

UNITED STATES DEPARTMENT OF COMMERCE
 NATIONAL TELECOMMUNICATIONS AND
 INFORMATION ADMINISTRATION

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COMMERCE SPECTRUM MANAGEMENT
 ADVISORY COMMITTEE (CSMAC)

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MEETING

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WEDNESDAY
 JANUARY 25, 2017

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The Advisory Committee met in the Verizon Technology and Policy Center located at 1300 I Street, N.W., Washington, D.C., at 1:00 p.m., Larry Alder and H. Mark Gibson, Co-Chairs, presiding.

PRESENT

LARRY ALDER, Google, LLC, Chair
 H. MARK GIBSON, Comsearch, Chair
 AUDREY ALLISON, The Boeing Company *
 PAUL ANUSZKIEWICZ, CTIA
 MARY BROWN, Cisco Systems, Inc.
 MICHAEL CALABRESE, The New America Foundation *
 MARK E. CROSBY, Enterprise Wireless Alliance
 THOMAS S. DOMBROWSKY, JR., DLA Piper, LLP
 DALE N. HATFIELD, University of Colorado at
 Boulder
 CAROLYN KAHN, The MITRE Corporation
 PAUL KOLODZY, Kolodzy Consulting, LLC
 MARK LEWELLEN, John Deere Intelligent Solutions
 Group

ALLEN MacKENZIE, Virginia Polytechnic
Institute and State University
MARK A. MCHENRY, Shared Spectrum Company
JANICE OBUCHOWSKI, Freedom Technologies, Inc.
CARL POVELITES, AT&T Services, Inc.
MARK RACEK, Ericsson, Inc.
CHARLA RATH, Verizon Communications
RICHARD L. REASER, JR., Raytheon Company
DENNIS A. ROBERSON, Illinois Institute of
Technology
ANDREW ROY, Aviation Spectrum Resources, Inc.
KURT SCHAUBACH, Federated Wireless
STEVE SHARKEY, T-Mobile US, Inc.
MARIAM SOROND, DISH Network, LLC
BRYAN TRAMONT, Wilkinson Barker Knauer, LLP

JENNIFER WARREN, Lockheed Martin Corporation

CHRISTOPHER WEASLER, Facebook, Inc.

ROBERT WELLER, National Association of

Broadcasters

ALSO PRESENT

DAVID J. REED, NTIA, Designated Federal Officer

PAIGE R. ATKINS, NTIA

LEN BECHTEL, NTIA

GLENN REYNOLDS, NTIA

* Present via teleconference

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

2 1:00 p.m.

3 CO-CHAIR GIBSON: All right, everyone,
4 time for CSMAC. I'll let everyone get seated and
5 I'm -- we're on the air, we're live. Everything
6 is good; awesome.

7 So welcome, everybody, to the 2017-
8 2018 CSMAC, I guess. There's some new faces and
9 some historical faces we'll say, people who have
10 been around for a while. I didn't want to say
11 old.

12 MS. ATKINS: I think historical is
13 worse.

14 CO-CHAIR GIBSON: Historical probably
15 is worse, yes. It's better than ancient.

16 So what we'll do is, we've got a
17 pretty full agenda. The goal of today is to get
18 through the topics that we want to cover and kind
19 of give some assignments and get feedback from
20 you all as to what we want to do.

21 So without further ado, I knocked the
22 microphone over, I wanted to say, first of all,

1 thanks to Charla for this awesome space. It's
2 really nice to be in an open space where we have
3 food. The other thing is I want to mention, is
4 that the incentive option is still ongoing and
5 you all know what that means. If you need
6 anything more, see Charla.

7 Having said that, Len Bechtel will be
8 giving our welcome; so, Len. He is the Chief
9 Financial Officer and in the role supporting --
10 he's performing the duties of the Assistant
11 Administrator, so Len.

12 MR. BECHTEL: Thank you for the
13 opportunity to be here today. At the beginning of
14 the year and the beginning of new Administration
15 is often been a time to both move backwards and
16 forwards, and today's agenda I think does that.
17 But from the perspective of NTIA and the CSMAC, I
18 think if we look over the history of the CSMAC
19 over the last 13 years or so, we have to think
20 about Advisory Committees in the federal
21 government. They come and they go. This one now
22 has a history. And I think as we move forward,

1 you know, I want to express the appreciation from
2 NTIA for the contribution of the CSMAC. It is,
3 obviously, something that NTIA values very much,
4 and the perspectives and information that you
5 bring to the discussion of issues that come
6 before the CSMAC is something that is needed
7 because we're dealing with issues that aren't
8 always simple, and so having those multiple
9 perspectives is very important. And I want to
10 express on behalf of NTIA, you know, our
11 appreciation for all that you do.

12 Looking forward we do have a new
13 administration. I may be only here one meeting --

14 (Laughter.)

15 MR. BECHTEL: -- because at some point
16 in time a new Assistant Secretary will be
17 nominated by the Trump Administration, and we
18 will have new leadership at NTIA. What that means
19 for NTIA and for CSMAC, you know, is yet to be
20 seen, but what we do know is that, you know, when
21 we have the opportunity we will express the value
22 that we think the CSMAC brings to the table to

1 the new administration. So, again, I want to
2 appreciate, express our appreciation to you
3 today.

4 And, you know, turn it over back to
5 the Chair. We do have a pretty exciting, well as
6 meetings go, pretty important set of issues --

7 (Laughter.)

8 MR. BECHTEL: -- to discuss today.

9 CO-CHAIR GIBSON: No, it's exciting,
10 Spectrum is exciting. I should have said, my name
11 is Mark Gibson, and I Co-Chair this with Larry
12 Alder, and Larry will have remarks in a moment.
13 Glenn, you're next.

14 MR. REYNOLDS: Sure. I'd just like to
15 follow-on on a couple of things that Len has
16 mentioned. I'm still Chief of Staff for NTIA.
17 Happy New Year.

18 There's certainly plenty of change
19 going on around. It's the first meeting of a new
20 year. We have a number of new members, we have a
21 new Administration. And I particularly want to
22 say thanks to the 10 new members who are joining

1 us and express our appreciation for their
2 willingness to serve, and to provide your new
3 views, and insights, and expertise.

4 Amidst all this change, however, I
5 believe there's nothing but continuity with
6 respect to CSMAC itself. A great deal has been
7 accomplished over the past several years, as Len
8 mentioned, towards the goal, towards the mission
9 of CSMAC which is figuring out ways and providing
10 advice on how to use Spectrum more efficiently.

11 Everyone here is deeply familiar with
12 all the successes we've had over the last several
13 years, but I think what's less -- somewhat less
14 appreciated is what CSMAC's contribution has been
15 to those efforts.

16 A couple of examples of sort of the
17 direct impacts that we've identified; obviously,
18 CSMAC's work on Effective Sharing Solutions was a
19 major contributor to the success of the AWS-3
20 auction. The Committee's work on incentives has
21 led to recommendations for increased flexibility
22 for agencies to utilize the Spectrum Relocation

1 Fund, several of which were implemented in the
2 2015 Spectrum Pipeline Act. CSMAC's report on
3 Spectrum Management via Databases, for example,
4 has informed NTIA's ongoing assessment of
5 expanding our web-based portals into other bands,
6 including the FCC's efforts to provide access to
7 more Spectrum for fixed backhaul. And NTIA is
8 continuing to follow up on a number of the
9 CSMAC's recommendations by funding and
10 undertaking new work at our Boulder Labs,
11 including the further analysis and measurement in
12 the 1300 to 1390 megahertz band, as well as
13 several projects aimed at improving approaches to
14 enforcement.

15 While these tangible contributions
16 have been important, I believe a great deal of
17 the impact of CSMAC has to date actually been
18 more indirect. By bringing together a group of
19 smart, influential leaders representing a variety
20 of viewpoints, CSMAC has been an essential
21 element in helping reshape how we are going to
22 approach Spectrum management in the U.S.

1 The legacy of this work is that we are
2 building a process based on sound technical
3 analysis to balance a variety of Spectrum uses
4 for the public's benefit. Sharing is clearly a
5 part of that legacy and a pillar for the future,
6 and the work of CSMAC will continue to inform
7 those efforts.

8 Moving forward, I believe that the
9 past truly is prologue here. As Len mentioned, we
10 don't have any unique insights as to whom or when
11 we will have leadership within NTIA. I suspect
12 some of you in the room have better insights than
13 we do. You can corner Bryan at the bar
14 afterwards, but if you watched Secretary-
15 designate Ross' confirmation hearing it left
16 little doubt that insuring more efficient use of
17 Spectrum will continue to be a priority for him,
18 for the Department, and for Congress. Indeed, a
19 number of the topics that you will consider
20 taking on today, including incentives and 5G
21 standards were specifically raised in the course
22 of Mr. Ross' confirmation hearing.

1 CSMAC's input on these issues will
2 continue to be not just relevant, but
3 influential. Without prejudging today's
4 deliberations of topics and questions we can
5 observe some of the challenges and opportunities
6 that lie before us. Exploring the 5G technologies
7 and standards that will pave the way to realize
8 the promise of 5G and IoT, CSMAC has already done
9 a lot of work in this area and it will be
10 important to review and discuss how to carry on
11 that work, particularly on issues such as
12 interference prevention and sharing.

13 A related opportunity is the question
14 of how to approach enforcement in a sharing
15 context, particularly how to automate enforcement
16 in a manner that avoids the downsides of ex-post
17 enforcement. I suspect Dale may have a couple of
18 comments on that issue.

19 As NTIA renews and strengthens our
20 processes for selecting bands to consider for
21 potential repurposing, can CSMAC bring its
22 expertise to bear or to provide input on how best

1 to access and prioritize, or value particular
2 Spectrums, or bands, or ranges? I think it's
3 clear as we've seen over the last year with
4 respect to the Spectrum Frontiers and some other,
5 the auction that will go unnamed, that there is
6 changes in how the industry and others are
7 valuing Spectrum, what the Spectrum needs are of
8 the industry, how do we better inform ourselves
9 as to how those Spectrum values are -- bands are
10 valued and what we should focus our energies on.

11 Examining whether there is a budding
12 divergence between U.S. Economic Spectrum
13 policies and those being pursued internationally
14 is an important issue. Recent ITU World
15 Radiocommunication Conferences have featured
16 contentious debate over UHV Spectrum, 5G, UAS,
17 and Earth Stations in Motion, among other issues.
18 Does it matter if the United States leads but
19 others do not follow? And how can we further
20 integrate our policy goals with those of our
21 allies and trading partners? Stimulating a
22 conversation and a systematic examination of how

1 we train the mentor, future Spectrum policy and
2 management experts, including Lessons Learned
3 from industry and academic recruiting policies.
4 And, finally, looking closely again at whether
5 and how incentives can be applied to federal
6 Spectrum use in order to promote any gains in
7 efficiency or to identify potential opportunities
8 for further Spectrum sharing or other
9 repurposing.

10 In the next few hours, I expect you
11 all will begin to hone in on these topics and
12 potentially others into focused research
13 questions for the new term.

14 I thank you again on behalf of NTIA,
15 the Department of Commerce, and the new
16 leadership, and we look forward to your guidance.
17 Thank you very much.

18 CO-CHAIR GIBSON: Thanks, Glenn. Thanks
19 for calling us all smart people.

20 MR. REYNOLDS: Did I say everybody?

21 (Laughter.)

22 CO-CHAIR GIBSON: Okay, excellent

1 timing. So what we'll now do is go around and
2 introduce ourselves. I'll start with Charla and
3 go around clockwise. Just say who you are and who
4 you're with, and we'll keep going. Thanks.

5 MEMBER RATH: Charla Rath with Verizon.

6 CO-CHAIR ALDER: Oh, one more thing.
7 Could you also mention if you're new or you've
8 been --

9 MEMBER RATH: Old?

10 (Laughter.)

11 (Off mic comment.)

12 CO-CHAIR GIBSON: Veteran. Yes, that's
13 it.

14 MEMBER ANUSZKIEWICZ: Paul
15 Anuszkiewicz, CTIA; new.

16 MEMBER HATFIELD: Dale Hatfield,
17 University of Colorado; very old.

18 (Laughter.)

19 MEMBER KAHN: Carolyn Kahn, the MITRE
20 Corporation; I'm new.

21 MEMBER REASER: Rick Reaser, Raytheon;
22 I am historical.

1 MEMBER DOMBROWSKY: Tom Dombrowsky, DLA
2 Piper; also old.

3 MEMBER TRAMONT: Bryan Tramont,
4 Wilkinson Barker Knauer; original.

5 MEMBER WARREN: Jennifer Warren,
6 Lockheed Martin; also original.

7 MEMBER ROY: Andrew Roy from Aviation
8 Spectrum Resources; new.

9 MEMBER MCHENRY: I'm Mark McHenry with
10 Shared Spectrum Company, and I'm old.

11 MEMBER WELLER: Bob Weller with the
12 National Association of Broadcasters. I'm a
13 freshman and, incidentally, I apologize for
14 arriving late but I was stranded in the elevator
15 in the parking lot below the building, and
16 there's no cell service.

17 (Off mic comments.)

18 MEMBER POVELITES: Carl Povelites,
19 AT&T; old.

20 MEMBER CROSBY: Mark Crosby, Enterprise
21 Wireless Alliance; I'm not going to say I'm old,
22 I'm just not new.

1 MEMBER ROBERSON: Dennis Roberson from
2 Illinois Institute of Technology and Roberson &
3 Associates; and I have previous experience.

4 MEMBER KOLODZY: Paul Kolodzy, Kolodzy
5 Consulting; veteran.

6 MEMBER RACEK: Mark Racek, Ericsson;
7 old but new here.

8 MEMBER SOROND: Mariam Sorond, DISH
9 Network; old.

10 MEMBER LLEWELLEN: Mark Lewellen, John
11 Deere; new.

12 MEMBER SCHAUBACH: Kurt Schaubach,
13 Federated Wireless; it's good to be back.

14 MEMBER BROWN: Mary Brown, Cisco
15 Systems; new.

16 MEMBER WEASLER: Chris Weasler,
17 Facebook; new.

18 MEMBER SHARKEY: Steve Sharkey, T-
19 Mobile; also old.

20 MEMBER MacKENZIE: Allen MacKenzie,
21 Virginia Tech; new.

22 MEMBER OBUCHOWSKI: Janice Obuchowski,

1 FTI; old.

2 CO-CHAIR ALDER: I'm Larry Alder with
3 Google.

4 CO-CHAIR GIBSON: I'm Mark Gibson,
5 Comsearch; ancient.

6 Okay. Is there anybody on the phone
7 that's a CSMAC member; speak up now.

8 MEMBER ALLISON: Yes, hi. This is
9 Audrey Allison from Boeing. I consider myself a
10 sophomore.

11 CO-CHAIR GIBSON: That's a good way to
12 put it. Okay, anybody else on the phone?

13 MEMBER CALABRESE: Yes, Michael
14 Calabrese from Open Technology Institute at New
15 America, so I guess I'm -- if Audrey is a
16 sophomore, I'm a junior. Around the block a few
17 times.

18 CO-CHAIR GIBSON: Okay, then that
19 should be it for CSMAC members on the phone.
20 Excellent.

21 Okay. I think with that, Larry, I'll
22 turn it over to you.

1 CO-CHAIR ALDER: Well --

2 CO-CHAIR GIBSON: Oh, yes, let's go
3 around the back of the room. Yes, Bruce. Okay.

4 (Off mic introductions.)

5 CO-CHAIR GIBSON: And I made the
6 unforgivable error of not introducing Paige. I'm
7 going to pay for that. Sorry about that.

8 MS. ATKINS: Paige Atkins, NTIA.

9 CO-CHAIR GIBSON: Okay. Is there
10 anybody we missed other than Paige? All right,
11 good. All right, I think we're ready. Go ahead,
12 Larry.

13 CO-CHAIR ALDER: Okay, so I have the
14 next item on the agenda which is just kind of
15 kick off comments. And for a lot of you, I think
16 this will be kind of old news, but I just wanted
17 to kind of go over some of the logistics and how
18 I think we're going to run the CSMAC during this
19 period. So, again, welcome to all the new members
20 who are joining us for the first time.

21 I think it's important; David Reed is
22 a key person. David, raise your hand. He is, I

1 don't know how to describe it, kind of our point
2 person for all logistics and administrative, so
3 he's really helped out a lot, so all the new
4 members should take note of David. You'll see a
5 lot of emails from him.

6 So please correct me if I'm wrong but
7 this is a two-year term, and the way that we're
8 going to approach it, having discussed with Paige
9 and everybody, is we're going to really break it
10 into two one-year cycles. And what we're planning
11 to do is very much in the tradition of the CSMAC,
12 is do a Subcommittee-based approach where we form
13 topic groups by Subcommittee. And Paige has
14 challenged us to run a full cycle in a year, so
15 we're going to select the topics, form the
16 Subcommittees, do the work, make the
17 recommendations in the first year, and then next
18 year we'll see, maybe do the same thing, but
19 we'll evaluate then. So the idea is to kind of
20 break this two years into a one year process.

21 So I've kind of laid out some of the
22 schedules. What we're going to do at this meeting

1 is we're going to review the topics. And not to
2 steal too much of Mark's thunder, but what we did
3 for the topics was at the end of last CSMAC
4 session there was a brainstorming about potential
5 new topics. We collected that information, NTIA
6 collected that information and we met in December
7 and reviewed that, and really driven by NTIA's
8 needs, they came up with this proposed list of
9 topics which we sent around for comment. So the
10 idea today is to discuss those, refine those.

11 You're going to see the headlines on
12 the topics can look familiar. So enforcement has
13 been round, you know, for a while. The idea is
14 we're going to try and narrow it down into a
15 specific focus question. We're not going to take
16 on the whole topic of enforcement, hopefully.
17 We're going to nail it down into -- I think one
18 of the proposed topics is automation. So that
19 would be part of the discussion today we'll go
20 through. Hopefully we will leave this discussion
21 with some good ideas on what we want to do.

22 Post the meeting we will -- the Co-

1 Chairs, Mark and myself -- will work with NTIA to
2 narrow it down into the Subcommittees. We hope to
3 do that in the next few weeks, announce the
4 Subcommittees, and then during the month of
5 February have the membership select which
6 Subcommittees they would like to spend their time
7 on and join. So kind of our schedule is by the
8 end of February to have the Subcommittees set up,
9 have people know what Subcommittees they are, and
10 have them start meeting in March. And then by
11 April at our next meeting, those Subcommittees
12 can come back. Usually what happens is there's
13 refining of the question, there's that kind of
14 discussion, and then we want to go right into our
15 third meeting having some preliminary output from
16 the Subcommittees, and then our fourth meeting of
17 the year to have final recommendations. So that's
18 the schedule we have in mind; it's admittedly
19 challenging.

20 One of the lessons learned that we're
21 trying to bring forward and see if we're
22 successful is that last time we continually think

1 we have too many Subcommittees, and it's
2 stretching people too thin. So we're targeting
3 approximately four. I'm actually targeting four,
4 but I'm skeptical that we'll end up with four. It
5 always seems to expand because there's always
6 creative ideas and questions that need to be
7 answered, but we're going to try and keep it
8 roughly four. We want very broad participation.
9 Everyone should sign up for at least one
10 Subcommittee, sign up for as many as you want
11 being realistic, but we definitely want to have
12 broad participation. And each of the
13 Subcommittees will have Co-Chairs that will be
14 driving them. So that's the schedule.

15 Again, ultimately, we'll have a
16 discussion today but, ultimately, the NTIA will
17 kind of propose the questions. That's their role
18 here, is to propose the questions, so this is the
19 opportunity for input today, but they will do
20 that.

21 I think that's about it for the
22 kickoff. For the new folks here we have kind of a

1 tradition for questions. You know, we raise the
2 tents and go around the room, and that indicates
3 that there's questions. We keep it kind of
4 formal. We use the mic so that the recordings can
5 be good. So I just want to throw it open for
6 questions on kind of the overall structure that
7 we're looking at for this CSMAC that I just
8 covered.

9 CO-CHAIR GIBSON: Let me add two
10 things. One is, I'll say this again and again,
11 when you ask a question, although your table tent
12 is raised, please say who you are. If you don't,
13 we'll remind you but it's always helpful because
14 there is a transcript of this, and a lot of times
15 the people doing the transcript don't know our
16 faces, probably never do, but anyhow just say who
17 you are.

18 The other thing is, people had asked
19 before the meeting what's the cadence like on the
20 Subcommittees? That's kind of up to the Co-Chairs
21 of the Subcommittees. There's a lot of work, and
22 the more Subcommittees that you signed up for,

1 the more work you'll be doing. We will not put
2 you on payroll for CSMAC because there is no
3 payroll so keep that in mind. So having -- you
4 know, I can speak from experience. I agree with
5 Larry, we don't really want any more than four
6 Subcommittees. Anybody who's on all four
7 Subcommittees, you probably need to quit your day
8 job. So just keep in mind that -- especially for
9 the new people, it's a lot of work at some point
10 because, you know, we're going to have a fairly
11 challenging set of questions. So we'll leave it
12 up to the Co-Chairs to set the meeting cadence.
13 Typically it's been about once every two weeks or
14 so for the Subcommittees to meet, and that tends
15 to work out okay. And as Larry said, what we'll
16 be doing in the next full CSMAC meeting is
17 briefing out from the Subcommittee work what you
18 all are doing, any early recommendations you may
19 have, anything you're running into.

20 The other thing that we'll have with
21 the Subcommittees will be liaisons from NTIA to
22 help. The liaisons have been excellent. That's a

1 very good thing that Paige instigated or
2 instituted I'd say. Well, instigated, too; to
3 help with just connecting back to the overall
4 vision that NTIA has. So once the Subcommittees
5 are finalized and announced, we'll have a
6 Subcommittee meeting. So, anyhow, I just wanted
7 to add that.

8 CO-CHAIR ALDER: Questions from the
9 Membership? There has to be at least one.

10 CO-CHAIR GIBSON: You don't have to put
11 your table tents up for these.

12 CO-CHAIR ALDER: Everyone understands
13 the general processes that we're going to go
14 through? Okay. With that, then we're going to --
15 one of the -- for the new members, one of the
16 traditions is that Paige at these meetings gives
17 a very informative update on what's going on with
18 the NTIA, so we're going to have that. And then
19 she's going to follow that up by comments on the
20 previous CSMAC's recommendation and actions that
21 they're going to take based on those
22 recommendations. So, Paige, turn it over to you.

1 MS. ATKINS: Thank you, Larry, and I
2 want to thank Charla and Verizon again for
3 hosting this meeting in such a wonderful
4 facility. It really is great. And I would like to
5 welcome everybody, particularly the new members
6 who are joining us for the first time.

7 The importance, interest, and
8 visibility of Spectrum continues and I can't
9 emphasize enough the critical role that CSMAC has
10 played to insure that we're maintaining a
11 strategic perspective and that we're looking at
12 our challenges and opportunities through a
13 different lens or set of lenses, I might say.

14 Your advice really helps us make
15 better and more informed decisions, and we look
16 forward to working with each of you over the next
17 couple of years. And if you have questions, for
18 the new members, in terms of how to engage and
19 integrate your perspectives into the process, you
20 can always reach out to the Co-Chairs, the
21 seasoned individuals around the table or,
22 obviously, the NTIA team to include Dave Reed,

1 who is officially our Designated Federal Officer,
2 DFO, so you'll hear that term in the future.

3 And I know that being part of a
4 Federal Advisory Committee is not a glamorous
5 job. It's a personal commitment that each of you
6 make to provide your time and your expertise to
7 help us do a better job, and we sincerely
8 appreciate that commitment, and we look forward
9 to the collective wisdom that you'll be providing
10 to NTIA over the next two years. So, again, thank
11 you.

12 So, today as Larry and Mark talked
13 about, we'll look at some of the actions that
14 NTIA has identified based on the last set of
15 recommendations that we received at the end of
16 the last cycle. And then we will kickoff the
17 dialogue on the new topics, so we can set those
18 for this next year, as Larry mentioned, in terms
19 of the schedule.

20 And as we start the latter discussion
21 in terms of trying to limit to four
22 Subcommittees, I also want to remind folks to

1 remain focused and try to prevent scope-creep in
2 those Subcommittees and around the topics and
3 questions that we identify, and to focus on
4 practical and actionable recommendations that
5 NTIA can take hold of and execute for those
6 recommendations that we accept. So, again, please
7 remain focused.

8 And before we get into the meat of the
9 discussion I'd like to give you an update. As
10 Larry indicated earlier, it is something that we
11 traditionally do at each meeting, and the intent
12 is really to provide additional context for all
13 of the members, and update you on ongoing
14 activities, accomplishments, and hopefully you'll
15 find it useful. I welcome any feedback in terms
16 of the content and other items that you might
17 feel are useful as you go through the
18 deliberations for the topics at hand.

19 So to recap, it's a new year, new term
20 for CSMAC, as we have said, and perhaps a time to
21 take stock of where we are, how far we've come,
22 and how we're going to move forward in the

1 future.

2 Looking broadly at the recent
3 achievements in the Spectrum community we have
4 made great strides and have seen really
5 tremendous progress. And, in fact, as I was
6 writing these notes it was amazing to me how much
7 has been done since the last meeting, so they'll
8 be a little lengthier than normal just to warn
9 you all.

10 We have strengthened our collaborative
11 processes to identify sharing opportunities, to
12 thoroughly analyze those opportunities, and where
13 possible to take advantage of them to make
14 Spectrum newly available for broadband and other
15 commercial services.

16 A prime example that we've talked
17 about includes the collaboration, much of which
18 was led by CSMAC that contributed to the
19 tremendous success of AWS-3, and now that's in
20 the full throes of transition. And our success
21 during the transition as it was in the planning
22 stage is really contingent on two critical

1 elements; the industry-government collaboration,
2 as well as Spectrum sharing. And those two
3 elements continue to escalate in importance
4 across all of the Spectrum activities that we're
5 involved in.

6 We can always point to the hard work
7 that resulted in the innovative sharing and
8 licensing approach in 3.5 gigahertz which
9 maximizes the use of the band by federal and
10 commercial incumbents, as well as different
11 classes of new users. Despite a complex
12 framework, government and industry stakeholders
13 are making great strides as they work hard to put
14 this valuable midband Spectrum to use to increase
15 capacity of wireless broadband services. And this
16 framework will be enabled by Spectrum access
17 systems and environmental sensing technologies,
18 and that will make it possible to have an
19 increasingly dynamic Spectrum sharing
20 environment.

21 In a key event that took place in
22 December, the FCC conditionally approved seven

1 SAS administrator applications paving the way for
2 future compliance testing and operations. In
3 addition, we continue to examine whether we can
4 meet industry's request for expanded unlicensed
5 access to 5 gigahertz for Wi-Fi and other uses.
6 For the 5350-5475 megahertz band we had to
7 evaluate whether unlicensed devices could operate
8 without degrading the performance of critical
9 federal radar systems. And, unfortunately, the
10 methodical analysis we conducted in collaboration
11 with the agencies, the federal agencies, the FCC,
12 and industry led us to conclude that there is no
13 feasible path forward to share this band. And
14 those who had been engaged in the effort were not
15 surprised, as all of the stakeholders on all
16 sides knew that we had high hurdles to overcome,
17 but we wanted to exhaust all of the options to
18 see if it would be feasible.

19 And though this may be setback in
20 terms of this particular band, it shows our
21 process is rigorous and it works. It is
22 fundamental that all stakeholders have trust and

1 confidence that we will run a fair and objective
2 process, and over the long run we believe this
3 process will truly allow us to make more Spectrum
4 available for commercial access.

5 At the same time, we continue to work
6 collaboratively with FCC, Department of
7 Transportation and industry to evaluate and test
8 potential approaches to sharing the upper 5
9 gigahertz band, 5850-5920 megahertz, between
10 vehicle-to-vehicle safety communications and
11 unlicensed uses such as Wi-Fi. And this process
12 continues. We also remain committed to
13 identifying additional Spectrum for unlicensed
14 use, and will work with the FCC to explore other
15 bands as we move forward.

16 And just within the past week, and I
17 won't talk any details, but the FCC announced it
18 reached the final stage rule in its incentive
19 auction of UHF Spectrum. As a result, an
20 additional 85 megahertz of low-band Spectrum will
21 be made available for licensed and unlicensed
22 use. And this will mean that we have made 329

1 megahertz of federal and non-federal Spectrum
2 available for wireless broadband since 2010.

3 Now, we are all digesting the results
4 of the incentive auction, a truly novel market-
5 based means of repurposing Spectrum, but one
6 thing we should be able to acknowledge is that
7 advances in technology and continuously evolving
8 business models means that our assumptions about
9 Spectrum become outdated over time. For example,
10 the commercial mobile industry for a number of
11 years was calling for significantly more access
12 to Spectrum in the lower bands below 3 gigahertz.
13 This speechfront Spectrum was desirable due to
14 its ability to travel long distances, penetrate
15 buildings; however, mobile networks are evolving
16 to support very high bandwidth high volume
17 applications, placing greater emphasis on higher
18 band Spectrum which can provide the bandwidth
19 required to achieve that capacity.

20 In other words, Spectrum demand is not
21 a one-size fits all in terms of bands, and even
22 in the commercial mobile wireless market. So to

1 help address the need for greater capacity we
2 continue to collaborate with the FCC, agencies,
3 and industry making Spectrum available for 5G
4 services, particularly in the millimeter wave
5 bands. The FCC's Spectrum Frontiers Report and
6 order and further notice clearly gave the United
7 States jumpstart in determining which bands are
8 most appropriate for 5G. We now have parallel
9 processes in which to engage. In addition to the
10 FCC's proceeding, the ITU is studying a set of
11 bands as part of its preparation for the 2019
12 World Radiocommunication Conference or WRC, and
13 preparations for WRC '19, and many of you are
14 engaged in that process, are well underway, and
15 the U.S. has focused its efforts on four priority
16 agenda items. And as everyone would expect, one
17 of those is threshold mobile broadband and, in
18 particular, above 24 gigahertz.

19 The FCC further notice for Spectrum
20 Frontiers covers much of the same Spectrum so it
21 will be important to try to harmonize our
22 domestic and international work. And other

1 priorities for those not engaged include high
2 altitude platform systems, 5 gigahertz wireless
3 access systems, and aeronautical safety systems.
4 And we've begun to develop U.S. positions for the
5 conference, and have made progress on socializing
6 our initial views, including those on terrestrial
7 mobile broadband. And that occurred in the second
8 CTel, America's regional meeting in late November
9 so, again, a lot of activity. And we will
10 continue to work closely with the FCC, industry,
11 and federal agencies to continue the leadership
12 the U.S. shows in these regional activities.

13 As we continue to make progress in
14 many areas, it was clear to us that we needed to
15 be more transparent by improving the availability
16 and quality of data about federal and non-federal
17 use. As an example, in November we released a
18 report on the Quantitative Assessments of
19 Spectrum Usage, which examined five bands used by
20 federal agencies totaling 960 megahertz of
21 Spectrum to determine which ones might be good
22 candidates for potential sharing scenarios.

1 We now have an automated internal
2 capability that allows us to more effectively and
3 graphically understand federal Spectrum usage,
4 and when I say that think of frequency, time of
5 use, and geography, also translated to population
6 within the U.S., and potential opportunities for
7 sharing.

8 As an example, the 1300-1350 megahertz
9 was clearly not conducive to sharing due to the
10 systems that populate that band, particularly the
11 long-range surveillance system, this tool
12 demonstrated that relocating the long-range
13 surveillance radars out of the band created
14 significant opportunities for commercial access
15 in terms of geography and population.

16 We will be extending the quantitative
17 assessment methodology to other bands over time
18 and leveraging this information to assess and
19 prioritize bands for detailed studies that will
20 be necessary before being able to recommend a
21 band for repurposing.

22 Over the years there has been much

1 discussion about creating incentives for federal
2 agencies to make more Spectrum available for
3 commercial use, and we strongly believe the most
4 effective incentive is to provide agencies with
5 the necessary resources to research alternatives
6 to their existing uses of Spectrum and to upgrade
7 to more efficient technologies.

8 A key tool in this regard is the
9 Spectrum Relocation Fund, the Spectrum auction
10 proceeds, and Congress made an important and
11 needed change to the fund as part of the 2015
12 Spectrum Pipeline Act to broaden the scope of
13 eligible expenses covered under the SRF. These
14 efforts are starting to bear fruit as federal
15 agencies have developed Spectrum Pipeline plans
16 for submission to a technical panel which
17 consists of NTIA, FCC, and OMB for approval. And
18 last week the first of such plans called the
19 Spectrum Efficient National Surveillance Radar or
20 SENSR, pipeline plan was approved and transmitted
21 to Congress, and there's a 60-day Congressional
22 notification before the funds will flow. And in

1 that plan, the FAA in partnership with the DoD,
2 DHS, and NOAA will be assessing the possibility
3 of consolidating and relocating various radar
4 capabilities which may result in making a portion
5 of the 1300-1350 megahertz band available for
6 commercial access. And this is a major component
7 to creating a sustainable pipeline to satisfy
8 emerging and growing requirements, so it's just a
9 tremendous feat, and we look forward to the
10 fruits that it will bear.

11 I could actually go into more examples
12 since the last meeting but I'm not going to,
13 because we'll never get to discussing future
14 topics, but I do want to look forward a little
15 bit. There's still a lot to do, and as we talk
16 about future topics, I want to tee up a few
17 additional points for consideration.

18 We are just starting to explore the
19 spectrum policy implications, the emergence of
20 new technologies such as unmanned aircraft
21 systems, connecting cars and the vast array of
22 IOT-connected devices. And we recognize the need

1 for low, mid, and high band Spectrum to satisfy
2 these diverse requirements.

3 As we prepare for the innovations of
4 5G and other emerging technologies and
5 applications, we need to understand the growth
6 and the demand for Spectrum is not limited to
7 commercial and consumer use. Just as innovations
8 and technology have driven growth in the
9 commercial wireless market, government agencies
10 are finding new and better ways to more
11 effectively deliver on their critical missions. I
12 can't emphasize enough when we talk about their
13 critical missions, think of ensuring safety for
14 you and your family each and every day.

15 I ask you to remember in your
16 deliberations throughout the next two years that
17 we must have balanced Spectrum policy that
18 enables innovation and growth in emerging
19 wireless commercial services while insuring the
20 agencies have the Spectrum they need to serve the
21 public as their missions require, so keep in mind
22 balance.

1 So let me briefly just mention a few
2 other issues that I believe will remain front and
3 center, and many of which are related to the
4 future topics. Spectrum sharing; there really is
5 no longer any question that it has to be part of
6 the solution and a major part, and the only way
7 sharing will work is by maintaining and extending
8 collaborative and cooperative processes and
9 relationships that bring all affected
10 stakeholders together. And, again, I can't
11 emphasize enough, CSMAC is a critical component
12 to making that happen.

13 Enforcement; as the air waves become
14 congested we need to develop and enforce minimal
15 technical rules to protect against unauthorized
16 harmful interference. Automated enforcement
17 approaches make a lot of sense but it will
18 require increased investment to develop
19 techniques, technologies, and tools, and we need
20 to look for opportunities to build enforcement
21 technology into emerging capabilities such as 5G
22 and IoT.

1 And to clarify, when I say
2 "enforcement," I think of it in a broad context
3 to include mitigating interference before it
4 occurs, and not just ex post. And we always need
5 to address the performance characteristics of
6 Spectrum receivers, as well; think resilience of
7 receivers, and I do believe that it's the only
8 way to truly optimize Spectrum usage by looking
9 at both sides of the equation.

10 Research and development; we must
11 continue to invest in research and development of
12 technologies that will help us make the most
13 effective and efficient use of the Spectrum.
14 While we believe agencies are making good faith
15 efforts to meet our Spectrum challenges, we know
16 there's still more that we can do to make us even
17 more efficient and effective.

18 Again, the additional flexibility that
19 Congress authorized for the SRF was probably the
20 single most important step that could be taken in
21 the short term. Perhaps the fund can be further
22 strengthened in the future. And the CSMAC did

1 some work on this previously with additional
2 funding and flexibility, for example, by
3 supporting research into allowing more unlicensed
4 use in federal bands.

5 Incentives, we've touched on
6 incentives. We are not convinced that other
7 incentive proposals put forward to date offer
8 approaches that are likely to be successful,
9 especially those that rely only on market-based
10 incentives. Federal agencies are simply unable to
11 respond to market-based incentives in the same
12 way that commercial Spectrum users are able to
13 for various reasons, including budgetary and
14 statutory constraints. And we are continuing at
15 NTIA to explore potential mechanisms that might
16 be effective. And, ultimately, we hope to make
17 enough progress that we can bring concepts
18 forward and begin a dialogue with the agencies
19 and other stakeholders. And this dialogue should
20 also include potential incentives for commercial
21 industry licensees to share Spectrum with federal
22 users.

1 Finally, we also need to more
2 accurately quantify current Spectrum demand,
3 usage, and future projections for both federal
4 and non-federal users. Technologies and business
5 models change rapidly, and to ensure we keep up
6 with these changes we need to focus on actual
7 needs, including things like coverage, capacity,
8 latency, and resiliency, and reliability. This
9 type of information will greatly inform us as we
10 make future policy, Spectrum policy decisions.

11 So summing up, with that, I look
12 forward to hearing your thoughts on potential
13 topics for this upcoming term. I know challenges
14 and hard work lie ahead, but I am very confident
15 that you will succeed, and I'm looking forward to
16 working with each and every one of you and
17 collectively as the Committee. So thank you, once
18 again, for volunteering your time and expertise
19 to help us. It's an important service to NTIA,
20 Department of Commerce, and our nation. So, good
21 luck and let's get rolling. Any questions?

22 CO-CHAIR GIBSON: Jennifer.

1 MEMBER WARREN: Jennifer Warren,
2 Lockheed Martin. Paige, you mentioned the report
3 that went to Congress on 1300-1350. And I think
4 you said there is a 60-day review by Congress of
5 that. Is the report that went up public, or does
6 that not become public until after Congressional
7 review? Do you know?

8 MS. ATKINS: I do not believe it is
9 public at this time; however, there is quite a
10 lot of information, I'll say, out there,
11 including some at least summary information
12 through some work the FAA has done, including I
13 believe one or two industry days, so there is
14 quite a bit of information out there.

15 MEMBER WARREN: Try to go to the
16 original source.

17 CO-CHAIR ALDER: I have a question.

18 MS. ATKINS: Sure.

19 CO-CHAIR ALDER: Same question on the
20 5350, you said you kind of wrapped that up. Is
21 there some place that that's encapsulated?

22 MS. ATKINS: In terms of like a report,

1 specifically?

2 CO-CHAIR ALDER: Yes.

3 MS. ATKINS: We have not generated a
4 formal report because it's fairly recent. We just
5 wrapped that up within the last few weeks, so
6 we'll have to think about how to encapsulate that
7 more formally. But there's a lot of information
8 behind it, including through the Joint
9 Government-Industry Working Group that occurred.

10 CO-CHAIR ALDER: That would be great to
11 get.

12 MS. ATKINS: Okay.

13 CO-CHAIR GIBSON: Actually, I have a
14 question. Mark Gibson. Did -- you mentioned a
15 tool that you used to do the qualitative
16 analysis, quantitative analysis. Your report also
17 referred to a tool you were looking -- I think
18 you were working on to actually do coverage
19 analysis/interference analysis. First of all, am
20 I right? And, secondly, is that -- what's the
21 status of that?

22 MS. ATKINS: I'm not sure exactly --

1 CO-CHAIR GIBSON: Okay.

2 MS. ATKINS: -- because I'm not sure of
3 what you're referencing. But I'll say for the
4 quantitative assessment there was one tool that
5 allowed us to capture information on federal
6 systems with certain assumptions around what it
7 might affect around it. And that tool generates
8 I'll say contours that allow us to depict what
9 areas of geography or population may be impacted
10 by federal systems. We are looking at if there is
11 a potential to generate a publicly facing similar
12 tool, but ensuring that sensitive information is
13 not exposed, so we are looking at that, as well.

14 CO-CHAIR GIBSON: Okay, thank you. Any
15 other questions? Rick.

16 MEMBER REASER: This is Rick Reaser.
17 You asked my question. I was wondering if the --
18 I read the report, too, that came in November,
19 and I was curious if the tool itself is going to
20 be available, or at least the methodology of the
21 tool? The tool -- the report basically talks
22 about the results of the analysis and there's

1 some -- but it didn't really explain how you came
2 up with that. There was a, you know, whatever. So
3 it --

4 MS. ATKINS: Okay.

5 MEMBER REASER: -- sounds like you
6 might come up with a publicly available version
7 of the tool or something we can look at later.

8 MS. ATKINS: Correct. We're still
9 assessing the possibility to do that.

10 MEMBER REASER: Okay.

11 MS. ATKINS: And I thought some of the
12 methodology was in the report, but I can be
13 wrong.

14 MEMBER REASER: In a cursory way.

15 MS. ATKINS: Okay.

16 CO-CHAIR GIBSON: Any other questions?
17 Okay. Well, thanks, Paige, for that. That's
18 always exciting to hear, what you're working on.
19 Did you want to now go into the reviews on the
20 Subcommittee recommendations? Okay.

21 MS. ATKINS: Yes. We might as well get
22 that out of the way --

1 CO-CHAIR GIBSON: Yes.

2 MS. ATKINS: -- as we get into the meat
3 of the discussion. I mean, it's important, and I
4 do want to stress one reason -- and I started
5 this after the last cycle. One reason I want to
6 give you an idea of how we're reacting to your
7 recommendations is to show that we are taking
8 your recommendations seriously. We may not always
9 accept them. In some cases, the recommendations
10 may not really be recommendations or actionable
11 recommendations, and we continue to work on that.
12 But we do take the information, understand it,
13 determine if we think it would be useful, as well
14 as how it aligns with our ongoing activities and
15 strategic initiatives which is very important.

16 So what I'm going to do today, and I
17 -- we've got some slides in front of us, and I'm
18 going to go to Slide 2. What I'm going to cover
19 is how we're responding, or some specific actions
20 we've identified based on the recommendations
21 that were given and approved in August of 2016.
22 And, again, not all the actions or

1 recommendations were actionable to address.

2 Many of the actions that we're taking
3 related to the recommendations are ongoing, so
4 you won't see everything here. It's not an all-
5 inclusive list. And as a caveat, all of these
6 actions are subject to change based on priorities
7 and funding availability. And, again, what I'll
8 be talking about are discrete actions, and so
9 they may seem a little disconnected or in
10 isolation of one another, but we are integrating
11 these activities into our strategic approach
12 forward, so it will be a little more
13 comprehensive as we integrate it into our
14 mainstream workflow.

15 So on Slide 3 with Measurement and
16 Sensing -- and I apologize for the new members
17 that weren't part of the old activities, so I'll
18 try to give you a little bit of context for each
19 of these before I talk about the actions that
20 we'll be responding with.

21 So on Measurement and Sensing we are
22 asking the CSMAC to help us understand the

1 strengths and weaknesses of measurement and
2 sensing to enable sharing; and, in particular, a
3 focus on 5 gigahertz, with all the work going on
4 in 5 gigahertz, and helping us insure we weren't
5 missing something that could enable sharing in
6 particularly the two 5 gigahertz bands that have
7 been under study. And the team did a lot of great
8 work to include characterizing the 5 gigahertz
9 bands in terms of the systems that were in there
10 and architectural approaches that you might use
11 to optimize the ability to measure and sense
12 those systems. And want to build on that
13 information and that baseline.

14 So on the first action that we're
15 taking, we're going to develop a Handbook of Best
16 Practices for performing measurements. And,
17 again, this will build on the approach that was
18 provided by the Subcommittee or the Committee
19 recommendation and work. And we will initially
20 focus on 5 gigahertz, but then extend it over
21 time. And we think this will be a very powerful
22 tool. You'll see that the timelines are extended,

1 and that's based on, again, priorities and
2 resources so they could get compressed, or could
3 get elongated, or could get cancelled for that
4 matter, but we think this is an important
5 reference that will allow not only NTIA to do
6 better, but the community at large because we'll
7 have some reference point. We will be leveraging
8 our ITS lab to do this work.

9 On the second item, if you recall, the
10 Subcommittee also generated this characterization
11 of what systems were in the 5 gigahertz band. And
12 we have a Spectrum Compendium that does something
13 similar, but it only went up to 5, and so we're
14 going to be extending that up to 7 gigahertz
15 initially, and then looking beyond that in the
16 future to include millimeter wave bands. And so
17 this will help extend that characterization of
18 what systems are in there.

19 And then the third item, we are going
20 to generate a white paper to identify the
21 opportunities and barriers for techniques, such
22 as beaconing, that augment detectability of

1 federal systems. In many cases, as many of you
2 know, it won't be necessarily applicable or
3 prudent depending on security issues, but we want
4 to just encapsulate that and document it. And in
5 some cases it may be applicable, so we want to
6 make sure that we capture kind of best practices
7 and Lessons Learned in that case. And, again,
8 we're going to initially focus in some of the 5
9 gigahertz systems, and then extend below 7
10 gigahertz and look at prioritizing which bands
11 make sense, or which systems make sense in the
12 future. So we're, again, taking these
13 recommendations to heart and we appreciate the
14 good work that the Committee did in the last
15 cycle.

16 Any questions on that one before I go
17 on?

18 CO-CHAIR GIBSON: Bryan, then Rick.

19 MEMBER TRAMONT: I would just urge on
20 the third bullet that the 3.5 step is relatively
21 nascent still. The longest term example is a non-
22 federal one but the --

1 MS. ATKINS: Right.

2 MEMBER TRAMONT: -- where I think
3 there's quite a bit -- there's more data and more
4 time, so I would just urge people to look at
5 that, as well.

6 MS. ATKINS: Yes. And I think, also,
7 with the 3.5, some of the Lessons Learned are in
8 the discussions in terms of operational security
9 concerns and things of that nature, as well.

10 CO-CHAIR ALDER: Rick.

11 MEMBER REASER: This is Rick Reaser,
12 Raytheon. Just two things. I really am encouraged
13 that you're looking at the beacon thing, because
14 that's something I think is very important.

15 My other point was on number two. I
16 think what you ought to have is a plan to take
17 this 7 gigahertz all the way up to, you know, 100
18 gigahertz over time. That would be very, very
19 helpful, so don't stop at 7. You know, set some
20 targets and go all the way up to -- actually, 275
21 gigahertz would also be helpful, too.

22 MS. ATKINS: Yes. Well, as I -- so one

1 reason we chose 7 is because that was in the
2 recommendation.

3 (Laughter.)

4 (Applause.)

5 MS. ATKINS: And as I did mention, then
6 we will continue to extend it to include
7 potentially the next priority looking at some of
8 the millimeter wave bands. And then we're going
9 to continue to improve and extend it.

10 MEMBER REASER: So I need to have a
11 comeback to that. The reason why we said 7 was
12 because we were asked to look at just the 5, so
13 Ed Drusella had to go through heroic efforts to
14 give us information about just between 5 and 6,
15 so we said 7, so that was the reason for 7.

16 MS. ATKINS: We agreed, and I don't
17 know if folks have actually looked at the
18 compendium, and we've got it on our website. It's
19 actually quite helpful, and so I encourage you to
20 look at it. And we will insure that you're aware
21 of updates that we provide either in terms of
22 enhanced functionality or as we extend the bands,

1 as well.

2 CO-CHAIR GIBSON: I'd like to just add
3 a comment to what Bryan said. This is Mark
4 Gibson.

5 With respect to the 3.5 gig band,
6 Bryan is right, it is nascent, but as you all
7 know there's a lot of activity in that band. And
8 I know you will be speaking within agencies. It
9 would be really helpful to include the community,
10 as well, because there are a lot of Lessons
11 Learned going back and forth, and I know Kurt,
12 and I, and others are sharing in the middle of
13 that. So to the extent that you could reach out
14 as well to us, because that is really changing
15 actually almost as we speak. You'll get a lot of
16 good feedback, I think.

17 MS. ATKINS: Yes.

18 CO-CHAIR GIBSON: Thanks.

19 MS. ATKINS: And as you know, there's
20 a lot of joint activities, so we'll be drawing
21 off of that.

22 CO-CHAIR GIBSON: Yes.

1 MEMBER RACEK: Mark Racek, Ericsson.
2 Also, there will be some opportunity to talk to
3 the SAS administrators and EST administrators, as
4 well. As they gain experience, they ought to be
5 able to go ahead and discuss that experience with
6 NTIA because they'll have very useful
7 information.

8 MS. ATKINS: Absolutely. Thank you.

9 Okay, next one. 5G, Slide 4. And this
10 was our first foray I'll say in the 5G, and we
11 asked the Committee to look at the technical and
12 standardization challenges unique to 5G, and what
13 actions NTIA should take to address those
14 challenges. And we expect that this will be an
15 area of continued focus for the Committee this
16 next cycle.

17 And we identified two particular
18 actions that we want to take, and there were
19 multiple recommendations that really roll up into
20 the first action where we had recommendations
21 related to what to insure we address in terms of
22 use cases, and other things like bandwidth and

1 duplexing, et cetera, the characteristics of 5G.
2 And so what we want to do since there's a lot of
3 ongoing work in this area both domestically and
4 internationally, is that we want to create an
5 overall, I'll call it actually a work plan to
6 insure that the components of the recommendations
7 are folded into our activities domestically and
8 internationally, as well as the standards
9 engagement that will occur. And I'll get a little
10 more into the standards work here in a moment.

11 But part of this effort will help us
12 in terms of coordination and insuring we're not
13 missing anything, and it should help the folks
14 that we're working with, the other stakeholders
15 to insure that we're addressing all of the key
16 items of interest in these other activities to
17 insure 5G is successful as we move forward. And
18 in particular with a focus, also, in
19 characteristics around sharing, that enable
20 sharing. And that rolls into the second action.

21 There is a lot of interest in how can
22 we do better collectively in engaging and

1 influencing the standards, particularly as it
2 relates to enabling sharing in 5G, specifically.
3 So we have started to participate in 3GPP, and we
4 want to collaborate with the Commission, the
5 agencies, and industry to develop a strategy
6 around how do we best engage in 3GPP, or other
7 standards activities in order to integrate key
8 Spectrum sharing elements that could enable
9 sharing between federal and non-federal users in
10 these bands.

11 So those are the two actions that we
12 have on the docket based on the last set of
13 recommendations. Any questions on that one?

14 CO-CHAIR GIBSON: Mariam. Yes, I'd be
15 disappointed if you didn't ask a question.

16 MEMBER SOROND: Yes. This is Mariam
17 Sorond with DISH Network. So, I just had a
18 question, and thank you for considering the
19 recommendations that the Subcommittee made.

20 The overall plan that the NTIA is
21 developing in conjunction with what -- as I was
22 looking, and I'm not trying to jump ahead, but

1 the future work for 5G, is that something that
2 CSMAC will be sort of involved in, or do you see
3 that plan as being jointly developed by CSMAC, or
4 is this something the NTIA is actually going to
5 be doing themselves independent of that CSMAC
6 work, which may be sort of the next steps of
7 things?

8 MS. ATKINS: Yes. So I see, one, we
9 will be integrating some of the specifics of the
10 last report that was generated by the CSMAC. We
11 wouldn't be doing this totally independently
12 because that wouldn't make sense, so we will
13 engage not necessarily the CSMAC in the near term
14 effort because the cycle is just -- we want to
15 get it done more quickly than would allow by
16 engagement with CSMAC formally. But we will be
17 engaging, again, industry and the Commission, and
18 then we will continue -- we'll have a liaison
19 with whatever 5G efforts might occur in the next
20 cycle. And this will be an iterative process,
21 this won't be a static document because things
22 will be changing in terms of priorities,

1 activities, et cetera, so we will imagine that
2 the next cycle, CSMAC will continue to feed into
3 our work plan, our engagement strategy for
4 standards, et cetera.

5 Okay. The next item, Government-
6 Industry Collaboration. And I think we've
7 exhausted this topic, but we did want to wrap up
8 on a couple of things. We had I'll say a general
9 question on should there be regulatory changes to
10 better leverage collaboration between industry
11 and government for sharing to include things like
12 operator-to-operator type coordination.

13 The focus of the Subcommittee -- well,
14 the answer was basically there's really not
15 anything to do in terms of changes, and the focus
16 was on the topic of sharing of sensitive and/or
17 classified information, which has come up
18 multiple times over the years. So what we want to
19 do just to wrap this up and set the stage for
20 further discussion as it comes up in other
21 forums, not in CSMAC. We are going to generate a
22 white paper that helps encapsulate what the

1 situation is, because some of the discussion has
2 not been feasible in terms of approaches, so we
3 want to make sure we have documented what is
4 feasible, what isn't, to set a common baseline
5 for any future discussions. And if opportunities
6 come up to reassess certain approaches, we can
7 certainly do that, but we want to make sure
8 everybody has a common baseline so we don't churn
9 on this issue too much in the future.

10 We also do want to take a look at the
11 benefits and limitations of having a classified
12 component to CSMAC. There are other Advisory
13 Committees that do classified work. As I have
14 expressed in the past and during the debates over
15 the last year, my concern are things like that
16 would limit membership, it would limit
17 transparency of what comes -- potentially
18 transparency of what comes out of the Committee,
19 which I'm not sure we want to do in the
20 activities that we're pursuing, but we're going
21 to look at it and better understand and document
22 the pros and cons. I doubt we'll add a classified

1 component for the reasons that I indicated, but
2 we do want to take a look at it.

3 Any questions on that?

4 CO-CHAIR GIBSON: I was going to say --

5

6 MS. ATKINS: I was looking at Tom,
7 Steve.

8 MEMBER DOMBROWSKY: Tom Dombrowsky. I
9 think one thing that would be helpful is to not
10 limit it to just looking at a classified
11 component to CSMAC, but broadly, because a lot of
12 the conversations that we've been having outside
13 of CSMAC also would benefit from having a
14 classified component potentially, as well. So I
15 think --

16 MS. ATKINS: Yes, I think --

17 MEMBER DOMBROWSKY: -- if we can look
18 at it broadly it would be helpful.

19 MS. ATKINS: I think that goes back to
20 the first action, is to better -- to insure that
21 everyone understands the framework.

22 MEMBER DOMBROWSKY: Yes, I understand

1 that part, but I'm just saying, for example, if
2 we have a particular federal agency that has a
3 Spectrum band, that they could potentially
4 partner up or sponsor people for clearances for
5 discussions with that agency about that
6 particular thing.

7 MS. ATKINS: Right.

8 MEMBER DOMBROWSKY: I think the --

9 MS. ATKINS: And some of those methods
10 --

11 MEMBER DOMBROWSKY: And I don't think
12 it has to be limited to CSMAC, would be helpful.

13 MS. ATKINS: So those kinds of methods
14 and what you could or could not do would be
15 defined in that first output.

16 MEMBER DOMBROWSKY: Right.

17 MS. ATKINS: So you understand --
18 better understand in those external activities
19 what you might be able to do contractually or
20 otherwise to facilitate that discussion and
21 sponsorship. Okay.

22 (Off mic comments.)

1 MS. ATKINS: We think that will help
2 everybody, and then we can get into discussions
3 and answers questions.

4 CO-CHAIR GIBSON: Paige, is this one
5 white paper with these two topics?

6 MS. ATKINS: It might be two.

7 CO-CHAIR GIBSON: Okay.

8 MS. ATKINS: We'll see whether it
9 warrants two, or not.

10 CO-CHAIR GIBSON: Thank you.

11 MS. ATKINS: Okay.

12 (Off mic comment.)

13 MS. ATKINS: Okay. The next one,
14 Federal/Non-Federal Sharing, which is another one
15 that we've had a lot of activity in CSMAC. And in
16 this case we were focused on how to enable shared
17 access, federal access to non-federal Spectrum
18 and in different conditions, intermittent to long
19 term and more pervasive access, as well as there
20 was a component about incentives. Going back to a
21 comment I made earlier, incentives for licensees
22 -- exclusive licensees to share with federal

1 entities. And there was a lot of good work done.
2 There was a lot of interchange on public safety
3 kinds of examples that have occurred and exist
4 today in terms of federal and non-federal
5 sharing. And what we want to do initially is be
6 able to capture the I'll say best practices and
7 activities in what we're calling a reference
8 document for sharing, this first item, to include
9 the approaches, current examples, and again,
10 public safety is a good one, and Lessons Learned.

11 And in conjunction with that, the
12 second bullet is we want to create a repository
13 of information. That includes that document, as
14 well as perhaps other documents to include not
15 only practical things we're doing today, but
16 theoretical things that may look promising, and
17 perhaps some sample MOUs that are out there that
18 enable sharing between federal and non-federal
19 entities, but we have to look at the feasibility,
20 particularly including some of the MOUs, or
21 perhaps identifying some templates that people
22 can use as a best practice. So we want to

1 encapsulate, document, and put it in a repository
2 initially for our own use, but potentially then
3 for more publicly accessible use in the future.

4 And then the third bullet, we want to
5 explore the challenges and opportunities of
6 federal agencies and non-federal entities to
7 enhance their access to either each other's
8 Spectrum, or each other's I'll say
9 infrastructure, networks, facilities. There was a
10 recommendation tied to should each other have
11 direct access and authorization to use the
12 frequencies? So you might think one example may
13 be dual licensing or authorizations which does
14 occur on occasion today. Other examples may be
15 actually sharing infrastructure, as an example,
16 so we're going to look at that and peel it back,
17 and understand what that may look like, pros and
18 cons, what is the I'll call it the arc of the
19 possible?

20 And then the last item is to conduct
21 a workshop. And this is to pull the stakeholders
22 together and to peel back and better understand

1 the use cases in terms of federal access to non-
2 federal Spectrum. What kind of applications, what
3 are the challenges in federal entities needing
4 access? What does that look like around
5 installations or more pervasive access? And then
6 talk about barriers to sharing, and potential
7 solutions. So we'd like to try to have a workshop
8 toward the end of this fiscal year, so that's a
9 tentative date. And you'll see each of these have
10 a quarter and year associated with them which are
11 I'll say notional or target dates as we see them
12 today.

13 And then that will feed, obviously,
14 future work, whether it be from NTIA's
15 perspective, or perhaps feeding into the next
16 year cycle, you know, after this one ends. Any
17 questions?

18 CO-CHAIR ALDER: I have a comment. Just
19 for people's benefit, if you were on the last
20 CSMAC, this was a federal versus non-federal --
21 the federal/non-federal sharing was a topic that
22 came up in our brainstorming, and the meeting we

1 had, it was kind of decided that we had done a
2 lot of work and it would be good to take some of
3 these actions and then maybe come back to it. So
4 it was intentionally left off -- it was
5 consciously left off the list for this year, the
6 proposed list.

7 MS. ATKINS: And that was similar to
8 what we did with enforcement. We had a great
9 cycle and great report on enforcement, and NTIA
10 took some actions to work in that area. And you
11 heard about some of them that Glenn mentioned
12 earlier, and then we are hoping that it might be
13 a topic for focus in this next cycle.

14 CO-CHAIR ALDER: And I was glad to see
15 that -- I mean, one of the questions I think to
16 fuel a more productive next session on Spectrum
17 was this use cases, so I'm glad to see that, that
18 workshop.

19 MS. ATKINS: Yes, and we had some use
20 cases that were discussed during the last cycle,
21 but I think it's to get a more robust
22 understanding of what that actually looks like.

1 So we'll make sure that the CSMAC is informed as
2 we move toward that workshop.

3 And the last item is Slide 7, the
4 CSMAC Access System, Spectrum Database,
5 International Extension; and this was how do we
6 understand and address the challenges of
7 extending our domestic solutions to sharing to
8 the international environment, particularly in
9 terms of access databases, and things that get
10 much harder from a security standpoint and an
11 implementation standpoint when you look at
12 international deployment?

13 And so we got a lot of good
14 information as we did with the other
15 Subcommittees and Committee on this topic. And
16 what we want to do is take a step back to a
17 certain degree and try to define our priorities
18 and challenges to successful sharing approaches
19 internationally, and develop a strategy. So we
20 will look at things like SAS implementations,
21 better define the opportunities or the best way
22 to -- or the best bands I'll say that could

1 potentially implement that kind of technology or
2 other sharing technology, the likelihood of
3 wanting to share from a global standpoint, and
4 help us prioritize the areas, and better define
5 the risks and challenges with those kinds of
6 implementations, so we can start peeling it back
7 in terms of addressing the security challenges or
8 other challenges that identify.

9 We also want to -- in the second item,
10 you always have a challenge of how do you
11 characterize systems for sharing, and
12 particularly for national security systems?
13 There's always this balance of how do you provide
14 enough information to enable sharing while
15 protecting sensitive and classified information
16 on the system itself, whether it be, you know,
17 looking at database implementations, or even
18 sensing implementations, as examples.

19 So we want to look at options in terms
20 of how do we better characterize waveforms, how
21 do we better envelope the waveforms that enable
22 sharing but, again, protect the information

1 that's behind it. So we're going to peel that
2 back to another level, as well.

3 And then there was a, I'll say
4 perception that NTIA really didn't -- I'll be
5 blunt, didn't really know what was going on from
6 an R&D perspective. And, in fact, there are a lot
7 of activities going on that we participate in,
8 but we want to better understand what is going on
9 in Spectrum sharing R&D, in particular, where we
10 are engaged, where the gaps are, and determine
11 where we need to create more robust engagement
12 from an NTIA perspective; not just engagement in
13 those forums, but then dissemination of that
14 information back out to the agencies, as well, to
15 enhance our collaboration and coordination. So we
16 will be looking at that to create internal
17 recommendations of where we should potentially
18 apply additional resources. Any questions on
19 that?

20 CO-CHAIR GIBSON: I had a question. On
21 number 2, so the ESC providers in 3.5 gig band
22 are working with ITS. I believe MITRE had a role

1 in that, as well as others. They were doing
2 measurements of radar waveforms, nondiscriminate
3 radar waveforms. Is that part of what you're
4 talking about, or is it in addition to that?

5 MS. ATKINS: I would say I believe that
6 will inform. I'm not sure it's all inclusive.

7 CO-CHAIR GIBSON: Okay, because there
8 is -- they have an action, actually, to provide
9 additional waveform data from another measurement
10 location, and so to the extent that you could try
11 to -- I know the end of the year, annual year
12 this year, but if you could become part of that
13 and facilitate that, that would be a great help.

14 MS. ATKINS: Yes. And I believe our
15 folks are already engaged with ITS on that.

16 CO-CHAIR GIBSON: Okay, very good.

17 MS. ATKINS: And some of this -- some
18 of the Lessons Learned we'll be applying are out
19 of the 3.5 activities.

20 CO-CHAIR GIBSON: Janice.

21 MEMBER OBUCHOWSKI: Just a couple of
22 observations. One going backwards because I

1 didn't get my tent up quickly enough. On the two
2 preceding topics of government entity
3 collaboration, you know, we have Dennis Roberson
4 here which is a first resource, but in general,
5 you know, the TAC and the CSMAC work on parallel
6 courses, and have both done work. And I guess
7 this sort of comes forward as a suggestion from
8 me, perhaps, that perhaps once a year we have a
9 joint meeting or perhaps we schedule on a semi-
10 annual basis briefings in two different
11 directions, because increasingly in the world of
12 sharing issues are going to come up, and it would
13 be good to kind of cross-pollinate.

14 And I guess in the area of cross-
15 pollination, and taking us down an even broader
16 path, the topic of cyber interconnects with this
17 database topic in kind of frightening ways. It's
18 front of mind nationally and, you know, it came
19 up particularly in the case of international
20 expansion of database technology, but just as a
21 general topic, I think it's perhaps been
22 underappreciated as a threat. And I would be

1 specifically interested in our Advisory Committee
2 having that as an agenda item at a minimum to be
3 briefed, perhaps invite in the new administration
4 some responsible player to talk about the topic
5 of cyber and how it might impact this Spectrum
6 environment, particularly the federal Spectrum
7 environment.

8 MS. ATKINS: Yes, and I think from a
9 database standpoint when we talk about security,
10 it has multiple facets, including cyber. And I
11 will say as you look across enhancing sharing,
12 dynamic sharing, and other related technologies,
13 tools, and techniques it intersects with not just
14 cyber, but also privacy. And so there are
15 multiple interdependent pieces that we may want
16 to think about how to better address and/or
17 identify so we can look at actions to address
18 those in a collective manner. And we can draw on
19 some of the other activities within NTIA in that
20 regard.

21 MEMBER OBUCHOWSKI: Well, I think to me
22 it becomes crucial because if I have an

1 observation to make historically as somebody who
2 is a convert to great appreciation for sharing,
3 the philosophy outstrips the implementation even
4 to date. And inviting those folks into the
5 dialogue I think puts a certain amount of
6 pressure on us and on the policy process. It
7 forces the solutions faster than they're coming
8 forward.

9 MS. ATKINS: I will also go back
10 quickly to the TAC-CSMAC interaction. So as you
11 know, last year we had designated NTIA liaison
12 into the TAC and vice versa, and we've talked
13 about at times, not just information exchange,
14 but also leveraging folks that serve in both
15 capacities that are here today to think about
16 identifying topics perhaps that we may want to
17 discuss pursuing jointly in some capacity. So I
18 would offer that for thought, and particularly
19 for folks like Dennis and Dale, et cetera, to --
20 if there's some particular item that you think
21 we need to consider in that regard, please
22 highlight it as we go along.

1 CO-CHAIR GIBSON: Okay, anything else?

2 MS. ATKINS: No, I'm done.

3 CO-CHAIR GIBSON: Okay. Larry is asking
4 if people want to take -- we're a little ahead of
5 schedule.

6 CO-CHAIR ALDER: A little ahead of
7 schedule.

8 CO-CHAIR GIBSON: Yes, by about 13
9 minutes, by exactly 13 minutes if you look at the
10 clock up there, so are people -- do people want
11 to take a leg stretch break and come back at
12 2:30? Could we start back on the nose at 2:30? So
13 we'll start whether you're here or not at 2:30.
14 Okay, then let's break for 12 minutes now.

15 (Whereupon, the above-entitled matter
16 went off the record at 2:18 p.m. and resumed at
17 2:30 p.m.)

18 CO-CHAIR GIBSON: While everybody is
19 getting seated, I just want to make an
20 observation that with Mark Racek joining there is
21 now four Marks on the CSMAC, so just keep that in
22 mind, for what that's worth.

1 (Off mic comments.)

2 CO-CHAIR ALDER: All right. I think
3 we're going to get started right here at 2:30.
4 Thanks, everyone, for being prompt.

5 So the next section of the agenda is
6 the more participatory section. We're going to
7 walk through a discussion of the potential
8 topics.

9 Again, just a reminder how we got
10 here. We took the input from the brainstorming
11 session last time, took the input from the past
12 work, worked with Paige and her staff to come up
13 with this list that we circulated to everyone,
14 and I hope everyone had a chance to review it.
15 We did solicit comments. We'll try and summarize
16 those comments that we got on each of the topics.
17 We didn't get too many comments, which was either
18 people weren't paying attention or were busy, or
19 meant we were generally in the right direction.
20 We'll find out as the discussion ensues today.

21 So, I think there's two key points. We
22 are going to, ultimately, narrow it down to four

1 Subcommittees. We might not do that here today.
2 Today might just be collecting input and
3 discussion, but as important is each topic
4 focusing it down. Figuring out what is really the
5 point of focus where the CSMAC can add the most
6 value. Again, I think an example is enforcement.
7 We don't want to take on the generic topic of
8 enforcement, but maybe a specific question in
9 there.

10 And, again, this is -- the discussion
11 is really the up front opportunity for everyone
12 to shape what we're doing. We're going to live
13 with this outcome for the next year as we work in
14 these Subcommittees, so it's a good opportunity
15 up front to get input on the questions. But,
16 ultimately, it will be the NTIA that does kind of
17 propose the questions.

18 So, everyone, there should be a copy
19 of the slides here, if everyone has picked that
20 up at the desk. And we're just going to walk
21 through them kind of one topic at a time, I
22 think. I'm going to cover the first slide, and

1 then Mark is going to walk us through each one
2 together.

3 So we had six topic areas that were
4 identified. Again, the broad topics isn't
5 representative of the actual focus; 5G was the
6 first one. International; reconciliation of the
7 U.S. policy with international policy. And I
8 think there's some clarification there. I saw in
9 some of the comments there's some discussion that
10 needs to happen there.

11 Enforcement, and again a specific
12 action, the process for identifying suitable
13 bands. The CSMAC -- I mean, the NTIA already has
14 a process and they would like input on how to
15 refine that process.

16 And the fifth topic is around the
17 pipeline of Spectrum professionals, and some
18 concerns that the NTIA has in that area. And the
19 sixth one; we use the word "incentives," but it's
20 really not all about incentives. It's about some
21 of these things like the Spectrum Fund, how do
22 you fund Spectrum research, and so forth? So

1 those are the six areas. Again, the goal is to
2 have three or four topics. And we've outlined
3 again the timeline that we're shooting for
4 roughly forming these Committees in February,
5 next having them start meeting in March, next
6 meeting, you know, the first kind of round of
7 discussion, third meeting preliminary, fourth
8 meeting final. So with that I'm going to turn it
9 over to Mark. He's going to walk us through some
10 of the -- the first topic.

11 CO-CHAIR GIBSON: Okay. Well, I'm not
12 going to read this. I assume everyone in the room
13 are literate, myself included. But, basically,
14 what we're looking for is to pick up the work,
15 the 5G work that was done before and see how we
16 can focus on things like Spectrum sharing
17 technologies that are inherent in 5G that might
18 be helpful for sharing in the context of 5G. And
19 the work was done before which I'll say again was
20 excellent work, with characterizing 5G in the
21 context of the federal commercial sharing.

22 What we're looking for now in this is

1 to take a look more at 5G and find out what in
2 terms of waveforms, or aspects of the standard
3 that would facilitate sharing. That's kind of the
4 context for this. So the first thing is, you
5 know, looking at receiver performance,
6 particularly with respect to IoT devices. The
7 second is 5G technologies that might facilitate
8 interference prevention, detection, and
9 resolution.

10 And you might find some of this
11 overlaps, perhaps, into enforcement. We're not
12 going there specifically with this, but if you
13 see things like that, feel free to tell the
14 Enforcement Committee.

15 And then the standards challenges.
16 Now, as Paige said, NTIA has been participating
17 in 3GPP, but if there's any standards challenges
18 that you can identify up front that we can begin
19 to get into study items within 3GPP that would be
20 helpful. So let me stop and see with that one.
21 There's another question with respect to 37 to 40
22 gig, we'll get to in a second. Let's have some

1 conversation around that and see what people
2 think.

3 CO-CHAIR ALDER: Before we do that, I
4 wanted to --

5 CO-CHAIR GIBSON: Oh, yes.

6 CO-CHAIR ALDER: What we're going to do
7 is, we did receive emails. Some of them were sent
8 to the whole group, some of them were sent just
9 to us, so just summarizing the email comments
10 that we received before we kick it open for the
11 general discussion.

12 Basically, all the email comments were
13 this is generally an area we should be working
14 on. There was general support for this, that it
15 was timely. Dennis was concerned that maybe the
16 standards have already kind of gotten out in
17 front of it, but still felt like it was a good
18 topic. Charla had some specific questions about
19 why the 37 to 40 gigahertz was specifically
20 called out. But other than that, everyone seems
21 supportive on the email chain.

22 CO-CHAIR GIBSON: And so the context

1 for the 37 to 40 is, again, that band actually
2 has some potential sharing considerations. And so
3 in the context of 5G, what is going on within 5G
4 that can be exploited to facilitate sharing,
5 assuming sharing is even in the offing for that.
6 So that's generally the outline for the 5G
7 topics.

8 So in light of what Larry read with
9 respect to some of the feedback, thoughts and
10 comments? And, by the way, we've got six topics
11 to cover in an hour so I'm going to try and march
12 it along pretty quickly, but I do want to get
13 feedback. So, thoughts? Jennifer, you look like
14 you're puzzled. And Mariam, while you're getting
15 unpuzzled, Mariam.

16 MEMBER WARREN: So, Jennifer Warren. So
17 I was pondering because I, too, am struggling
18 with the second question under 5G, why it would
19 be band-specific, but why it wouldn't be 5G in
20 deployment options. How could different
21 deployment options given that it's a multiple
22 band concept be looked at? And while we are

1 focused on federal/non-federal, some of those
2 deployment options that come out could be then
3 useful for even non-federal/non-federal. So, I
4 guess I just -- I would be interested in a
5 broader discussion of its usefulness in that
6 context.

7 CO-CHAIR ALDER: Okay. The four-page
8 response to that -- I think that's a good
9 comment. I just wanted to -- when I was in the
10 room and we were discussing this, the specific
11 band, the 37 to 37.6 is already called out as
12 dynamic sharing. I think that was -- because for
13 this 5G topic, the focus was sharing, that's why
14 that particular one was called out.

15 MS. ATKINS: Yes, I think it is our
16 I'll say nearest target, so that -- the emphasis
17 was on that band to help us as the further notice
18 goes forward and defines what that sharing might
19 look like. And so thinking through what kinds of
20 use cases, how would we make it work, et cetera?
21 But I agree in the broader context we want to be
22 able to extend it across the bands.

1 MEMBER WARREN: Or extrapolate it, yes.

2 MS. ATKINS: If appropriate.

3 MEMBER WARREN: Yes. Thank you.

4 MEMBER RATH: Actually, I just have a
5 follow-on on that. So am I understanding that
6 really what you're talking about is 37.6 and not
7 the whole band because that actually -- you know,
8 I sort of felt the same way Jennifer did, is
9 because there are sharing issues throughout all
10 of the millimeter wave, you know, particularly
11 with what's coming up on the NPRN, but 37 to 37.6
12 was very specifically something that was
13 addressed in the order. And I knew that that was
14 something that you wanted to do, so it just
15 confused me a little bit to -- it almost seemed
16 like you were broadening it only to that band
17 from --

18 MS. ATKINS: Yes. I think the idea was
19 how do we focus in a way that makes sense to get
20 solid recommendations out of it in a year time
21 frame, and what is the priority? So even if you
22 go beyond 37 to 37.6, there are some other

1 federal systems so the sharing to me would be
2 easier probably with some of those other cases
3 where there might be geographically-based use.
4 But they're -- you know, it's open for discussion
5 in terms of whether you look more broadly.

6 MEMBER RATH: I didn't think it was as
7 open from 37.6 to 40 as it is from 37 to 37.6.
8 That was really my -- I thought that there was
9 more that had already been sort of decided on
10 what the sharing criteria and how it would work
11 up to 40, but that there was a lot of
12 flexibility. And I'm looking at little bit over
13 to Steve because I know we were very engaged in
14 this.

15 (Off mic comment.)

16 MEMBER RATH: True, would have an
17 impact. Well, that's actually true.

18 MEMBER SHARKEY: But I just -- you
19 know, I would just say it gets difficult
20 sometimes in these groups where you've got an FCC
21 proceeding going on, and then we're trying to
22 specifically deal with those same issues. It can

1 sometime -- it can make it more contentious in
2 the groups rather than looking at broader
3 technology issues, or broader ways to do sharing
4 or approaches to allowing a cooperative
5 environment.

6 MS. ATKINS: Yes, and we understand
7 that. That's part of the reason for this
8 discussion.

9 CO-CHAIR ALDER: So would I be correct,
10 Paige, in saying you definitely want some
11 feedback for the 37 to 37.6, but you're open for
12 broader feedback? Is that a correct way of
13 phrasing it?

14 MS. ATKINS: If the feedback on 37 to
15 37.6 causes specific issues and consternation
16 where the dialogue can't be healthy I'll say, it
17 may not be worth going down that path. But the
18 idea of looking at what would a dynamic sharing
19 scenario look like in millimeter wave, take 37 to
20 37.6 out of the equation specifically, but just
21 in general the opportunities for dynamic sharing,
22 you know, what would that look like, might be a

1 way to do it.

2 CO-CHAIR GIBSON: Go ahead, Mariam.

3 MEMBER SOROND: Yes. Could I just --
4 well, I had another set of questions, but just
5 now on this particular topic. I think one of the
6 things in the report that we identified is that
7 for any solutions for sharing, they will be
8 completely band-specific. And I don't -- you
9 know, whatever band that's picked, or not picked,
10 or general, we can't take that and apply it
11 across the board. So if you decide to take 37 to
12 37.6 and study that, that can't be applied to
13 another frequency spectrum, so there won't be any
14 general learnings from picking a specific
15 frequency band. It will just be applicable to
16 that. I mean, the example is, what happens in
17 AWS-3 sharing is obviously different with what
18 happens in, you know, another Spectrum sharing,
19 what your receivers are, what your transmitters
20 are, what are the federal systems operating, and
21 then what 5G application would be used, and every
22 band is going to drive these things. So I think I

1 understand if you wanted to generally look at
2 dynamic sharing, that's one thing, but basically,
3 if we do look at 37 to 37.6, it's just for that
4 band. It won't -- I don't think it's a general 5G
5 study item.

6 MEMBER SHARKEY: This is Steve Sharkey
7 again. Yes. I think one difference here would be,
8 I don't think there are any federal systems in 37
9 to 37.6 right now. Right? I mean, I think it --
10 so it would be -- you would have to look at kind
11 of defining some broader sharing in -- which is
12 different than AWS-3. There are very specific
13 things that we're looking at.

14 CO-CHAIR ALDER: So what I'm hearing,
15 kind of in the interest of time, is that there's
16 -- majority of people think we should take this
17 topic on. There's the focus on sharing is good,
18 the 37 to 37.6 is a candidate to look at but
19 doesn't have to be, and maybe we leave that to
20 the Subcommittee to kind of figure out as we go
21 through, or Paige, do you think we need to refine
22 that more now today?

1 MS. ATKINS: I think we'll take it
2 under consideration.

3 CO-CHAIR GIBSON: Let me ask a question
4 in that context. Are you done, Mariam, or do you
5 --

6 MEMBER SOROND: Well, I had my next
7 question.

8 CO-CHAIR GIBSON: Oh, sorry. Go ahead,
9 keep going. I do want to make sure we march
10 along, so go ahead.

11 MEMBER SOROND: Okay. The question I
12 had is on the first bullet point, it's -- and,
13 Paige, you referred to receiver performance
14 earlier in another context. And I'm a little bit
15 confused if we're talking about just receiver
16 performance requirements for 5G, or also receiver
17 performance requirements for federal systems?
18 Because I think I may have thought that earlier
19 you were talking about receiver performance
20 characteristics or requirements for federal
21 systems, as well, because I think what we're
22 facing right now is, in this whole sharing

1 existing spectrum bandwidth that's been done, the
2 general approach to it has been, you know, sort
3 of what's there today, what am I bringing in, you
4 know, in the next couple of years? And let's
5 figure this out. And then the whole -- there's a
6 whole toll around well, what happens in the
7 future? So, for example, federal systems like as
8 part of AWS-3 or any other spectrum band, they
9 want flexibility to be able to upgrade their
10 services, they want flexibility to maybe use more
11 of the bandwidth that they're being using today,
12 or do something just different. And that's now
13 becoming sort of like this whole issue that is
14 not clear how it's going to be dealt with.

15 And the same thing, you know, with 5G
16 system, same thing, you know, networks are going
17 to go through upgrades on both sides. So,
18 basically, I think it's important to consider
19 this as both -- like both key receiver
20 performance requirements of future commercial
21 services and key performance requirements of
22 future federal services, which is what we were

1 trying to outline in the report saying let's
2 consider 5G being for everyone, 5G, both federal
3 and commercial, we're all kind of upgrading and
4 changing our networks.

5 MS. ATKINS: Yes, a couple of things.
6 I would think of it in terms of you might be able
7 to create dual use technologies that are
8 applicable to government requirements, as well as
9 commercial requirements which could enable
10 certain things. The flexibility and use is a
11 priority for federal systems, as well as non-
12 federal systems, so that creates a certain
13 dynamic and challenge.

14 I would say when I talk about receiver
15 characteristics and receiver performance, I'm
16 talking more generally. However, traditionally in
17 the federal environment we already have some
18 pretty in some cases very stringent receiver
19 performance requirements that we tend to
20 institutionalize on our own, so it tends -- even
21 though we could have some opportunities to shape
22 receivers on the federal side, that is

1 traditionally what we do anyway, is to tighten
2 the receivers, because they're in harsh
3 environments to begin with from a deployment
4 standpoint. So we would -- when I talk about it,
5 I talk generally speaking, but in most cases the
6 federal receivers in my experience have been
7 pretty tight relatively speaking, not including
8 certain more generic receivers, maybe GPS, et
9 cetera, in certain cases.

10 CO-CHAIR GIBSON: All right. Dale, do
11 you have a question, or are you just putting your
12 tent back up?

13 MEMBER HATFIELD: I have a comment, if
14 I could.

15 CO-CHAIR GIBSON: Okay.

16 MEMBER HATFIELD: As somebody who, of
17 course, has been talking about receiver issues
18 for a long, long time but, you know, I think we'd
19 better be served by thinking about interference
20 limits in harms-claimed threshold and leave it to
21 the marketplace to come up with a much more
22 marketplace-oriented -- let the marketplace

1 figure it out rather than having us specify
2 actual performance, receiver performance.

3 That ties back then to the enforcement
4 that we're going to talk about. Enforcement, if
5 you know what the experience limit is or
6 something like that, then you can make a
7 determination of if an enforcement action is
8 needed. So I would just point that out. I've
9 advocated, of course, good close friend, Pierre
10 de Vries, has done an awful lot of work looking
11 at the harms-claimed threshold, or interference
12 limit as an alternative to details to receiver
13 specifications.

14 CO-CHAIR GIBSON: Okay. Thanks, Dale.
15 So I'm going to shut it down right now and
16 reiterate that -- you want to put your table tent
17 down? That for what we're trying to do today is
18 flesh out thoughts and ideas and any way we might
19 refine the question. As these comes through, what
20 we'll do within the Subcommittees is dig deeper
21 into it. And like what we did last time,
22 especially with the 5G one, we actually recast

1 the question, so there is still room for that
2 consistent with what NTIA is looking for, but we
3 can't litigate the merits of the questions out
4 here otherwise we'll be here until tomorrow. So
5 what we're trying to do is get thoughts and
6 feedback on the questions.

7 And so having said that, the next one
8 is reconciling U.S. and international Spectrum
9 policy. So what we're looking here to do is to --
10 basically, you can read this. Should the United
11 States develop international recommendations and
12 reports prior to finalizing our domestic rules in
13 order to better harmonize our policies so that,
14 you know, when we go into work and whatnot we
15 have some flexibility, which is what they just
16 said. And what types of outreach should be doing
17 a priori before we go to these things?

18 So the context of this is basically,
19 for example, you know, coordination of U.S.
20 domestic and international efforts on terrestrial
21 mobile broadband, for example, the Spectrum
22 Frontiers, UAS implementation, whatever. So the

1 question is, are there any issues where domestic
2 efforts could be hindered by international
3 developments? So that's kind of what we're
4 looking for, is feedback in that regard.

5 CO-CHAIR ALDER: And before we throw it
6 open, we did hear some comments on the email on
7 this one about concerns about making the
8 international work a gate for the domestic work.
9 It was not my interpretation sitting in the room,
10 and Paige can clarify, that that's what the
11 intent here was. It was more like to get ahead on
12 the international work, not to make the
13 international work a gate. But we did hear
14 several people express those concerns on emails.
15 Mary, in particular, felt she wouldn't want to
16 see that happen.

17 There was also some concerns about the
18 political environment; Dennis having shared that
19 with the whole group, that it's not, you know, a
20 favorable time for kind of the international
21 work, but he was still open. Those were kind of
22 what we heard from the folks on the email chain.

1 CO-CHAIR GIBSON: And so, again, the
2 purpose of today is to socialize some of this,
3 but if you have specific comments, then like what
4 we did before, is send them back to the team
5 which would be us up here and any of the other
6 colleagues if you want to, but we need to see
7 them as well; your thoughts on that. But having
8 said that, are there any questions that you guys
9 have for the purposes of clarification of the
10 question?

11 CO-CHAIR ALDER: Or thoughts whether
12 this is a fruitful topic.

13 CO-CHAIR GIBSON: Mariam.

14 MEMBER SOROND: Sorry, just to clarify.
15 I didn't comment on this. You said Mariam.

16 CO-CHAIR GIBSON: He said Mary.

17 CO-CHAIR ALDER: Mary.

18 MEMBER SOROND: Oh, good. Okay. All
19 right.

20 CO-CHAIR GIBSON: Jennifer.

21 MEMBER WARREN: Jennifer Warren. I
22 think the question, and I had nothing to do with

1 the promulgation of this question, but I think
2 that the question is really how does the U.S.
3 effectively advance a strategy that benefits U.S.
4 interest, no matter how we define it, whether it
5 be one technology or another? And there seems to
6 be a misperception on how -- what happens in
7 different environments and how they affect
8 industries. And perhaps there is some value that
9 can brought to this. I'm not an advocate for
10 this, but I certainly think there's been a lot of
11 mischaracterization of the last WRC. And there
12 was a lot of ill advice that was given perhaps to
13 countries that didn't get everything they wanted.
14 But I think there's a lot of Lessons Learned that
15 could also be brought that I'm not sure is really
16 what NTIA wants as an Advisory Committee role,
17 but nobody else is looking at it.

18 CO-CHAIR GIBSON: Thanks. Paul. I think
19 that's you, right?

20 MEMBER KOLODZY: Paul Kolodzy. I was
21 wondering if you wanted to -- if part of this is
22 to understand the federal and non-federal uses of

1 Spectrum and what's going on in other places
2 around the world? Sometimes when you're trying to
3 make plans as to how you want to interact and
4 what's going to happen, sometimes it's better
5 since we're no longer the driving force
6 economically in this area. I mean, the whole
7 world is expanding. Is there a chance that you
8 want to take a look at how they're formulating
9 their responses, and how their federal systems
10 and non-federal systems are interacting as a
11 possible mechanism for us to understand how we
12 might want to do work in our own system? I know
13 that's sort of like that's self-ingratiating. We
14 always like to say that we're the leaders.

15 MS. ATKINS: Yes, and I'm not sure I
16 exactly followed it, but there -- we do have a
17 lot of insight I think in the vein that you were
18 discussing in terms of working with other
19 administrations, other militaries, other entities
20 to try to understand positions and/or how they're
21 coordinating, and how they're advocating.

22 I think this was driven I think

1 largely from the challenges and maybe somewhat
2 misinformed or misperceived, but challenges and
3 perceptions that the U.S. was getting ahead of
4 international. Should we wait or not, or do we
5 move forward, and if folks don't follow, what are
6 those implications in terms of global scale and
7 markets? And I think the idea was to better
8 understand is there a better way than what we're
9 doing today to more strategically position,
10 advocate, sequence these activities? And I'll ask
11 Steve am I characterizing this correctly?

12 CO-CHAIR GIBSON: Okay. I have
13 Christopher, then Charla, and then Carolyn, and
14 that's the questions. That's it, so go ahead,
15 Christopher.

16 MEMBER WEASLER: Sure, thanks. Chris
17 Weasler. First, I would say I think this is a
18 great topic, or a really important topic. We
19 spent a lot of time engaging with Spectrum
20 authorities outside the U.S., and to the extent
21 that there's good alignment between what the U.S.
22 is doing with let's say the ITU and some other

1 sort of countries, the UK I think is another one.
2 It just makes it easier for, you know, I'll
3 describe them as less sophisticated Spectrum
4 authorities to make decisions about policy and
5 try to do things in a consistent way. So, I think
6 that's the first point I would make.

7 I also, you know, have kind of felt
8 the tension between policy keeping up with the
9 pace of technology and trying to push
10 institutions like the ITU to make sure that the
11 framework that they facilitate is addressing
12 that.

13 I guess one question I would pose for
14 this group is, is this topic a good topic for the
15 CSMAC given that there are other important
16 stakeholders, whether it's FCC, state that would
17 certainly, you know, have a lot of input into
18 this. So just as a new person here, I don't know
19 if that's a good question to ask, or if it's
20 obvious to everyone else, but I would just pose
21 it.

22 CO-CHAIR GIBSON: Okay, that's a good

1 question. Charla, Carolyn, and then Janice, and
2 Steve, and that's it.

3 MEMBER RATH: Sure. Just to reiterate
4 some of what I had said in my note to you guys.
5 Charla Rath, Verizon, sorry.

6 I like the way Jennifer sort of
7 ordered and characterized this; sort of talking
8 about how can we put U.S. interests first? What I
9 don't like is when we suggest that there might be
10 some reason to wait. You know, having lived
11 through in the course of my career a lot of these
12 cases where we actually were sort of one step
13 ahead of the regulatory authority. And, you know,
14 I have to say, one very interesting was at the
15 last WRC, it was agreed that 700 megahertz should
16 actually be, you know, permitted -- you should be
17 able to have a mobile allocation in that. And we
18 had, of course, launched seven years earlier on
19 that Spectrum. And I think -- you know, I think
20 for us to actually suggest to even explore that
21 topic as though it makes some sense for U.S.
22 policy to kind of wait and follow, I actually am

1 worried about the way it was characterized just
2 now by you, Paige. And maybe I may still be
3 misunderstanding --

4 MS. ATKINS: The intent wasn't to gate,
5 it was just bigger picture, how do we gain the
6 most out of the different activities and
7 sequencing to, again, include that if we do
8 something domestically depending on what that is,
9 does it hurt us from a market or scale
10 perspective if we do it in more of isolation to
11 what's being done --

12 MEMBER RATH: Yes. And, obviously, all
13 those issues are very important, you know, to our
14 industry, to how we operate. And I would agree on
15 that. I just worry; our system here is perceived
16 I know as being really messy, and how we kind of
17 go off and just do things the way we want to do,
18 and the U.S. is always, you know, sort of seen
19 that way, particularly in the mobile area. And,
20 you know, frankly, it's also been fairly
21 successful when it does that. But, you know,
22 again, I don't have an issue with looking at this

1 from a broader perspective the way you just
2 described it now. And also, you know, as several
3 people around this room know, is that I'm
4 somewhat a novice that these things pop in and
5 out of the international site you know, every few
6 years for the last 20-25 years or so. So I don't
7 know it as well as a lot of people who are
8 sitting in this room, and I know that that,
9 frankly, is actually something that I think could
10 be very helpful to help understand that process a
11 little bit better, and help put some clarity on
12 it, which might -- you know, I don't know whether
13 that's a CSMAC process or it gets back to what
14 Chris was saying. It might be just something for
15 the government to think about doing, because it
16 is -- for people who come in and out of it, and
17 aren't involved in it regularly, it is an
18 incredibly complicated process. And I have to say
19 that often people that I work with internally are
20 sort of a little perplexed as to what, you know,
21 the bottom line value is. And I don't mean that
22 in a negative way, that came out kind of the

1 wrong way, but it's -- because it is so hard to
2 understand if you're not a practitioner. So,
3 anyway, that's my little speech.

4 CO-CHAIR GIBSON: Okay. I think it's
5 Carolyn, and now I see Bryan's is up, so just ask
6 you to make your comments brief. That's all. Go
7 ahead, Carol.

8 MEMBER KAHN: So my comment is, I think
9 a lot of the issues we're facing in Spectrum
10 nationally also other countries are facing with,
11 and so to collaborate, leverage R&D, work
12 together, conduct some outreach is helpful. Also,
13 the international process that we have is
14 relatively slow, taking years, and so maybe some
15 more informal collaboration would be beneficial.

16 CO-CHAIR GIBSON: Thank you. Thank you
17 for being brief, too. Janice.

18 MEMBER OBUCHOWSKI: I like the topic.
19 I'm not sure that --

20 (Off mic comment.)

21 MEMBER OBUCHOWSKI: It's just all over
22 the map. Right? I mean, the simplest question I

1 can ask that I think is a correct question is how
2 can we best advance U.S. interests
3 internationally? We could all agree that that
4 would be a good thing to do. However, you look at
5 the fight that went on at WRC between the
6 satellite sector and the terrestrial broadband
7 sector that played itself out, and continues to
8 play itself out, you know, when you get into the
9 specifics it gets messy really quickly. And then,
10 you know, I go way back when to the old GSM CDMA
11 thing where, you know, there's a lot of
12 flagellation. If you look at standards, we're
13 always self-flagellating. Should we be more
14 collaborative, or should we do the old American
15 independence thing. In that case, the American
16 independence thing worked pretty darned well for
17 this country. So it's just a -- it's a
18 complicated, complicated matter. I don't think
19 it's sufficiently worked out. And certainly, to
20 state the obvious, there's a new team in town and
21 that doesn't mean it's going to necessarily have
22 the right answers, but I think it will help

1 define the discussion.

2 CO-CHAIR GIBSON: All right, thanks.

3 You know, one of the things that you can do, as I

4 said a minute ago, is send questions -- if you

5 think there's more on this that you think is --

6 would make the question more appropriate, feel

7 free to send it back and keep it on the topic.

8 Steve, and Bryan, that's it. Of course, I said

9 that before, but --

10 MEMBER SHARKEY: Yes. Steve Sharkey, T-

11 Mobile.

12 CO-CHAIR GIBSON: Yes.

13 MEMBER SHARKEY: So I think, you know,

14 I would look at it from two sides. Right? It's

15 how do you advantage the U.S., and what's the

16 right timing for going out with information and

17 work with the rest of the world, and how does

18 that help us? It's also how do we prevent some of

19 the international process from negatively

20 impacting what we're doing in the U.S., because

21 frankly going into work 2015, you know, there

22 were papers going out, and it wasn't just from

1 industry. You know, there were papers from
2 federal agencies that went out with technical
3 studies that seemed to be directly opposed to
4 studies that were going on in the U.S. through
5 our domestic process. It was a little surprising
6 to see that, and I think that's -- you know, then
7 those get to be used as leverage to come back and
8 impact -- and, you know, certainly in the AWS-3
9 discussions, not necessarily for those studies,
10 but we see a lot of the assumptions that go into
11 those international studies that are maybe not as
12 widely reviewed amongst the full parties of
13 interest that come back with putting limitations
14 on our options for sharing of technology.

15 CO-CHAIR GIBSON: Okay, and Bryan.

16 MEMBER TRAMONT: Yes, I'll be fast.

17 CO-CHAIR GIBSON: I know you will.

18 MEMBER TRAMONT: So two quick things,
19 I guess. One is, I do agree it's great for a
20 topic. I have significant concerns about whether
21 or not this is the right place to do it. There
22 are a variety of institutional actors, including

1 the State Department, which has an Advisory
2 Committee, including the FCC, which has an
3 Advisory Committee, and I'm just not sure that
4 this is the right venue to try and tackle it.

5 Moreover, I would be concerned, and I
6 suspect other members would, as well, about
7 development of any sort of prescriptive approach
8 going forward where I'm pretty sure that one of
9 the strengths that the U.S. system has been
10 adapting to each circumstance in a way that is
11 advantageous for us, so I just think it has a lot
12 of peril in this venue, and so I would not be
13 inclined to include this.

14 CO-CHAIR GIBSON: Okay, that's a no
15 vote. Thank you, that was good. Okay, moving
16 along. The next question is enforcement. And
17 basically, I would characterize it as looking for
18 ways to automate enforcement. There are several
19 questions that characterize that but basically in
20 an ex post fashion, trying to stop interference
21 before it happens, how can we automate? Charla.

22 CO-CHAIR ALDER: Let me just --

1 CO-CHAIR GIBSON: Okay.

2 CO-CHAIR ALDER: -- review we go over
3 the email, because I want to respect that people
4 did send in emails here. So got a few emails in
5 saying it's an important topic. Charla did have
6 some concerns about maybe there is some
7 exhaustion here, but definitely the focus on
8 harmful interference was suggested by Dennis, and
9 also the focus on automation. Carolyn mentioned
10 that it would be good to consider both receiver
11 and transmitter, and have some discussion about
12 what is acceptable and unacceptable risk. So
13 there wasn't really too much objection; just the
14 worry about exhaustion and the focus. That's what
15 we got on email.

16 CO-CHAIR GIBSON: Okay. I think Dennis.

17 MEMBER ROBERSON: Yes, just one other
18 comment that was in --

19 CO-CHAIR GIBSON: Yes.

20 MEMBER ROBERSON: But the one other
21 thing that I pointed out was the potential to
22 examine what other people are doing, particularly

1 Germany, but there are a few others, Singapore
2 and so on, that we might look at as a component
3 of this, which we haven't really done in the
4 past, because there are other people out there
5 for the last topic that are doing things in our
6 space in the world, and learning from them to the
7 degree that we can seems like a really valuable
8 step that we could add into this working group
9 activities.

10 CO-CHAIR GIBSON: Okay, so that would
11 be work item for the group. All right. Is that
12 you, Rick?

13 MEMBER REASER: Yes.

14 CO-CHAIR GIBSON: Okay.

15 MEMBER REASER: Rick Reaser, again. I
16 support this topic. I think it's a very, very
17 important and good one. And I also think, as
18 Dennis said, we ought to look at what other
19 countries are doing in this regard. And I think
20 this has a -- not only does it play into
21 enforcement, but I think it also plays into some
22 of the myths of sharing, because if you have a

1 system out there that actually is looking at
2 things, then you have to look at there's all
3 these issues about the data and all that, but you
4 might get a real picture of what's really
5 happening rather than a lot of anecdotal data
6 that we seem to toss about. So I'm in favor of
7 this.

8 CO-CHAIR GIBSON: Okay, thank you. I
9 think it's two votes for. Any other -- Janice.

10 MEMBER OBUCHOWSKI: You know, there has
11 been a lot of work done here and going into the
12 new administration, you know, some opportunity
13 here. I strongly urge that we go forward on at
14 least some parts of this. You know, one is the
15 idea of building in enforceability, I mean,
16 automating enforcement. And, you know, that's a
17 sooner rather than later issue in terms of rules,
18 FCC is writing for various services how things
19 are, you know, come into the U.S., et cetera, et
20 cetera, because we're never going to have the
21 sharing that I think we all think is optimal in
22 certain circumstances if it's not built into the

1 equipment. It's just not going to happen.

2 CO-CHAIR GIBSON: Rick, are you --
3 you're done. Right? Put your thing -- okay. All
4 right, thanks. That's a good -- in fact, that's
5 one of the contexts that NTIA puts to this, is
6 think about this in the context like, for
7 example, 3.5 gig and other -- and also 5G, so
8 there may be some overlap. Dale.

9 (Off mic comment.)

10 CO-CHAIR GIBSON: I was surprised your
11 tent wasn't up first, but that's okay.

12 MEMBER HATFIELD: One thing I would say
13 is you talk about enforcement stuff, going back
14 to the 3GPP stuff, is 3GPP building in --

15 CO-CHAIR GIBSON: Yes.

16 MEMBER HATFIELD: -- that we need for
17 enforcement here in the U.S.? And there's a whole
18 set -- I won't take your time now, but I have a
19 whole set of concerns along those lines.

20 CO-CHAIR GIBSON: Great, thanks. Okay.
21 I think one will probably move forward. Any
22 thoughts? Did you want to say anything? Okay. All

1 right.

2 The next one is I think one that a lot
3 of people will find good, is the process for
4 identifying suitable bands for repurposing.

5 Basically, what process -- I think what NTIA is
6 looking for is what do commercial users look for
7 in terms of Spectrum that's of interest beyond --

8 I mean, a lot of that has been documented
9 certainly in the records on rulemakings and
10 whatnot, but I think putting that into a sort of
11 compendium discussion that this topic is trying
12 to assess out, is kind of what NTIA is looking
13 for. So do you want to --

14 CO-CHAIR ALDER: Yes. So from an email
15 perspective, this had a lot of support on the
16 email. A number of people said that this -- they
17 particularly like this topic. Charla said this is
18 exactly what CSMAC should be doing, and had
19 strong support. There were a couple of questions;
20 Paul A. said, you know, could we incorporate
21 NTIA's quantitative assessment into this work?
22 Carolyn had a number of questions regarding

1 technology advancement impacts, and what
2 exclusions or percentage of Spectrum is
3 acceptable for meeting commercial requirements.
4 But, generally, I found the emails to be very
5 supportive of this topic.

6 CO-CHAIR GIBSON: Any questions for --
7 Jennifer.

8 MEMBER WARREN: Jennifer Warren. So I
9 think this is a good question, and since Larry
10 had originally explained why we don't have
11 Spectrum sharing as a topic, this makes sense.
12 But I think the third part of this, what
13 particular commonalities or compatibilities
14 between federal and commercial interest is
15 actually the newer part of the discussion, and
16 something that we haven't even begun to discuss
17 really. And I would like to suggest that we
18 prioritize that over some of these other
19 elements.

20 And my second point -- so that's point
21 one. My second point would be that, again, this
22 is a little bit -- particularly if you look at

1 Question 2 under there. It's a little one-sided.
2 And, again, it's not looking at what Paige talked
3 about before, and I think Carolyn mentioned, et
4 cetera, and Mariam. What are the growth
5 expectations of the federal side? And, again, I
6 think that needs to be rolled in because that
7 impacts what is able to be repurposed or shared,
8 and how can it be shared if they both have great
9 demands for growth? So I think a little bit more
10 work on this from my perspective, but with a real
11 emphasis on three. Thank you.

12 CO-CHAIR GIBSON: Thank you. Put your
13 tent down.

14 MEMBER WARREN: Oh, I'm sorry.

15 CO-CHAIR GIBSON: Any other thoughts?
16 Okay. Cool. Okay.

17 Okay. The next one then is you have
18 developing the next generation of Spectrum
19 professionals. So as Glenn said, we're all smart
20 in this room, so how do we make that smarts go
21 out to other people in the context of Spectrum
22 management? A lot of us are engineers, a lot of

1 us are lawyers, so the thought is basically how
2 do we institutionalize that? Did you, you know,
3 come out of the womb wanting to be a Spectrum
4 engineer, or Spectrum professional? Probably not.
5 So, generally, thoughts around basically how you
6 can institutionalize that, you know, in the
7 context of -- yes.

8 MS. ATKINS: And I wanted to highlight
9 talking about evolving requirements. So what does
10 industry see that the Spectrum professionals
11 need, you know, five, ten years out, and then how
12 do we sufficiently get that expertise into the
13 work force? Also, thinking out into the future,
14 what do those roles look like, and what skill
15 sets would be needed to execute?

16 CO-CHAIR GIBSON: Larry.

17 CO-CHAIR ALDER: From an email
18 perspective, we didn't get a lot of comments, but
19 they took an interest in shape. There was a
20 number of people who are saying like, you know,
21 this isn't my thing. I don't -- it's not my
22 thing. And not super-excited about it, but then

1 there was -- Dennis, I thought, had the most
2 interesting thing saying I'm not sure we can do
3 anything here, but I can talk for hours about it.
4 And Dennis --

5 (Laughter.)

6 CO-CHAIR ALDER: You know, so there's
7 kind of a view that -- so I would characterize
8 the email has like some concerns about us being
9 able to actually address the issue materially,
10 some people feeling like it's not their interest.
11 But we do actually on this panel, I believe, have
12 some good representation that could bring
13 something to the issue, so I think that's true.
14 But the email wasn't really definitive of
15 interest. Matter of fact, I think it's an
16 important discussion here today to see do people
17 want to take this on, or do people think the NTIA
18 should take it on? That's the question that I
19 think we ought to put out.

20 CO-CHAIR GIBSON: Rick.

21 MEMBER REASER: Rick Reaser from
22 Raytheon. So, yes, I read Dennis' comments, and I

1 decided to shut up.

2 (Laughter.)

3 MEMBER REASER: But let me give you my
4 view of the world about this. I think it's a
5 critical issue. And one of the things I've taken
6 on is I'm developing a Spectrum Management
7 Competency model along with Spectrum -- E3
8 competency model for my company. And because on
9 some of these obscure areas it's very, very
10 difficult to find people to do it. And as you
11 probably know, Peter, he knows nothing about
12 this. I had this long talk with him about hiring
13 him and saying my EQ guys about you need to make
14 a long term commitment to this field. And then
15 the issue is what training, what things should
16 they be able to do, and figuring out all that is
17 very, very important.

18 I think a lot of people in the
19 Spectrum world think it's all about making
20 assignments, and processing, certifications. It's
21 actually much, much broader than that, and
22 there's lots of other facets to it, although

1 there are not very many people in that. And we
2 don't have a lot of people that are very young
3 doing this. So there's -- so, I've actually had
4 all my -- all of my office has taken the Ann
5 Arundel course, by the way. They've all -- for
6 those of you who have done it, they've all done
7 it. They've all been to the LSID course, they've
8 all been to Spectrum XXI, they've all taken the
9 training. Determining competency, though, is
10 another whole issue about whether they're
11 capable, qualified, and competent to do Spectrum
12 management functions. So that's one of the things
13 I'm kind of looking at with my staff about doing
14 that. And I have a very good staff, as you
15 probably know, to figure that out.

16 I think it's very important that --
17 the thing that will drive this, though, is by
18 having more Spectrum-related requirements in
19 government acquisitions. Right now, you know, I'm
20 doing -- I have a thousand other things going
21 here, but I have a lot of contracts from major
22 contractors in this room where there are actually

1 no Spectrum requirements in the specification, in
2 the Statement of Work, or anything, and we all
3 know that we need to go do that. But we're not
4 forcing that in a lot of our contracting work. If
5 you did that, and there were Spectrum concerns,
6 and issues, and deliverables, and design things
7 that had to be done, then you would force
8 industry and other people to step up to actually
9 doing the work because they'd have to have
10 competent people to actually go up and do these
11 things. Well, that's been another one of the -- I
12 think one of the issues with respect to that.

13 So I do think it's a real issue. I
14 think that there are some recommendations that
15 could be done. It was very interesting to come up
16 with what course work and training people could
17 take to come work in my shop. You know, that was
18 a difficult process. We spent years figuring that
19 out, what do you really have to do, because the
20 company has all these rules about, you know,
21 competency and so forth. And so I think it's
22 important, but until we start enforcing the rules

1 and making industry do some of these things about
2 how we do sharing designs and so forth, you're
3 not going to see a groundswell of support for
4 people to man up and do this kind of work in
5 their companies. The reason we've been successful
6 is we've had a lot of issues in the company with
7 compliance, stuff like that, so that's how our
8 shop got stood up a decade ago, is because of
9 issues within the company about paying better
10 attention to this. So that's my two cents.

11 CO-CHAIR GIBSON: I'm sure you didn't
12 mean man up either. Right?

13 MEMBER REASER: But my tent down.

14 CO-CHAIR GIBSON: Person up. Okay. I
15 see Janice, but I think before that was Allen. Go
16 ahead. Who is an educator, probably has thoughts
17 on this.

18 MEMBER MacKENZIE: Yes, Allen MacKenzie
19 from Virginia Tech. I mean, I do think this is a
20 really important issue, and it's one you were
21 kind of asking if there was interest in the
22 issue. It's certainly one that I am very

1 professionally interested in.

2 That said, from my experience as an
3 engineering educator, it's very hard to get
4 engineering students interested in this, even at
5 the graduate level. We've tried to run some
6 courses on Spectrum management, and Spectrum
7 policy, and so on, and it's been very difficult
8 to get students into those courses. And it's also
9 maybe a little bit unclear to me what role this
10 group, what role CSMAC can play in this. There's
11 not one, just that -- of course, I'm new to the
12 Committee, so I don't know what role we could
13 play.

14 CO-CHAIR GIBSON: Okay, that's great.
15 Thanks.

16 MEMBER MacKENZIE: Just a little
17 unclear.

18 CO-CHAIR GIBSON: I think -- is that
19 Bryan or Jennifer? That's Jennifer. Okay,
20 Jennifer, and then Roy.

21 MEMBER WARREN: Jennifer Warren. I
22 agree it's an important topic, but I think this

1 is not probably the best place for it. What I
2 would ask NTIA to consider is either on their own
3 doing an NOI or RFI, whatever would be the
4 appropriate thing, to get much broader
5 contributions from academia and technology firms,
6 et cetera, or work with OSTP on -- you know, as
7 part of their STEM. I think it's really
8 important, and as a company that's always in
9 search of not just RF engineers but competent
10 ones, this is important, but again with different
11 placement. Thank you.

12 CO-CHAIR GIBSON: Thank you. And then
13 Roy.

14 MEMBER ROY: Andrew Roy. You know, this
15 is one of those topics that's important. But as
16 we will talk about and say, you know, we have 5G
17 and other things that are key priorities, and
18 then 10 years down the line suddenly this is
19 urgent because we haven't developed that process,
20 that back end that we need to support the
21 functions. How you do it, and where to do it, is
22 an interesting question. Most people I've met who

1 deal in this sort of work have fallen into it,
2 and they weren't going through school saying I'm
3 going to do Spectrum. According to most RF
4 engineers, they think it's this weird niche area
5 that involves lots of travel, and not too sure
6 what it is. So I think it's important. I'm not
7 too sure how we would address it in this meeting.

8 I would say on the comment about
9 whether it's education or experience, there's
10 definitely experience that needs to be in there.
11 An example I would use, I've tried to teach my
12 new engineer about the ITU, he didn't believe me
13 until he actually turned up and saw what
14 happened.

15 (Laughter.)

16 MEMBER ROY: There's definitely an
17 experience --

18 CO-CHAIR GIBSON: Does have to be
19 experienced.

20 MEMBER ROY: But also the education
21 piece I think does need to be considered even
22 down to the practical level. Our budgets are

1 being squeezed and not many people are attending
2 these Spectrum meetings as before, and previously
3 where you had three or four people from the same
4 company of different experience levels that's now
5 being reduced down further to one or two. And
6 suddenly as a new person going in, you haven't
7 got that back up there immediately, as well, so
8 there's certainly an element of that.

9 CO-CHAIR GIBSON: Okay, thanks. Okay,
10 thank you. Again, emails back to us. That one was
11 the one that kind of we felt was the most -- the
12 least -- I wouldn't say least interest, maybe not
13 fit into the scheme of things, especially since
14 we're trying to down select.

15 Finally, last but certainly no means
16 least is Incentives in Spectrum Efficiency. So
17 this was a topic of the 2011 instance of CSMAC,
18 and so there's been some things that have
19 happened since then in the context of this.
20 Obviously, there's lots of things that have
21 happened since then, and so one thing -- there's
22 two things, actually. The OMB-11, that's been --

1 to the extent that that's been changed, how would
2 the changes influence that discussion moving
3 forward? And, obviously, the SRF, the Spectrum
4 Relocation Fund, and changes in that. So the idea
5 behind this question is to go back and take a
6 look at that, and sort of renew the
7 recommendations based on the new information in
8 those two documents. Is there anything else? I
9 think that's pretty much it. So thoughts on that?
10 I see heads going up and down, so I think people
11 are kind of interested in it.

12 CO-CHAIR ALDER: I will give the email.
13 So there was a number of comments on the email.
14 Michael Calabrese, who did -- Co-Chaired a lot of
15 the work that led to the Spectrum Relocation Fund
16 modifications, he thought this was a good topic,
17 and he suggested changing the wording to say
18 something like "since the SRF has been broadened
19 since 2011, we're interested in whether further
20 expansion or a new SRF would be useful." So
21 definitely Michael was supportive. Charla was
22 supportive, saying this is a tricky topic but one

1 we should engage in. And I think Carolyn felt
2 that we should think broader than incentives. How
3 should both federal agencies can become more
4 efficient in Spectrum use?

5 I do think the word "incentive", my
6 personal view that this isn't really a discussion
7 about incentives. I think the topic when you read
8 the question is really about funding mechanisms
9 and around the SRF, but we heard that comment
10 come in. And Dennis also thought it's an
11 important topic to wrestle with, although he felt
12 he was least -- that wasn't his skill area.

13 CO-CHAIR GIBSON: All right, Bryan, you
14 get the first.

15 MEMBER TRAMONT: I'll just go quickly.
16 We -- I believe we were part of this. We did this
17 the first time as an originalist for the 2011
18 recommendation that eventually ended up -- OMB
19 Circular 11 that ended up in the legislation. I
20 think it would be useful to go back and see to
21 what degree that's worked or not worked, and what
22 the ramifications are of it. And so I like this

1 topic in part because it helps us check our work
2 to see if what we're doing makes sense, and what
3 we learn, how we did that even as an institution
4 CSMAC qua CSMAC, but also about how the budget
5 process can be harnessed to create incentive --
6 positive incentives for -- especially in light
7 of the changed legislation to do the right thing
8 on Spectrum efficiency.

9 CO-CHAIR GIBSON: Well, and probably
10 there may be new recommendations to make. It's
11 not to go back and do more busy work, but to the
12 extent that these documents have moved the ball
13 down the field a little more, is there anything
14 more feeding back to NTIA that's pertinent? Yes,
15 Steve.

16 MEMBER SHARKEY: I'll just quickly. I
17 mean, I --

18 CO-CHAIR GIBSON: Steve Sharkey.

19 MEMBER SHARKEY: Yes, Steve Sharkey. I
20 think it's a great topic and I support doing it.
21 I think there's been good progress with the SRF
22 and with changes that have been made. And I think

1 we are seeing some positive reaction to that, and
2 anything we can do to move that along is good.
3 And this is a good group I think to do it.

4 CO-CHAIR GIBSON: Okay. Any other
5 thoughts on this? I've forgotten people on the
6 phone. I assume that if you're on the phone and
7 had thoughts you would say something, but maybe
8 not. So is there anybody on the phone that has
9 thoughts on this topic, or any of the previous
10 ones? Sorry about that.

11 MEMBER CALABRESE: Hi, Mark.

12 CO-CHAIR GIBSON: Hey, Michael.

13 MEMBER CALABRESE: Yes, it's Mike.

14 CO-CHAIR GIBSON: Michael, you're
15 breaking up.

16 MEMBER CALABRESE: Better?

17 CO-CHAIR GIBSON: Oh, that's better. It
18 sounds like you may be near some sort of a Wi-Fi
19 access point that's causing interference into
20 your cordless phone.

21 (Laughter.)

22 CO-CHAIR ALDER: Probably a wireless

1 microphone.

2 CO-CHAIR GIBSON: Yes.

3 MEMBER CALABRESE: Actually, I might --
4 in any event, I'll try to be quick. You know,
5 where we pretty --

6 CO-CHAIR GIBSON: Hey, Michael, we're
7 getting like every third word. And we're not --
8 it's not going to work. Maybe if you can make
9 another call in.

10 MEMBER CALABRESE: Okay.

11 CO-CHAIR GIBSON: Or send an email,
12 we'd really love to get your thoughts on this,
13 but we can't hear you.

14 CO-CHAIR ALDER: Yes. I can't recall if
15 Michael sent his email to the whole group or just
16 us.

17 CO-CHAIR GIBSON: Yes, he did send --
18 yes, he sent an email to us, I think, so --
19 sorry, Michael.

20 CO-CHAIR ALDER: I know he's supportive
21 of the topic.

22 CO-CHAIR GIBSON: Yes.

1 MEMBER CALABRESE: That's fine.

2 CO-CHAIR GIBSON: Rick.

3 MEMBER REASER: This is Rick Reaser,
4 Raytheon. I vote yes, and I was on the original
5 OMB Circular Committee that was implemented
6 beyond our wildest dreams.

7 CO-CHAIR GIBSON: Thank you. Okay. Any
8 other thoughts? Okay. We got it done eight
9 minutes early. Thank you.

10 CO-CHAIR ALDER: Paige, I would just
11 like to ask. Did you get what you needed from
12 this? Do you have any further comments?

13 MS. ATKINS: I don't have any further
14 comments. I think this was a good discussion. I
15 would encourage folks to think of additional
16 comments, or didn't get their comments in, if you
17 could send them over the next week for
18 consideration as we take this back and deliberate
19 in terms of priorities and the topics that we
20 want to select. And if you have, as Mark said, if
21 you have suggestions in terms of language, how to
22 tighten it, how to reorient it that you would

1 like us to consider, please send those in, as
2 well. But I appreciate the discussion.

3 CO-CHAIR GIBSON: Thanks, Paige. Okay.
4 I just want to reiterate one more thing, just so
5 it's clear. We'd like to get feedback on the
6 Committees you'd like -- or Subcommittees you'd
7 like to be part of by the end of next week, if
8 possible. It should be easy. I mean, the comments
9 on those could be -- you could have a couple of
10 weeks on that, say by the end of the week after
11 next.

12 MEMBER DOMBROWSKY: You haven't told us
13 which ones --

14 CO-CHAIR ALDER: Yes, we're going to
15 take the feedback -- we'll take the feedback on
16 these.

17 CO-CHAIR GIBSON: Okay.

18 CO-CHAIR ALDER: We're asking
19 Subcommittees the questions, and then --

20 CO-CHAIR GIBSON: Okay, that's fine.

21 CO-CHAIR ALDER: -- people can --

22 CO-CHAIR GIBSON: Okay. Well, I thought

1 we -- oh, whatever. Mariam, yes.

2 MEMBER SOROND: Thanks. I just had a
3 general question because I noticed a few folks
4 were like saying I vote no, I vote yes. Is this -
5 - is there a voting process over here?

6 CO-CHAIR ALDER: No.

7 MEMBER SOROND: Because I wasn't sure
8 --

9 CO-CHAIR ALDER: NTIA is going to
10 propose the questions based on --

11 MEMBER SOROND: Okay.

12 CO-CHAIR ALDER: -- the feedback
13 they've received.

14 CO-CHAIR GIBSON: Yes.

15 CO-CHAIR ALDER: So even if you vote
16 no, they might say, you know, we want input on
17 this question.

18 MEMBER SOROND: Okay. I'm just trying
19 to make sure that, you know, when we send --

20 CO-CHAIR GIBSON: There is no voter
21 fraud going on here.

22 (Laughter.)

1 CO-CHAIR GIBSON: Not in CSMAC. But, I
2 mean, most of these -- everybody is just
3 supporting the concept. That's all.

4 CO-CHAIR ALDER: Just getting the
5 comments.

6 CO-CHAIR GIBSON: Yes.

7 MEMBER SOROND: All right, got it.

8 CO-CHAIR GIBSON: Okay. So to reiterate
9 -- what am I reiterating? I don't need to, get
10 myself in trouble. I think you guys know what the
11 assignment is, so having said all that, I think
12 we're now to the schedule. No, actually,
13 opportunity for public comment. So anybody in the
14 public wish to make comment in the room first?
15 Okay. Anybody on the phone wish to make public
16 comment? Okay, no comments from the public. Okay.
17 I think now it is the schedule.

18 CO-CHAIR ALDER: Yes, the schedule and
19 the closing --

20 CO-CHAIR GIBSON: Yes.

21 CO-CHAIR ALDER: So I think we've
22 discussed pretty much the schedule already. I

1 don't think there's any more to add. Just, you
2 know, to beat the horse we'll take the feedback,
3 expect to hear over email. I think one of the
4 things that's going to be different, we're going
5 to try to accomplish a lot over email and setting
6 up Subcommittees, and getting them going by the
7 next meeting. This is something we haven't been
8 that successful at in the past, so we're
9 definitely going to try and run a cadence here to
10 get these Subcommittees stood up so that they're
11 meeting and active in March. We could have had
12 one meeting at least before the next CSMAC, which
13 I don't think we have a calendar date for, but
14 April is the target. David, do you have --

15 (Off mic comment.)

16 CO-CHAIR ALDER: Late April/early May.
17 So that would be our goal, get the Subcommittees
18 stood up, everyone signed up for their's, have a
19 meeting, and then we'll come back here in April
20 or late May. So that's the schedule.

21 MEMBER BROWN: Can I just ask, for the
22 newbies, I think you guys have made it a practice

1 once a year to meet out in Boulder.

2 CO-CHAIR GIBSON: Yes.

3 MEMBER BROWN: Can you just tell us
4 what month that has been in the past?

5 CO-CHAIR ALDER: It's usually the
6 summer meeting --

7 CO-CHAIR GIBSON: Usually it's
8 coexistent with the ISART, and the ISART has
9 moved around a bit. Do you have anything on that,
10 David?

11 (Off mic comment.)

12 CO-CHAIR GIBSON: But you -- we would
13 want to try to make it happen at the same time?

14 (Off mic comment.)

15 CO-CHAIR GIBSON: Okay. Yes, we usually
16 try to do one out there just because -- okay. But
17 as Larry said, we want to have roughly four
18 meetings, big meetings this year because that --
19 so on like a quarterly cadence so to speak, plus
20 or minus. Okay.

21 CO-CHAIR ALDER: Yes, so we're thinking
22 kind of April/May, then one at the ISART, and

1 then a fall meeting.

2 CO-CHAIR GIBSON: Yes.

3 CO-CHAIR ALDER: Probably

4 October/November.

5 CO-CHAIR GIBSON: Yes.

6 CO-CHAIR ALDER: Okay.

7 CO-CHAIR GIBSON: I guess it's time for
8 closing remarks. You've got the closing.

9 CO-CHAIR ALDER: Yes. All right. So for
10 closing remarks, so again I'm just following up
11 on this process. We will kind of -- if you have
12 strong interest in these topics let us know, but
13 we will contact people we think would be
14 appropriate Co-Chairs once the topics get
15 formulated. And we'll try and have a mix of
16 expertise on -- for Co-Chairs of the different
17 groups. And then we'll have the general sign-up
18 in February.

19 Participation is super important so,
20 again, at least sign up for one group minimum,
21 and don't feel like you have to sign up for more,
22 but if you want to sign-up for more subject to

1 your own timing constraints would be great.

2 There's an expectation that you'll
3 participate yourself. You're the member of the
4 group, your staff is not the members of the
5 group. If you're using a staff person to listen
6 and take notes for you because you can't be there
7 on occasion, that's fine. I know Janice has done
8 that, and that's been fine. But, generally, it's
9 your participant as the Advisory Committee Member
10 is expected. And you represent also yourself.
11 You're employed by a company but that's actually
12 not directly relevant. You're representing kind
13 of your own views as an advisor.

14 And, again, the Subcommittee will
15 decide on their own how often to meet once the
16 Subcommittee Chairs formulate. The focus will be
17 on getting recommendations. This is especially
18 true for the new people. There's kind of a
19 history of big documents in the past, and while
20 that's fine as background material, reference
21 material, it's not necessary, and it's not the
22 main thing that the NTIA wants. The main thing

1 the NTIA wants is the actionable recommendations,
2 so we'll boil those down into a few key
3 highlighted title things. If there's material
4 behind it, great, not required.

5 I remind everyone we all have other
6 jobs. This is an advisory aspect, so it's to tap
7 collective wisdom. People are not expected to go
8 out and do primary research, you know, simulation
9 yourself. That would be above and beyond, but
10 coming up with the recommendations is key.

11 Meeting locations, I have this on my
12 notes and I just realized. We don't -- we've kind
13 of moved out of meeting in the Commerce Building
14 for a couple of reasons. One, it's been under
15 renovation and, two, it's a very difficult
16 process to get in and out of the building. It's
17 time consuming so we really appreciate Charla and
18 Verizon hosting us today. And we'll probably look
19 for other venues like that, so if you have a
20 venue in the D.C. area that you think would be
21 suitable, let David know so that we can maybe
22 take advantage of that. And this is an ideal

1 venue, so people can see this is the kind of
2 venue that we're looking for. And we will also be
3 probably meeting in Boulder, as we just
4 discussed.

5 So I think those were the closing
6 remarks. I don't think there's anything else that
7 I had for closing remarks. Is there any other
8 questions?

9 MEMBER ROBERSON: Did you want to open
10 it up for the phones? Usually, we do.

11 CO-CHAIR ALDER: Yes, questions for the
12 phone. We already opened up for public comment,
13 so that part is over.

14 MEMBER REASER: I had one other
15 question. A while back we started this thing
16 about some kind of NTIA portal and signing it and
17 putting documents there. Whatever happened to
18 that, or is that just dead? Just curious.

19 CO-CHAIR ALDER: Well, I do know, and
20 I can comment in terms of -- so they did create
21 something. It turned out to be quite cumbersome,
22 and so the few of us that tried to use it

1 realized this is not going to work. And I don't
2 think there's been any follow-up since, but maybe
3 David --

4 MEMBER REASER: And I took all that
5 training.

6 (Laughter.)

7 CO-CHAIR ALDER: David, do you have
8 comments on that?

9 (Off mic comment.)

10 MS. ATKINS: So just to revisit, I
11 think the purpose was to enable more pervasive
12 sharing between the Subcommittees, in particular,
13 so folks would know where information was. They
14 would have access to it versus each Subcommittee
15 having their own repository, et cetera, so that
16 was the driver that I recall. Whether it's too
17 cumbersome to successfully use, and whether
18 anyone really cares if the Subcommittees are
19 talking to each other, you know, it's really your
20 call, but it was a way to enable communication
21 and collaboration across the Committee.

22 CO-CHAIR GIBSON: I'd add some color.

1 There actually was -- it came out of the AWS-3
2 CSMAC work. We were actually using a portal that
3 ALION was managing to share really a lot of -- I
4 mean, that was where there was a lot of heavy
5 lifting being done, a lot of studies being done.
6 It was just a lot of really in the dirt kind of
7 work. There was a lot of documents being created
8 and sent back and forth, so ALION developed this
9 really great portal for all of the five working
10 groups or Subcommittees, whatever we called them
11 at the time, and that -- what we tried to do here
12 that Rick is referring to sort of came out of
13 that. It kind of got bogged down with just a lot
14 of stuff, and so I don't -- I think in the end it
15 probably -- it would be nice to have something
16 like that, but it's not critical. Yes, Rick?

17 MEMBER REASER: I suggest that we
18 abandon it and then let the IT guys at NTIA focus
19 on other issues, and just close it out.

20 CO-CHAIR GIBSON: Yes. Yes.

21 MEMBER REASER: Because I -- by the
22 time I got ready to do it, I was exhausted.

1 CO-CHAIR GIBSON: Yes, but you got all
2 that training, so it --

3 MEMBER REASER: I got all that training
4 now.

5 CO-CHAIR GIBSON: You're now our
6 Spectrum Management --

7 MEMBER REASER: When I shared some of
8 the IT training with my company, they thought it
9 was pretty interesting.

10 CO-CHAIR GIBSON: Okay. I want to
11 check; anybody on the phone have questions or
12 comments, CSMAC people? Okay. All right, great.

13 CO-CHAIR ALDER: So then just to wrap
14 up, what we're going to do is we're going to
15 adjourn the meeting, and then the Members should
16 stay for the Ethics Training. That will not be
17 recorded on the video. They will have the Ethics
18 Training, and then after that, Charla will be
19 conducting a tour of the facility for anyone --

20 MEMBER RATH: Anybody who wants to
21 stick around. You don't have to, but if you want
22 to, you know, feel free to --

1 CO-CHAIR ALDER: And that's -- were
2 people going to -- was there going to be a social
3 gathering afterwards?

4 MEMBER RATH: Dave was --

5 (Off mic comment.)

6 CO-CHAIR ALDER: So we'll have informal
7 discussion about that afterwards. So I think
8 unless otherwise, we'll adjourn the --

9 CO-CHAIR GIBSON: I think just a quick
10 question on the logistics for the training. So I
11 think we have some people on the phone. Eric is
12 going to be doing the training on the phone, so
13 are you going to close the bridge, and then bring
14 it back up?

15 (Off mic comment.)

16 CO-CHAIR GIBSON: Okay. So any non-
17 CSMAC people that will be on the phone bridge,
18 just respectfully ask you to get off, if you
19 would, please, unless you want to get Ethics
20 Training. It will not make you a Spectrum
21 Engineer, though, I'm just saying.

22 (Laughter.)

1 CO-CHAIR GIBSON: All right, that's it.
2 The meeting is adjourned. Thanks, everyone.
3 Thanks for the great comments and feedback.

4 (Whereupon, the above-entitled matter
5 went off the record at 3:34 p.m.)
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Management Advisory Committee

Before: DOC/NTIA

Date: 01-25-17

Place: Washington, DC

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