the portals and all
9 that kind of work is also extremely, you know
10 relatively expensive to put together and the
11 R&D.

12 So, what you find so far is some
13 of the best work tends to be done, you know
14 CISCO did a report that was in the 5 GHz band.
15 People that have a major vested interest are
16 willing to put the bucks up and then the ball
17 gets advanced but we don't see too much of
18 that. So, to the extent that somebody can
19 come up with an answer for more consistent
20 funding, it would be a good idea.

21 CO-CHAIR ROSSTON: Thank you. Any
22 more comments? It must be 2:20 now. I will

1 turn it over to Karl.

2 (Laughter.)

3 MR. NEBBIA: I am going to speak
4 very fast. I just want to very quickly, this
5 recent time has been unlike any other in my
6 tenure. We have had three major rulemakings,
7 AWS-III, 3.5 GHz, and 5 GHz all kind of in
8 process at one time, certainly a huge
9 challenge for NTIA and our staff and the
10 federal agencies to stay up with each of those
11 issues where they are directly engaged in
12 those.

13 Some of them, of course, 5 GHz
14 involves World Radio Conference preparations.
15 On top of that, the AWS-III activity right now
16 certainly, the main activity there has been
17 the bringing together of the transition plans
18 for the agencies and walking through that
19 process, trying to identify ways of providing
20 information that would be to the best
21 advantage of everyone, at the same time
22 protecting government information.

1 So, we have got those three main
2 activities going on right now. There is a
3 host of others but I just wanted to highlight
4 the fact that I cannot ever remember having
5 three major rulemaking kind of activities that
6 involve federal and non-federal activities
7 together at the same time. And it has been
8 just a huge, huge resource draw and, I think,
9 really demanded everybody's efforts.

10 So, that is my essential highlight
11 on where we are.

12 We are nearing the completion of
13 our annual report from last year and the thing
14 that has held that up is the fact that the
15 Presidential Memo required us to draft this
16 quantification use plan. So, we are wrapping
17 that up and it has gone through interagency
18 review. So, we hope to have that out soon so
19 you will know how we are taking on this kind
20 of quantification of government use
21 activities.

22 I should also note that some money

1 was provided to our ITS office dealing with
2 some of the measurement pilot concept, except
3 it wasn't at the levels, I think, that we had
4 requested. So, I think most of their work
5 right now is focusing on the 3.5 GHz range.
6 They have been doing a lot of testing of LT
7 technology and radars together that ultimately
8 will facilitate that but certainly not the
9 broad range of how do we set up monitoring to
10 run as a general pilot to prove all those
11 concepts and so on. But, nonetheless, that is
12 moving forward.

13 So, that is -- we have already
14 talked about the Incentives Report that the
15 White House is working on, so I don't see the
16 need to hit that further.

17 So, I am ready to go on to the
18 next subject, unless people have questions for
19 me.

20 CO-CHAIR ROSSTON: Dennis?

21 MEMBER ROBERSON: Dennis Roberson.
22 I guess this last one that you have made on

1 ITS and the work focused on 3.5, it is
2 understandable where the focus was but I
3 thought that there really was a mandate for
4 you to come back with something on this multi-
5 city spectrum observatory kind of system. Is
6 that in abeyance or because the funding didn't
7 come in?

8 MR. NEBBIA: That was our budget
9 request. The finances that came back were not
10 on that order. So at this point, I think this
11 is the approach we are taking. It has been
12 requested, I believe, again, in the next
13 budget to take on more broadly. So, it is not
14 something that we want to walk away from but
15 we can only pursue what we can pursue with the
16 funds that we have gotten.

17 MEMBER ROBERSON: It was in the
18 President's budget proposal but it just didn't
19 ever make it to you.

20 MR. NEBBIA: That is right. So, a
21 lot of those things that make headlines early
22 that don't necessarily make headlines at the

1 end.

2 MEMBER ROBERSON: Right.

3 MR. NEBBIA: So, the other thing
4 we wanted to talk about this idea of
5 industry/government collaboration. And this
6 came, Mark had mentioned earlier during his
7 report, kind of got stirred by a discussion,
8 I believe, from Tom Dombrowsky in the
9 conversations there about transitional
10 planning, I think and this whole idea of where
11 do we go in the future. It is one thing to
12 have a specific band, a specific group of
13 people but is there some forum that we could
14 create to talk about this in future?

15 Tom, I don't know if you want to
16 expand a little bit. I have a series of items
17 I would just like to point out to people down
18 this line we might want to consider but it was
19 your thought.

20 MEMBER DOMBROWSKY: Yes, I mean I
21 will just very briefly. This is Tom
22 Dombrowsky.

1 The idea was, from my perspective,
2 was this working group process has been very
3 beneficial, I think for everybody, at least
4 from an educational perspective. And we had
5 FCC and NTIA participation, as well as
6 commercial and federal participation. It
7 seemed to me that it would be a good idea to
8 almost institutionalize this, not at that
9 working group level but maybe at the next
10 level up or a higher level, where we have
11 discussions on a regularized basis, where
12 folks can future plan. So, we are not being
13 reactive but being more proactive towards
14 looking towards issues where the commercial
15 guys can tell them what they are working,
16 federal guys can tell what they are working
17 on, and sort of compare notes and sort of
18 figure out where we are headed together.

19 That is the high level and I know
20 you have specifics, Karl.

21 MR. NEBBIA: Yes. So, first of
22 all I just wanted to mention to everybody

1 Bruce had provided it. It is up on the
2 website. This document -- sorry, I pulled up
3 the wrong one there. There is a document that
4 has the lessons learned summary from that
5 meeting and we are not going to actually cover
6 that. But I just want you to -- this was
7 pulled from a long transcript that was well
8 over a hundred pages long of those meetings.
9 So, please take a look at that.

10 But we are going to take these
11 inputs and we are going to begin to have
12 internal discussions about what we got from
13 that and how we would approach that in the
14 future, whether through other working groups
15 or whatever. So, that is what we are going to
16 be doing with document in an ongoing sense.

17 But it also brings me back to this
18 idea that Tom had. Where do we go in terms of
19 the long-term discussion, bigger picture view
20 of what bands are there out there? Can we
21 have initial discussions about them? Because
22 our tradition is Congress says hand over 300

1 MHZ. So, then we go into the closet and start
2 trying to find 200 MHZ. And sometimes it is
3 like you find an old sock. Somebody said turn
4 over some clothes. So, we found an old sock
5 in there. So, that can be turned over.

6 But the reality is we want,
7 actually, to be able to provide spectrum that
8 is meaningful to people, not just that is the
9 easiest to give away. I mean that is part of
10 the challenge.

11 So, I think we need to ask
12 ourselves these questions. What kind of forum
13 could we create that would, in fact, meet this
14 requirement and stir this dialogue? Would it
15 include only people who are interested in
16 doing licensed carrier work or is there a
17 similar role for maybe the same forum or a
18 different forum for talks with the unlicensed
19 community about what the opportunities might
20 be?

21 There was actually a lot of
22 conversations I think went along with some of

1 the Wi-Fi proponents, long before we started
2 looking at the 5 GHz band this time around but
3 it was kind of very people coming in wanting
4 to meet with us, share ideas, and that sort of
5 thing but certainly not a formal forum or
6 process.

7 So, we have to ask ourselves what
8 is the purpose of it? Who should be involved?
9 How do we identify bands that are of interest
10 to industry? I mean I remember when we put on
11 3.5 to 3.6, you would have thought somebody
12 put out a rotten egg. Let's be honest about
13 it. Now, there is a lot of interest in it.

14 So, it is not a static situation,
15 let's face it. But it would be a good idea to
16 actually be talking about what bands people
17 are interested in.

18 And the same way, just to step out
19 on a limb, we are talking about the incentive
20 auctions on the broadcast bands, people saying
21 this is what I am interested in paying; this
22 is what I am interested in giving and maybe

1 have that kind of discussion that comes out in
2 the end.

3 So, I think we need to talk about
4 that. Obviously, in our world, we can't set
5 up organizations that provide consensus
6 recommendations without the formality of these
7 kinds of processes. On the other hand, we
8 want to have that kind of conversation and we
9 want to have it in a way that really moves the
10 ball forward to some sort of good, sound
11 result.

12 So, that is just some initial
13 thoughts. Whether this gets turned into a
14 question for the group here, obviously, we
15 have got a lot of questions on the table, a
16 lot of work going on. But it seems to me a
17 really important question that Tom asks in the
18 group is how do we stir this conversation in
19 the future in a way that is good. Or do we
20 just keep surprising each other with filings
21 at the Commission or backdoor legislation?
22 How do we continue that path?

1 Yes, sir?

2 MEMBER GIBSON: Well, this is Mark
3 Gibson. We had that as a recommendation for
4 transitional sharing. We can work on it under
5 that if you want. Or do you want to add that
6 to --

7 MR. NEBBIA: I don't think it is
8 specifically a transition. I mean it did come
9 out of that discussion but I think it requires
10 its own attention.

11 MEMBER GIBSON: I would be happy
12 to take that off the list.

13 (Laughter.)

14 MR. NEBBIA: Okay, well that is
15 progress.

16 MEMBER GIBSON: You just lightened
17 the load.

18 MR. NEBBIA: So, any other
19 questions or thoughts, as I am bringing us
20 back to the 3:15 for our public comment?

21 But that, I think, is a really
22 important issue and one we would like to take

1 on when we have time to discuss how we do
2 that.

3 CO-CHAIR ROSSTON: Any other
4 comments or questions for Karl?

5 Okay, we have opportunity for
6 public comment. Anyone in the room who would
7 like to speak? Would anyone on the phone like
8 to speak for public comment?

9 (No audible response.)

10 CO-CHAIR ROSSTON: Okay, it is, I
11 guess, on the agenda as closing remarks by co-
12 chairs. And so, I sort of made a short little
13 statement at the start but I would like to
14 take a minute or two -- well, I have 15
15 minutes. Wait!

16 (Laughter.)

17 CO-CHAIR ROSSTON: Oh, but I have
18 to split it with you.

19 So, first I want to thank Larry
20 and Karl, Bruce, and Peter for all the work
21 they have done making this -- and I also thank
22 Brian for being a great co-chair on this. But

1 most of all, it is you guys here who all did
2 all the work on these working groups and the
3 subcommittees. And it is amazing to me how
4 much work did get done in this and how much
5 progress we made.

6 Larry said it was the peak and I
7 don't think it is the peak because I think
8 there is still a lot to do and a lot more
9 progress that can be made.

10 I think that one of the things
11 that I think we started doing really well was
12 giving each group, trying to get each group to
13 present some conclusion and what you are going
14 to work on the next time at the next meeting,
15 sort of make sure that there is continual
16 progress being made, rather than having people
17 -- well, we will present at the December
18 meeting. I think that is an important way to
19 keep this ball rolling in short bite-sized
20 pieces that the Committees can do. So, I
21 think that was really good.

22 I think we still need work on

1 trying to figure out how to align the
2 incentives as much as possible with government
3 users and private users. And as an economist
4 I think that is really tough when you don't --
5 when pricing is taken off the table or not put
6 on the table as much as it should be. I keep
7 thinking that maybe we can try and find ways
8 to provide the right incentives to do this and
9 to work in the future to try to get a system
10 that is more balanced and more understanding.

11 I realize there is an incredible
12 need for security and safety and those things
13 are really important. I believe strongly in
14 them but I also believe that we provide a lot
15 of other services within a price mechanism.
16 So, I hope we can do that and that this
17 committee can keep making progress in the
18 future.

19 And I want to thank all of you for
20 that.

21 CO-CHAIR FONTES: My comments are
22 very much along the lines -- ditto, I could

1 say. It has been great working with Greg and
2 I appreciate his humor. There are times on
3 calls where we have had an opportunity to
4 laugh. So, that is always a good thing.

5 And Karl, I have known for a long
6 time, really, going back to the days of
7 Slovenia. And I have had a great deal of
8 respect for him and his sense of humor over
9 the years. It has just been pretty amazing.

10 Certainly, Larry, for the
11 flexibility. When we sat down and planned the
12 tenure that Greg and I have now completed, we
13 proposed the idea of this rolling cue-answer,
14 cue-answer type of thing, Q and A, and just
15 the whole notion trying to keep things moving.
16 And everyone in this group has done a
17 remarkable job.

18 I have known a lot of you for
19 decades. I look down at Dave Donovan. He was
20 a master's student of mine years ago. I look
21 him and I think, God, am I that old?

22 MEMBER DONOVAN: No, you're older.

1 CO-CHAIR FONTES: I am older. And
2 I certainly have known so many of you for so
3 long and it is always a treat to be in your
4 presence and just to hear your knowledge and
5 enthusiasm and excitement for issues that are
6 not necessarily right up there for comedy
7 fare.

8 And to underscore this, here we
9 are on a Friday afternoon after lunch, sitting
10 around talking about spectrum related issues
11 and no one has lost consciousness yet. So,
12 that is a huge compliment to everybody's
13 commitment.

14 MEMBER ROBERSON: What could be
15 more exciting than this?

16 CO-CHAIR FONTES: I have got
17 about, I don't know, 45 other things. But
18 again, I just want to really thank everybody
19 for the remarkable work that is done, and for
20 the team, and for Bruce's work in making sure
21 things were running as best they could.

22 And I wish you continued success.

1 Our paths are definitely going to continue to
2 cross in a variety of things.

3 And I look down at Karl. It is
4 hard for me to refer to Karl as Karl because
5 I have always had a nickname for him.

6 (Laughter.)

7 CO-CHAIR FONTES: Juan Carlos
8 Diego Garcia is the nickname.

9 But again, I appreciated this
10 opportunity and thank you so much.

11 MR. NEBBIA: Just before we close,
12 as Larry indicated earlier, our two co-chairs
13 are not going to be returning and that is part
14 of why he wanted to thank them. He was called
15 away to a meeting.

16 So, we also want to acknowledge a
17 number of the others of the members of the
18 committee who have chosen not to reapply. And
19 I will say it that way so I won't give away
20 who has applied or who may be coming back, I
21 guess.

22 But among those who chose not to

1 reapply this time are David Borth, Kevin Kahn,
2 Doug McGinnis, Charlie Rush, Dan Stancil, and
3 Tom Sugrue. So, we wanted to thank you before
4 we broke today and say thanks for all the
5 effort that you have put in. We appreciate
6 the time you have given here.

7 I know the work here is often very
8 contentious and lots of difficult discussions.
9 But I think we have done a lot of great work
10 and we want to thank each of you who have
11 decided not to return.

12 And we are looking forward to the
13 new committee. Hopefully, we will have
14 announcements about new members and that sort
15 of thing in the not too distant future.

16 So, that is all I have.

17 CO-CHAIR ROSSTON: Dennis?

18 MEMBER ROBERSON: One comment for
19 those of us who are not on your list and who
20 in fact, therefore, are returning. Did you
21 want to --

22 MR. NEBBIA: I didn't say that. I

1 didn't say that but no. No, we are not going
2 to have discussions about those returning
3 today. So, sorry.

4 Okay, so anything else before we
5 break? Thank you.

6 (Applause.)

7 (Whereupon, at 3:24 p.m., the
8 foregoing meeting was adjourned.)

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In the matter of: Commerce Spectrum Management
Advisory Committee Meeting

Before: US DOC

Date: 03-28-14

Place: Washington, DC

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