

UNITED STATES OF AMERICA
DEPARTMENT OF COMMERCE

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COMMERCE SPECTRUM MANAGEMENT
ADVISORY COMMITTEE (CSMAC)

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MEETING

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THURSDAY
NOVEMBER 10, 2011

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The Advisory Committee met in Room
4830, Herbert C. Hoover Building, 1401
Constitution Avenue, N.W., Washington, D.C.,
at 9:00 a.m., Brian Fontes and Gregory
Rosston, Co-Chairs, presiding.

PRESENT

- DR. BRIAN FONTES, Chief Executive Officer,
National Emergency Number Association,
Chair
- DR. GREGORY ROSSTON, Deputy Director, Stanford
Institute of Economic Policy Research,
Stanford University, Chair
- DR. LARRY ALDER, Product Manager, Google, Inc.
- DR. DAVID E. BORTH, Independent Consultant
MICHAEL C. CALABRESE, Vice President and
Director, Wireless Future Program, The
New America Foundation
- MARTIN COOPER, Chairman, Dyna, Inc. *
- MARK E. CROSBY, President & Chief Executive
Officer, Enterprise Wireless Alliance
- DAVID L. DONOVAN, President, Association for
Maximum Service Television, Inc.

GARY EPSTEIN, Managing Director and General
Counsel, The Aspen Institute IDEA
Project

MARGARET (MOLLY) FELDMAN, Vice President of
Business Development, Verizon Wireless*

DR. HAROLD FURCHTGOTT-ROTH, President
Furchtgott-Roth Enterprises

H. MARK GIBSON, Director, Business
Development, Comsearch

DALE N. HATFIELD, Executive Director, Center
for Law Technology and Entrepreneurship,
University of Colorado

DOUG MCGINNIS, IT Manager of Communication
Infrastructure Strategy, Exelon
Corporation

DR. MARK A. MCHENRY, President, Shared
Spectrum Company

DR. ROBERT PEPPER, Vice President, Global
Advanced Technology Policy, Cisco
Systems, Inc.

CARL POVELITES, Assistant Vice President of
Public Policy, AT&T

RICHARD (RICK) REASER, JR., Head, Spectrum
Management Department, Raytheon Space
& Airborne Systems

DENNIS A. ROBERSON, Vice Provost for New
Initiatives and Research Professor of

Computer Science, Illinois Institute of
Technology*

DR. DANIEL DEAN STANCIL, Head, Department of
Electrical and Computer Engineering,
North Carolina State University

THOMAS J. SUGRUE, Senior Vice President of
Government Affairs, T-Mobile

BRYAN TRAMONT, ESQ., Managing Partner,
Wilkinson Barker Knauer, LLP

JENNIFER WARREN, Vice President, Technology
Policy & Regulation, Lockheed Martin
Corporation

KARL NEBBIA, Associate Administrator for the
Office of Spectrum Management

* Present via telephone

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

2 9:17 a.m.

3 CHAIR FONTES: Good morning,
4 everyone, and welcome to our meeting this
5 morning. The 10th of November already, can
6 you believe it? Time passes, unfortunately,
7 way too quickly.

8 We have blocked a few hours this
9 morning, but if we're diligent I think we will
10 not consume all of those few hours. I know
11 one of the Committees have been gracious
12 enough to recognize ahead of time that they
13 probably won't take the full limit of their
14 presentation.

15 So, I just wanted to welcome
16 everybody.

17 And now it's my pleasure to
18 introduce Larry Strickling. Larry is the
19 Assistant Secretary of the Commerce Department
20 for Communications and Information, Director
21 of NTIA.

22 ASST. SEC. STRICKLING: Thank you,

1 Brian.

2 I just want to welcome everyone to
3 today's meeting of the CSMAC, and as always
4 thank all of you for your hard work over the
5 last several months working on our set of
6 issues for this year.

7 I do have just a couple of
8 announcements to make. First, while he was,
9 I think, present in Boulder for the meeting in
10 July he had not yet officially joined us, but
11 I do want to introduce our new Chief
12 Technology Office Doug Sicker who is here in
13 the front of the room, who is now officially
14 on board. And in addition to serving as Chief
15 Technology Officer, he's also my Senior
16 Spectrum Advisor, working with me and Carl and
17 his whole organization.

18 Also, we did make three
19 reappointments for the three members of CSMAC
20 whose terms are a little out of cycle with
21 everyone else, but I do want to recognize that
22 Michael Calabrese and Gary Epstein, as well as

1 our Co-Chair Greg Rosston, have been
2 officially reappointed to the CSMAC.

3 Obviously, spectrum issues are
4 quite focused these days, both in terms of the
5 work of the Super Committee as they look for
6 new revenue sources and we continue to work
7 those issues. The search for 500 MHz, which
8 you all are helping us with.

9 Next year, we see the year being
10 equally active. We have a report that came
11 out several months ago from the GAO that we
12 will be taking up its recommendations next
13 year. And, again, the Committee that's been
14 formed here to look at federal spectrum
15 management operations, we're anxiously looking
16 forward to your recommendations in terms of
17 how we can plug that into that overall review.

18 And with Doug on board, and as
19 well as renewed interest in how do we continue
20 to get more and more efficiency out of the
21 spectrum resource we have available to us,
22 we'll be spending a lot of time next year

1 looking at the whole issue of spectrum
2 management, spectrum assignments, both in
3 terms of what we do here at NTIA as well as
4 coordinating better with the FCC in terms of
5 some of these issues. So, major, major work
6 we'll be doing in this area over the next 12
7 months or so.

8 So with that, I'll turn it back to
9 Greg and Brian.

10 CHAIR FONTES: Thank you.

11 I'd like to turn the mic over to
12 Greg for a minute.

13 CHAIR ROSSTON: Sure. I just
14 wanted to thank everybody for all the hard
15 work that's been done. It's very good to see
16 how engaged everyone has been. I think sort
17 of having the structure of answering specific
18 questions that Karl helped us come up with,
19 his idea has been really good in that we are
20 making a lot of progress and, hopefully,
21 helping out the Department of Commerce with
22 not only the search for 500 MHz, but lots of

1 different questions on how government spectrum
2 management should go forward. And I think
3 that this has been a good chance for us to
4 look at the recommendations and to have lots
5 of discussions at the meetings.

6 One request that I think both
7 Larry and I both have would be is that if you
8 could all turn your name tags around so that
9 we could see who you are. That's my one nice
10 thing, so we could know who everyone is down
11 there.

12 And I think that we should get
13 started with the meeting and with the reports.

14 MEMBER ROBERSON: This is Dennis,
15 just to let you know I was here. Actually, I
16 was here long enough that it bumped me off, so
17 I'm back on.

18 CHAIR FONTES: Very good.

19 What I thought we would do next is
20 just go around the table so the folks on the
21 phone would know who is actually here at the
22 table. And then the folks on the phone, could

1 you identify yourself so the folks here would
2 know who is actually on the phone?

3 So, Mark, could we start with you
4 please?

5 MEMBER GIBSON: Mark Gibson,
6 Comsearch.

7 MEMBER TRAMONT: Bryan Tramont,
8 Wilkinson Barker.

9 MEMBER BORTH: Dave Borth,
10 independent consultant.

11 MEMBER HATFIELD: Dale Hatfield,
12 University of Colorado.

13 MEMBER MCGINNIS: Doug McGinnis,
14 Exelon.

15 MEMBER CROSBY: Mark Crosby,
16 Enterprise Wireless Alliance.

17 MEMBER DONOVAN: David Donovan,
18 New York State Broadcasters.

19 MEMBER FURCHTGOTT-ROTH: Harold
20 Furchtgott-Roth, Furchtgott-Roth Economics.

21 MEMBER WARREN: Jennifer Warren,
22 Lockheed Martin.

1 MEMBER REASER: Rick Reaser,
2 Raytheon.

3 MEMBER MCHENRY: Mark McHenry with
4 Shared Spectrum Company.

5 MEMBER EPSTEIN: Gary Epstein with
6 Aspen Institute.

7 MEMBER POVELITES: Carl Povelites,
8 AT&T.

9 MEMBER SUGRUE: Tom Sugrue, T-
10 Mobile.

11 MEMBER CALABRESE: Michael
12 Calabrese, American Foundation.

13 MEMBER ALDER: Larry Alder,
14 Google.

15 MR. NEBBIA: Karl Nebbia, NTIA.

16 CHAIR FONTES: Great, thank you.

17 Now if we can go to the phone.

18 Please identify yourself.

19 MEMBER FELDMAN: This is Molly
20 Feldman, Verizon Wireless.

21 MEMBER ROBERSON: Dennis Roberson
22 from IIT.

1 CHAIR FONTES: That's it for the
2 phone? Excellent.

3 MEMBER COOPER: Martin Cooper for
4 Dyna here.

5 CHAIR FONTES: Oh, hi, Marty.
6 Okay.

7 Anyone else on the phone? Great.

8 We're also fortunate to have a few
9 people in the audience today. So, glad that
10 you're here.

11 And now we'd like to turn it over
12 to our first Committee, which is the Search
13 for 500 MHz. We're glad that Gary's not on
14 jury duty this morning, it's always nice. And
15 Carl, thank you for coming in from Atlanta.
16 And I actually used your official name, your
17 birth name here, so that's a good thing.

18 MEMBER POVELITES: I appreciate
19 that, Brian.

20 CHAIR FONTES: And I recognize,
21 too, that for those that printed out the
22 agenda that was circulated last night, there

1 were comments provided to your report from
2 Janice Obuchowski. And you may want to
3 comment to that in terms of if there's any
4 substantive or nonsubstantive impact it would
5 have on your recommendations.

6 MEMBER POVELITES: Thank you,
7 Brian.

8 First off, we'd like to really
9 thank the working group. Up front we had a
10 flurry of activity prior to the Boulder CSMAC
11 meeting. Great work effort by all the team
12 members, and we really do appreciate that
13 effort.

14 At the Boulder meeting we
15 discussed the Search for 500 MHz presentation
16 that was put together, and the slide deck.
17 Had a very good discussion.

18 After the Boulder meeting Gary and
19 I took back all the comments that were
20 received from that meeting and got our two
21 helpful co-working group members, Steve
22 Sharkey and Molly, together and we looked at

1 the deck and report, and revised some of the
2 parts of the decks. In particular, we made
3 some changes to slide 7, 9, 10, 12 and 20.
4 I'm not going to go through those because
5 they've been out there for a while now.
6 They're pretty non-substantive changes, but
7 they are important changes.

8 In addition, we added a
9 recommendation page which was based on
10 discussions at the Boulder meeting. These
11 recommendations, if you want to go to the next
12 slide, first off, NTIA should utilize LTE
13 Technical Characteristics attached as an
14 Appendix, use the Appendix that's in the
15 binder for its initial interference and other
16 analyses, and should work closely with
17 industry to fully understand the system
18 impacts and refine the analysis and sharing
19 solutions. That's Recommendation No. 1

20 Recommendation No. 2: NTIA should
21 implement an informal process, consistent with
22 all applicable laws, to directly exchange data

1 and have a dialogue between government and
2 industry in order to facilitate and implement
3 the spectrum recommendation in the report.

4 Recommendation No. 3 was: NTIA
5 should stage the availability of its 1755 to
6 1850 MHz band for commercial use with a
7 priority on the early availability of 1755 to
8 1780 MHz, and extending in contiguous stages
9 as necessary to accommodate the relocation and
10 retuning of government users.

11 And finally No. 4: NTIA should
12 make spectrum available such that commercial
13 users have exclusive use of the spectrum;
14 however, given existing government uses,
15 industry supports making spectrum available
16 subject to predefined sharing zones where the
17 commercial users accept reasonable and defined
18 levels of interference.

19 Those are the recommendations we
20 made on August 10th. We sent the revised
21 presentation to the full CSMAC, at which time
22 we did not receive any comments or suggestions

1 for revisions.

2 In early September, as Co-Chairs
3 Gary and I sought counsel from the CSMAC co-
4 chairs and NTIA on how to get these
5 recommendations formally adopted so that they
6 could be considered in the NTIA Report.

7 On September 20th, NTIA posted the
8 recommendations on the NTIA website. And they
9 also sought public comment and input into the
10 process. At that time, no comments were
11 received, and we were told by NTIA that we
12 could adopt these recommendations at a
13 meeting, and that meeting is today on November
14 10th. We were, however, assured that the NTIA
15 was aware of the subcommittee's report and
16 would take the draft report into consideration
17 in doing their work for their report they're
18 preparing for the 1755 to 1850. However, that
19 they had to treat the subcommittee report not
20 as an adopted recommendation because future
21 further changes could be made.

22 Subsequently to that being posted,

1 we didn't again receive any comments. However,
2 two days ago Janice Obuchowski submitted some
3 comments on the NTIA website and stated that
4 she had a couple of suggestions. For the most
5 part, Gary and I talked about her
6 recommendations and feel that they don't
7 necessarily change and they don't change the
8 recommendations that were made and posted by
9 the subcommittee.

10 There are a couple of
11 clarifications, particularly with regards to
12 slide 5 on adding "when feasible" as a caveat
13 to "clearing spectrum should be the goal."
14 That does not seem to be a change that we
15 would oppose and would be fairly easy.

16 The other recommendation is that
17 regarding Recommendation No. 3: "NTIA should
18 stage the availability of the 1755 to 1850
19 band," she notes that any relocation decisions
20 must address up front how relocation should be
21 addressed for users across the band. In our
22 discussions we felt that while that has been

1 discussed a lot during the subcommittee, it
2 does not necessarily change anything with
3 regard to the recommendations of the
4 subcommittee to the full CSMAC.

5 Gary, you might want to --

6 MEMBER EPSTEIN: I think Carl has
7 accurately stated both the procedural and
8 substantive history. From a substantive
9 standpoint, we had two excellent presentations
10 by our co-chair, subcommittee chairs last time
11 in Boulder. We made the changes to
12 incorporate those with this presentation. And
13 the report has been on the record for a number
14 of months now. The recommendations did not
15 have any comments.

16 We became aware of Janice's
17 additional comments, which because they're
18 from Janice, they're fine, and they're quite
19 good, and they are in the nature, in my view,
20 of a clarification of it.

21 So, up to the co-chairs here, but
22 my recommendation would be the report be put

1 up for a vote and Janice's views be attached
2 as additional views to the report. I see
3 nothing in there which is contrary to the
4 recommendations in the report.

5 CHAIR FONTES: Right. So
6 basically what we have now is your report with
7 Janice's recommendations basically as an
8 attachment. And you're recommending or
9 basically putting in place a motion to have
10 this accepted at this meeting, correct?

11 MEMBER EPSTEIN: We so move.

12 CHAIR FONTES: Great.

13 Jennifer?

14 MEMBER WARREN: Yes. Could I ask
15 for a point of clarification on Recommendation
16 No. 4?

17 And I don't have a microphone.

18 Just to clarify for the record,
19 Recommendation No. 4 is limited to 1755 to
20 1850, given the work that was going on, I
21 think, on the broader sharing discussions and
22 policy approaches, because there's a much

1 broader view that that's quite underway with
2 respect to whether or not spectrum should be
3 available on an exclusive basis. So this is
4 limited to your discussions of 1755 to 1850,
5 that's one thing and if so, should be so
6 noted, because I think we have, again, a
7 broader discussion underway in another group.

8 MEMBER POVELITES: That's fine.
9 Yes. It is limited specifically to the 1755
10 to 1850.

11 MEMBER WARREN: Perhaps that could
12 be modified to reflect that, because it is a
13 little inconsistent as to which ones are
14 broader, given the title of this report.

15 But my second point of view I'd
16 like to just associate with Janice's points.
17 I think you're right; they may not change the
18 actual substance of your recommendations, but
19 are important elements that give texture to
20 them. So, I'd like to associate with them.
21 And I would propose that they be included in
22 what is actually put up for approval and their

1 attachment to your report.

2 Thank you.

3 CHAIR FONTES: Okay. Just so we
4 can keep on track here, there's a motion
5 basically to make these recommendations or
6 present them to CSMAC.

7 Before there was a second, there
8 was a discussion item basically that wanted
9 clarification to ensure that the fourth point
10 was specific to the 1755 to 1850 band and
11 recognizing that Janice raises good comments,
12 if you would, as an attachment to this report.

13 Michael?

14 MEMBER CALABRESE: Yes. I would
15 just actually follow Jennifer to clarify. My
16 interpretation is that we approve all four
17 recommendations. That this is about the 1755
18 to 1850 band. If we we're talking about all
19 the other fast track bands, we'd have to have
20 on target a different conversation, I think,
21 and different recommendations. So, I hope
22 that that's the case.

1 CHAIR FONTES: Carl, Gary, are
2 you--

3 MEMBER EPSTEIN: I think we're
4 fine with that. And here's a creative
5 suggestion: We title the document "Initial
6 Recommendations for the 1755 to 1850 band."

7 (Laughter.)

8 CHAIR FONTES: Thank you for that
9 subtle but important clarification.

10 MEMBER POVELITES: So would that
11 provide it with a second?

12 CHAIR FONTES: Yes.

13 MEMBER POVELITES: I had an
14 amendment before there was, I guess, a
15 proposal. Discussion time, or do we have--

16 CHAIR FONTES: Well, first off, is
17 there a second to the motion?

18 MEMBER STANCIL: Second.

19 CHAIR FONTES: Thank you. And
20 with that motion, then we'll take in order the
21 edit that recommended changing the title and
22 also recognizing that Janice's comments will

1 be an attachment to the recommendations. Now
2 I think we're open for discussion.

3 MEMBER SUGRUE: Recommendation No.
4 3 is that the band be staged for reallocation,
5 and that was certainly a critical part of the
6 discussion. And while I haven't seen Janice's
7 paper, to the extent Gary described it as
8 additional views, that's fine, additional.
9 But that the Recommendation is that there be
10 a two-stage process and the way it was
11 described, some of it sounded like basically
12 cut -- you know, it could be interpreted as
13 undercutting that Recommendation No. 3. So
14 as long as we understand it's not
15 Recommendation No. 3 is the Recommendation
16 being voted on, then I'm fine with it as an
17 additional view.

18 CHAIR FONTES: Got it. Carl, do
19 you want to respond to Tom?

20 MEMBER POVELITES: That is my
21 understanding as well.

22 MEMBER HATFIELD: Great.

1 CHAIR FONTES: Okay. Any other
2 discussion? Karl?

3 MR. NEBBIA: Just a couple of
4 questions I wanted to mention here. And we
5 certainly appreciate the rapid work that was
6 done on this issue. You were not given much
7 time for a really significant issue, and we
8 appreciate that effort.

9 With respect to Recommendation No.
10 1, I think it is critical to recognize we are,
11 and have been since you provided them, engaged
12 in using the LTE Technical Characteristics
13 that you provided. But as it says here, it's
14 critical to understand that these are
15 available for initial interference-type
16 analysis. That if we use strictly that data,
17 then the protection areas or exclusion areas
18 that we may have to use to separate existing
19 government equipment from this equipment
20 coming in can be fairly substantial. That, in
21 fact, as we discuss this, all of the industry
22 participants I think indicated that there are

1 things that they could do to make it better as
2 you began to enter into that one-on-one or
3 industry/agency dialogue that's described
4 here. Just so you recognize, we have in fact
5 used what you've given us and we understand
6 that that is a beginning point and not
7 necessarily the end point.

8 In Recommendation No. 2, you have
9 highlighted the need for an informal process,
10 obviously, through the CSEA, there's a lot of
11 formal process that gets created. But we are
12 interested in what the construct could be to
13 provide for a legal informal process and one
14 that included all the necessary participants.
15 I mean, we know who the agencies are, but how
16 would we get industry engaged in such? And I
17 think we would like to come back to that in
18 our request to you as we look at moving
19 forward on recommendations that would come out
20 on 1755, how would you recommend that we
21 specifically approach that, in a way that gets
22 all the necessary people engaged in that

1 discussion that's transparent, that's all
2 those types of things? So, I think that's
3 critical.

4 On Recommendation No. 3, the issue
5 of staging the band is an interesting one
6 because it's not clear in the presentation
7 whether the idea of staging is due to the
8 necessity or difficulties in moving government
9 systems out or whether industry, you were
10 representing in your conversation viewpoints
11 and thoughts of industry as experts are saying
12 that somehow staging the band is better for
13 industry. So, if I were to come back tomorrow
14 and say "We're ready to ante up the entire
15 band," this sort of sounds like you're saying
16 "No, don't do that. Give it to us in parts."

17 So, I'm not quite clear on whether
18 the staging is for industry purposes or the
19 staging was somehow meant to deal with the
20 government's difficulties that you saw in
21 transition.

22 And then in the last area, I think

1 once again, when we start talking about
2 exclusion areas and defining sharing zones, I
3 think that is a critical aspect that gets into
4 this informal process. But I think one of the
5 things to consider here specifically with this
6 band is that, whereas in the last case we had
7 a few individual services that had to be moved
8 and the processes of moving them became fairly
9 clear, in this case we've got multiple
10 services, airborne services, things built into
11 aircraft and so on. So it would appear that
12 as you try to transition those types of
13 systems, the transition itself is a period of
14 sharing and that that construct really has to
15 be worked through in some detail to understand
16 how we're going to get there.

17 With that many pieces of equipment
18 it's unlikely that it can be defined as an
19 on/off, you know, here's the first band, the
20 second band's off, and then here's the second
21 band. It's not ones and zeroes, it's a
22 transition of multiple different types of

1 systems we'd have to look at.

2 So as we consider these zones,
3 even though we understand that the end goal is
4 exclusive access, the transition might be such
5 that we're going to have to deal with these
6 concepts anyway. So we'll have to look more
7 closely at what they'll be. But I think the
8 key is pointing to a path for how do we get
9 the right players together to go through this
10 dialogue in a way that's legal and transparent
11 and gets us to an end goal. Because we did
12 have a challenge here with the LTE
13 characteristics, and we said, well, can't you
14 get us something better, can't you get us
15 something that's more accurate to the bottom
16 line? And nobody wanted to do that. They
17 said, this is the best we can give you. We
18 know that people can do better than that, but
19 we don't feel in this forum and at this point
20 we can give you a different set of numbers.
21 So I think that process is going to be
22 absolutely critical.

1 ASST. SEC. STRICKLING: Yes. I
2 just want to punctuate a couple of Karl's
3 points.

4 First of off, assuming you all
5 adopt this motion, I'd like to be able to say
6 this is the last remaining hurdle to getting
7 our report out. We've just been waiting for
8 you. But I can't.

9 (Laughter.)

10 ASST. SEC. STRICKLING: But the
11 point that Karl makes is really important.
12 Any of you who have looked at this band
13 understand this is about as complicated a
14 band, in terms of federal uses, as we have
15 ever had to deal with here. And this process
16 that we see happening that you're recommending
17 in Recommendation No. 2 is going to be of
18 absolute paramount importance to the ultimate
19 successful reallocation of any or all of this
20 band. And it'll also drive very much the
21 timing of everything. So, there's, I think,
22 a real challenge to the CSMAC here as well as

1 members of industry to come up with an
2 arrangement that really has both sides at the
3 table working hard, sharing all the
4 appropriate information and working together
5 to reach a goal here. This is just going to
6 be of absolute importance to the ultimate
7 success of whatever recommendation we're able
8 to make in this band.

9 MEMBER POVELITES: I would just
10 like to comment that we've been wondering or
11 questioning what our next step would be once
12 this recommendation is approved. So I think
13 we now have maybe what our next item is that
14 we'll try to address.

15 CHAIR FONTES: Very good.

16 MR. NEBBIA: Yes. We will not have
17 another band, a specific band identified for
18 a short time yet as to which one we're going
19 to analyze next. But I think coming up with
20 a question that specifically deals with what
21 should be the construct of this informal
22 process, who should be involved, how we would

1 deal with a service-by-service consideration
2 of these activities, I think, is the crucial.

3 CHAIR FONTES: Thank you so much,
4 Karl.

5 Tom?

6 MEMBER SUGRUE: Karl, just on your
7 comment or question on Recommendation No. 3.
8 I've addressed it twice now, so it's clearly
9 near and dear to my heart. But the reason for
10 the two stage, frankly, is the reallocation
11 decision isn't self-executing and then it sort
12 of has to be that okay, we need to find
13 replacement spectrum, we need to do this, we
14 need to do that. So, a reallocation decision,
15 the whole 95 I don't think this is opposed to
16 that, but the idea is that -- and you may
17 disagree with this -- but this is the
18 recommendation, that by leaving 70 MHz --
19 without having to deal with the whole 95 in
20 one fell swoop and have to swallow that in one
21 fell swoop, we can more rapidly make that 25
22 available for commercial use. And that

1 doesn't mean it's without challenges or
2 anything like that, I'm not trying to say
3 that's easy, just write that off. But that
4 whatever the problems are for the whole 95,
5 they should be more manageable if you leave
6 the 70 in the band that would continue to be
7 available and then we'll work on a longer term
8 transition, both the agency, of course, and we
9 hope to have the interaction of industry
10 through this body and otherwise.

11 So that's the reason for the two
12 stages. Not that we're saying "Oh, we don't
13 care about the rest of the band."

14 And, you know, the reason the 25
15 is so important is it can be paired
16 immediately. And by "immediately," I mean
17 consistent with the law which is 18 months and
18 so forth and so on. So, that's the rationale.
19 Not trying to be mysterious about it, it's
20 just that we would hope reallocation for the
21 entire band, but immediate availability for
22 auction, by "immediate", again, consistent

1 with what I mean by that, for the lower 25.

2 CHAIR FONTES: Right.

3 MR. NEBBIA: Yes, I appreciate
4 that, Tom. And it sounds to me like you are
5 saying you recognize the difficulties in
6 moving out of a large portion of the spectrum
7 and this may facilitate that.

8 I did have some questions aside
9 from the hard recommendations as we get into
10 it. I did want to call attention to at least
11 my reading of it that there was an FDD
12 orientation to the recommendations and the
13 interests that are being expressed. Given the
14 fact that one of the reasons why FDD is
15 recommended is because that's what we've been
16 doing and if you add TDD in around that,
17 there's going to be interference from one band
18 to another almost presupposes that we're never
19 going to head toward TDD, even though in an
20 asymmetric environment it seems almost like a
21 better way of doing things. So, I am a little
22 concerned that it does have that kind of --

1 you know FDD is the only thing we're really
2 talking about for the future and it seems like
3 sooner or later we've got to make some break
4 there.

5 Also, there was a point here, once
6 again, in this staging aspect on page 5. It
7 says: "Avoid replacing equipment for short
8 term migration from 1755 to 1780 up to 1780 to
9 1850." So, it sounds like you're saying there
10 if equipment can be reduced in its total
11 bandwidth just by its nature of operation,
12 you're okay with that. But the idea that
13 we're going to pay people, the government in
14 this case, to convert their equipment in some
15 way; new technology that makes it more
16 efficient to pack it up above 1780 and take
17 that cost as an initial step, ultimately that
18 would then have to be redone again if we
19 reallocate the 1780 to 1850, it sounds like
20 you're saying "Don't do that. Do not
21 transition equipment if you can't just compact
22 it based on its current characteristics."

1 You're saying don't spend the money to
2 transition the equipment into that band.

3 So, I think that is, at least for
4 us, that's a critical point to understand.

5 Also, I want to note back in some
6 of the discussions you do get into a few of
7 the specific systems which I think will come
8 up further in the actual dialogue.

9 We have found, for instance, with
10 the air combat training systems that they do
11 operate all the way across the band. They do
12 have an up and down link, like your commercial
13 systems do that have to be separated. They do
14 have multiple users, all participating in the
15 same time. So they've got to have each of
16 their links separated from one another so that
17 it begins to take up a lot of the bandwidth
18 very quickly. And that those systems are
19 built into current capabilities and would have
20 to be essentially redesigned to move them. So
21 that presents some particular challenges.

22 The conversion that's noted here

1 to JTCTS as far as we can find out is not a
2 conversion of equipment that leads to more or
3 less use of the spectrum. There are
4 differences in the technology from the
5 existing technology, but those changes were
6 not developed by DoD for the purpose of
7 reducing the amount of the spectrum they're
8 occupying. That would have to be done under
9 a separate item.

10 So, there are lots of those
11 individual questions in here that we'd have to
12 take up in that other dialogue. And I think
13 it's very helpful that you've drawn attention
14 to them, and we get into them as we go there.

15 Thank you.

16 CHAIR FONTES: So, looks like that
17 little informal group will have its great
18 opportunities for discussions.

19 Any other comments on this
20 particular item? Okay. Hearing no further
21 comments -- oh, Jennifer?

22 MEMBER WARREN: Can you clarify

1 what we're voting on?

2 CHAIR FONTES: Sure.

3 MEMBER WARREN: I did put a
4 proposal for that Janice's comments be
5 attached as part of what we would be adopting.
6 There was a motion to amend the motion. And
7 I just wanted to make sure, because that will
8 affect what happens.

9 CHAIR FONTES: That is correct.

10 What we're voting on here is the
11 recommendations --

12 MEMBER WARREN: Yes.

13 CHAIR FONTES: -- with Janice's,
14 how many page, two page or whatever document
15 it is, as an attachment to those
16 recommendations, correct?

17 MEMBER SUGRUE: And the initial
18 recommendations to be changed --

19 MEMBER POVELITES: Well, as a
20 separate viewpoint.

21 CHAIR FONTES: Right. Right.

22 MEMBER WARREN: With associations,

1 right.

2 CHAIR FONTES: Right. With the
3 recommendations.

4 Yes?

5 CHAIR ROSSTON: And we're amending
6 the title.

7 MEMBER EPSTEIN: I want to get
8 clarification of Jennifer's request for
9 clarification. And that is, as I see it,
10 because, as I say, these are good comments and
11 they add color and texture, I don't think
12 people around the table have seen them or
13 digested them since they just showed up. And
14 I learned about them this morning, quite
15 frankly.

16 And so I think the proposal on the
17 table is to adopt the report with the
18 recommendations as amended, to clarify the
19 title and adopt the report with Janice's
20 attachment as additional views. And anybody
21 who wants to associate themselves with those
22 additional views, that's fine, that's

1 perfectly fine. But they at this point have
2 the status of additional views.

3 MEMBER WARREN: So they would not
4 be being adopted as part of the report as
5 additional views, then, attached to the
6 report?

7 MEMBER EPSTEIN: As I understood
8 what our chairs have said, I think that's the
9 proposal.

10 CHAIR FONTES: That's my
11 understanding. I think you clarified it better
12 than I did, actually. I probably caused more
13 confusion.

14 MEMBER WARREN: So we'll be having
15 two separate votes, is what you're telling me?
16 I'm just trying to clarify. One for the
17 report and then one to -- or not, to attach to
18 the --

19 CHAIR FONTES: No, I didn't
20 interpret it as two separate votes. I
21 interpreted it as a vote on the
22 recommendations with the amendment to identify

1 the specific band and to recognize alternative
2 positions or opinions, or however you
3 characterized it.

4 MEMBER CROSBY: Additional
5 viewpoints.

6 CHAIR FONTES: Additional
7 viewpoints associated with the
8 recommendations. Is that correct? Anybody --
9 I'm getting nods from the Chair. So that is
10 what the vote is about.

11 MEMBER SUGRUE: To the extent the
12 additional viewpoints are inconsistent, and I
13 don't know whether they are, I haven't read
14 them myself --

15 CHAIR FONTES: Oh, Tom, you need a
16 mic.

17 MEMBER SUGRUE: They don't
18 override the recommendations in the report
19 which everyone has had for the last three
20 months. I think basically we recognize a
21 distinguished colleague has some additional
22 views that are of value, and so we want to

1 attach them to the report and I'm fine with
2 that.

3 CHAIR FONTES: Okay.

4 MEMBER REASER: I'd like to make
5 one suggestion. This is Rick Reaser. Can you
6 put her name and the date on this thing, too?
7 When the thing was sent, I didn't even know
8 what it was.

9 CHAIR FONTES: Right. Yes, it
10 just kind of appeared and wasn't sure until
11 you read it where it actually fit in.

12 Okay. So everybody understands
13 what we're voting on? Great.

14 All those in favor of accepting
15 the recommendations with the amendment and the
16 additional views? Thank you. Somewhere I'll
17 remember that. All those in favor of this
18 proposal say aye?

19 (Chorus of ayes.)

20 CHAIR FONTES: Any opposed?

21 (No response.)

22 Thank you for those on the phone

1 voting as well.

2 MEMBER WARREN: One abstention.

3 CHAIR FONTES: One abstention.

4 Okay. Great.

5 And actually, Larry, I think this
6 is the first official vote of a report coming
7 out of this CSMAC to be submitted to you guys.
8 So will you be reading that report later today
9 then, is that right? We've got to have a
10 little levity in the room.

11 Our next group, and actually --

12 MR. NEBBIA: Can we just confirm
13 then the understanding of the second question?

14 CHAIR FONTES: Sorry. Sorry.

15 MR. NEBBIA: Just wanted to
16 confirm -- or did you want to do that now or
17 you want to do that later? I just think we
18 need to confirm everybody understands the
19 purpose then, the second question the group
20 would deal with is to recommend a framework or
21 a construct for having these
22 interagency/interindustry discussions to move

1 forward on discussing transition sharing in
2 this particular band. And not for this group
3 to actually carry out all of those
4 discussions, but in fact to recommend a
5 construct for doing it.

6 CHAIR FONTES: I have been
7 reminded to have everybody state their name,
8 Karl.

9 MR. NEBBIA: Sorry.

10 CHAIR FONTES: So that is Karl
11 that just spoke. So thank you for clarifying
12 what the next question would be for this
13 group. Any comments on that, Carl?

14 MEMBER POVELITES: Carl Povelites.

15 CHAIR FONTES: Thank you, Carl.

16 MEMBER POVELITES: That's be
17 great, and we look forward to it. And if
18 there is a possibility you can actually put it
19 in writing of a question for us to look at,
20 we'd be glad to address it appropriately.

21 MEMBER REASER: Rick Reaser.

22 The other group is actually

1 looking at this, so we may want to try to
2 figure out that. The other group is like in
3 a generic sense, not just for this band. In
4 fact, we have text and stuff that we have
5 prepared on that. So I won't take our
6 subcommittee chair's thunder, but we have
7 actually talked about this in the other group
8 about the sharing, the sharing group.

9 CHAIR FONTES: Great. Thank you.

10 And this is Brian.

11 This may be an opportunity, then,
12 for the subcommittee chairs to actually
13 coordinate and to see what work is being done.
14 Because there's no sense in being duplicative
15 in the work effort.

16 MEMBER POVELITES: And once we get
17 the question --

18 CHAIR FONTES: Yes.

19 MEMBER POVELITES: Once we get the
20 question from Karl, we can have a discussion
21 and see what the overlap is.

22 CHAIR FONTES: Thank you.

1 Okay. We're on to the next item,
2 and we're actually consistent with our time
3 frame for the agenda today. The next item is
4 spectrum sharing, and we're going over to
5 Larry and Mark. I don't know who is going to
6 be the actual speaker.

7 MEMBER ALDER: This is Larry, I'll
8 kick it off.

9 That is the right one. Thank you.

10 So let's go to the first slide.

11 So this is a preliminary. We're
12 not submitting any recommendations for a vote
13 today, so everybody can relax on that front.
14 But we've attacking, initially there was a
15 first question that we were working on,
16 Question 4d of: how do we set up sharing
17 arrangements when the primary service may
18 continue to evolve?

19 We submitted a preliminary of that
20 back in Boulder in July, and we've kind of now
21 combined it with the second question which we
22 feel as, after talking to Carl, perhaps the

1 more critical question of really "What kinds
2 of sharing is workable for the industry in the
3 long term?" And we've had a little sub-
4 interpretation of that question: "What kind
5 of sharing arrangements would be workable as
6 part of this 500 MHz plan?" So I think that
7 the NTIA is saying, if we got to deliver on
8 500 MHz, we think some of it has to be shared,
9 what kind of arrangements would be workable as
10 part of this plan? So that's the question
11 we've taken on.

12 We've had very good participation.
13 I want to thank -- I'd love to go through all
14 the names, but we've had about eight or nine
15 people that have been very active. It's been
16 a very good discussion with a lot of broad
17 representation of different interests from the
18 carrier community to people in the defense
19 community, et cetera, and the technology
20 community. So I really appreciate all that.

21 We split the work into two threads
22 recently. One was kind of: let's look at the

1 technologies that might enable us to answer
2 these questions. And Mark McHenry has been
3 leading that thread and has done a lot of good
4 work that he'll talk about in a moment.

5 And then the second question
6 really ties into what was just discussed,
7 really a process recommendation, and I'll talk
8 about that in a moment. Steve Sharkey has
9 been helping pull together some ideas there,
10 and we'll go through that.

11 Our goal with this group is not to
12 come up with the one size fit all sharing
13 recommendations. That's just a footnote here.

14 Let's go on to the next slide,
15 which is the technology update. So let me
16 turn it over to Mark, and he'll cover what
17 we've been doing on the technology.

18 MEMBER McHENRY: This is Mark
19 McHenry.

20 We've looked at several scenarios.
21 And there's another document, which we
22 probably won't go through, which shows block

1 diagram the different database approaches,
2 sensing, integrated sensing and so forth. And
3 we applied -- there's the applied diagram.

4 We applied them to different
5 scenarios and again, no one approach fits all
6 the scenarios. And so we see a lot of
7 customization, depending on if the incumbent
8 can change or the entrant doesn't want to
9 introduce sharing some of his stuff, he wants
10 a new database.

11 So then what we did was look at
12 isolation analysis. If you have a radar, is
13 the incumbent -- or you'll have a telemetry
14 system, the distances or the isolation, you
15 know per mile are very different.

16 MEMBER ALDER: Mark, it's just I
17 see people flipping through their papers. Just
18 for clarification, we have one presentation,
19 the master doesn't have all. My understanding
20 is there's a separate document that's
21 attachment and on the website.

22 Sorry about that.

1 MEMBER McHENRY: So the isolation
2 analysis really shows that the scale sizes
3 between the exclusion zones -- between the
4 entry causing damage to the incumbent or vice
5 versa are very different. And we haven't come
6 to a final conclusion what does that mean, and
7 we made that notice.

8 And then we looked at the
9 exclusion zones where, if you don't know the
10 position of the entrant or the frequency,
11 that's kind of what NTIA kind of proposed for
12 the radar band, it's very inefficient. That
13 would be the least attractive way to do that.
14 It's easy to implement but it doesn't harvest
15 much spectrum.

16 So what we're planning to do is
17 kind of go through these different approaches
18 and then compare to the scenarios and does
19 this really make sense? And, hopefully, we
20 can convince the rest of the Committee members
21 that sharing would make sense and that the
22 database for sensing for each two or three

1 scenarios: The satellite scenario, telemetry
2 and radar so that it make sense.

3 So, by the next meeting I'll have
4 more details and the technical buildup of
5 that.

6 Larry?

7 MEMBER ALDER: Yes. So there's
8 two reports attached, so we got the main slide
9 deck. We've also submitted on the website two
10 technical documents on the spectrum sharing
11 approaches, and there's another one that has
12 some detailed kind of linked budget analysis
13 of what would be exclusion zones. And I drew
14 a couple of conclusions for that that I'd
15 share with the group, and it's on the
16 isolation analysis.

17 You know, these exclusion zones
18 look pretty large from just a -- you know, if
19 you try to keep everyone separate and in their
20 own corner so you don't have any interference.
21 And so that points to trying to wanting to do
22 something a little bit more clever than just

1 exclusion zones.

2 And then Mark has looked at a
3 couple of scenarios for sharing. And I think
4 the conclusion there is there's probably no
5 one size fits all. It's probably dependent on
6 the specifics of the band, the services, et
7 cetera. But there's probably a way to do
8 something better and more productive. So I
9 think it's just a directional finding at this
10 point that if you want to get better, you have
11 to get more specific.

12 So that brings us to the next
13 slide. When we looked at the question of what
14 kinds of sharing are workable for the
15 industry. We actually focused a lot in this
16 interim period on the carrier community.
17 There's multiple communities who would like to
18 share. There's the carrier community, there
19 is you have the public interest unlicensed
20 community, there's entrants such as utilities.
21 And we haven't gotten as deeply into, like,
22 the utilities sector or the unlicensed sector.

1 We spent some time talking about the carriers
2 and had some good participation from a couple
3 of carriers.

4 And one thing is clear that's
5 going to be no surprise, is that the
6 commercial carriers preferred statuses to get
7 cleared spectrum. That is their preferred
8 status. It's not to say there's no desire for
9 sharing. I think there's a desire to sharing,
10 but they don't want to compromise the ask for
11 cleared spectrum. This presents a challenge,
12 and I think we have to face that that's a
13 challenge.

14 In a forum like this, having a
15 detailed question asked of them well how would
16 you share, how would you be willing to share,
17 it's difficult for them to address that
18 question without compromising their request
19 for a cleared spectrum.

20 So again, our insight was that
21 there needs to be a process to engage in a
22 more specific manner and address the

1 challenges, including the information
2 challenges to figure out what technologies, as
3 Mark's been saying, works for sharing he needs
4 to or the technologists need to know more
5 details about the incumbent systems, et
6 cetera.

7 So we decided to look at a set of
8 process recommendations as well as the
9 technical recommendations. So we can go the
10 next slide.

11 So these are, again, preliminary.
12 And I want to represent them as preliminary
13 and don't even reflect the full consensus of
14 the subcommittee; so these are just mid-
15 discussion. But we wanted to put them out
16 there. Again, these are more focused on the
17 carrier community in the discussions we've
18 had.

19 So, the first recommendation is
20 when you can't clear fully, the analysis
21 should be undertaken to determine what the
22 impact of those federal systems that remain in

1 the band would have on the commercial users
2 and what sharing conditions are required to
3 protect the incumbent systems.

4 The second one: This analysis
5 could be best accomplished through the
6 establishment of a joint government/industry
7 technical committee to address the specific
8 opportunity. So much like we talked about
9 earlier with the 1755 Committee, here we're
10 saying we're going to need to have a joint
11 industry working group to address the specific
12 opportunity that's at hand. And I think
13 that's key language here, not general sharing
14 but the specific opportunity.

15 And so, again, we're going into on
16 the next recommendation: The establishment of
17 a government/industry advisory does not have
18 to be overly burdensome, it can be treated in
19 a way that will protect the sensitive
20 information. The parties involved in the
21 discussion can be limited to a focus group of
22 experts and it may even include non-disclosure

1 agreement to protect sensitive information and
2 to facilitate the exchange of information
3 ideals that lead to a preferred solution for
4 all parties.

5 And of course the final, all the
6 rules and final decisions would have to be
7 subject to a full and open public rulemaking
8 process.

9 So I think the general comment,
10 and we can have other people give their
11 interpretation, but my interpretation is that
12 there needs to be a process where some
13 sensitive information can be discussed in a
14 way that works, drives to a conclusion, that
15 has the right parties involved. It's not a
16 general discussion, it's specific driving,
17 it's specific band or set of processes.

18 So, I'll just wrap up. So the
19 goal of the Committee is to really refine
20 these over the next period and come back with
21 something that we can bring to a vote and
22 approve. And we're going to try and

1 consolidate it into a recommendation in each
2 of the following areas: The technology and
3 the process. We're going to try to -- Karl's
4 really like I just want one recommendation,
5 don't give me 15.

6 So that's where the group is.
7 It's been a good discussion.

8 I've attached in the appendix
9 here. This was shown last time, but the next
10 slide I think is the more interesting one.
11 This is one of the slides that you'll find in
12 the sharing analysis that Mark did that
13 actually gives kind of a separation distance
14 analysis that you have to have just based on
15 linked budgets. And again, this is just
16 Mark's preliminary but you can see you can get
17 some feel for the types of separations that
18 might happen.

19 With that, I will turn it back
20 over to the chairs or if there's any other
21 subcommittee members that want to comment out
22 as well.

1 CHAIR FONTES: Okay. Let's just
2 find out if there are any subcommittee members
3 first that wish to provide additional. Mark?

4 MEMBER MCHENRY: One of the
5 recommendations that we didn't talk about, but
6 we provided a database system where NTIA or
7 the DoD would give position of ships and
8 frequencies. I mean, some of these might be
9 thrown out. We could save a lot of time if
10 NTIA would look at some of these. You know,
11 we kind of went over once the list of sharing
12 approaches, rule some of them out right now.
13 This wouldn't be too hard, or give us some
14 more feedback would be very helpful.

15 CHAIR FONTES: Any other comment?
16 Any comments then from, first Gary and then
17 Jennifer.

18 MEMBER EPSTEIN: The question
19 about sharing of information, are you talking
20 about proprietary information or confidential
21 top secret information, or both?

22 MEMBER ALDER: This is Larry.

1 So I don't know the answer to that
2 question, but there's a recognition that
3 sensitive information of some type probably
4 will have to be shared in order to design the
5 most productive system. So there's a
6 recognition that it may not be possible to do
7 that in a wide open way. There might need to
8 be ways with agreements and such so that that
9 information can be handled.

10 Mark had talked about drawing an
11 analogy to the Defense procurement process
12 where sometimes there's sensitive information
13 that needs to be done and vendors have access
14 to that.

15 So it's just an overall
16 recommendation that there is sensitive
17 information that might be needed to share in
18 order to design the most productive sharing
19 mechanisms.

20 MEMBER McHENRY: And the sample to
21 help to applied telemetry in -- that's really
22 important.

1 CHAIR FONTES: Jennifer?

2 MEMBER WARREN: Thank you.

3 Jennifer.

4 I just wanted to echo two things
5 that Larry said. One is that it has been a
6 really diverse group of members in the
7 subcommittee and, hopefully, it will continue
8 to be that way. But that it is also very
9 preliminary

10 I think, you know Larry has chosen
11 one of the process discussions that we've had,
12 but there's been multiple threads. So what
13 the actual process recommendation will look
14 like may or may not bear any resemblance to
15 these exact details. So while this is a good
16 preview of the nature of our discussions,
17 there are multiple threads going on.

18 MEMBER ALDER: Yes. Thank you,
19 Jennifer for that. That's certainly the case.

20 CHAIR ROSSTON: I actually had a
21 question for Mark. You know, not being an
22 engineer I looked at the different systems

1 that you had drawn in the back of your slides,
2 and just to clarify what I got out of this,
3 and if I'm right or not. There are lots of
4 different systems and that this would give you
5 lots of different possibilities for ways you
6 would share a response to what the different
7 systems are? Is that the way --

8 You should take a microphone.

9 MEMBER McHENRY: It all depends on
10 what the entrant and incumbent are willing to
11 do. And if the entrant is willing to put
12 sensing near the handset, that's one approach.
13 But he might not want to do that. And the
14 incumbent would provide the location of
15 frequency of all the emitters real time, that
16 would be very easy for the entrant. So, until
17 you weigh the difficulties for each side, it's
18 tough to come up with an answer.

19 CHAIR ROSSTON: So those just
20 illustrate different types of sharing
21 arrangements that might work.

22 MEMBER McHENRY: These are the

1 four ones I could think of. I think they
2 almost -- I want to say span in space, but
3 they somewhat spans the space. The answer will
4 be one of these or a combination of these.

5 CHAIR FONTES: Michael, did you
6 have a question. You're going to need a
7 microphone.

8 MEMBER CALABRESE: Yes.

9 CHAIR FONTES: Your voice is
10 distinct. Michael Calabrese.

11 MEMBER McHENRY: Yes. Michael
12 Calabrese. And I'm a member of the
13 subcommittee.

14 You know in the spirit as being
15 preliminary, I think we also have some work to
16 do in more explicitly thinking and talking
17 about more low power sharing scenarios.
18 Because I think, you know the work done so far
19 was sort of explicitly from a carrier industry
20 perspective. And so you'll see a lot of
21 things had that caveat on to, like the
22 industry perspective, this/that; we're

1 referring to the high power people. And I
2 don't know if we need an additional question
3 from Karl or not, but I think a lot of the
4 potential is going to be on bands where, you
5 know we're not talking about minor exclusions,
6 we're not talking about federal users vacating
7 but we're actually talking about sharing long-
8 term and probably most efficiently at low
9 power. And so we need to be able to talk
10 about local area, low power, low site as a
11 form of sharing that could be very efficient
12 and different than I think where our focus has
13 been.

14 CHAIR ROSSTON: So I saw Mark
15 shaking his head.

16 MEMBER MCHENRY: Well, the
17 technical analysis treated the high power and
18 the low power systematically. So the
19 technical, we did do both. The linked budgets
20 have an unlicensed and they have a license, so
21 we did do both in the technical analysis.

22 MEMBER CALABRESE: So the

1 scenarios could be applicable to either?

2 MEMBER MCHENRY: We tried to
3 evenly do both; licensed and unlicensed
4 entrants.

5 MEMBER PEPPER: This is Pepper.

6 But unlicensed doesn't mean --
7 Michael's about low power.

8 MEMBER MCHENRY: Well, the
9 unlicensed scenario I had was low power.

10 MEMBER PEPPER: That was the
11 assumption?

12 MEMBER MCHENRY: Yes.

13 CHAIR FONTES: Okay. Are there
14 other questions or comments from CSMAC members
15 to this working group or subcommittee so that
16 they can consider your comments and questions
17 in their deliberations?

18 MEMBER REASER: This is Rick
19 Reaser. I'd make one comment.

20 The one idea about the process
21 thing, though, that would be something to get
22 some feedback on. And something like that is

1 just acceptable to NTIA because that
2 represents kind of a departure between my
3 experience of how this has happened over the
4 years. Typically what happens is NTIA defines
5 something, the Commission goes out for
6 rulemaking. The idea here is to try to have
7 discussions before that ever happens with the
8 affected parties in some way that there's a
9 better understanding of what goes into that
10 rulemaking. And that's the issue of the
11 nondisclosure or some other way to exchange
12 information before you actually go out for
13 rulemaking and have the actual participants
14 who would be affected, those who are trying to
15 either buy the auctioned license or buy the
16 license by auction or giving up or sharing,
17 that they would have discussions beforehand.

18 In the past what's happened is
19 after that process is all done, then the
20 technical discussions start about, okay, how
21 fast can you move, how's this going to work,
22 how we going to share; that kind of stuff.

1 So because that's a nonstarter,
2 because that's one of the things that was
3 talked about and I think that gets back to
4 what Jennifer was talking about about our
5 recommendations may take a different turn. But
6 the idea was to try to somehow have more
7 information exchanged before you actually went
8 out for rulemaking. And that was that big
9 paragraph in the process thing.

10 MR. NEBBIA: Yes. This is Karl
11 Nebbia.

12 Yes. I appreciate that idea.
13 There have been, certainly, a number of cases
14 where we have in fact done that type of thing.
15 We had a case recently where there was a lot
16 of dialogue between one of the companies
17 promoting a particular type of medical device
18 that was intended to operate in an
19 aeronautical telemetry band. A lot of
20 discussions went on between the industry
21 people and the government and other
22 aeronautical telemetry folks to try to reach

1 a conclusion on something that was workable as
2 opposed to just doing battle by paper in
3 filings at the Commission, that sort of thing.

4 So I think that we've certainly
5 approached that in certain limited constructs
6 where we had a specific user wanted to
7 identify an opportunity in a band. It's a
8 little bit more challenging if there's a broad
9 range of users and federal agencies, and
10 different types of activities on our side.
11 But we are still looking for how we can create
12 that construct before you get down to the
13 final steps of the rulemaking process and so
14 on.

15 In terms of how this connects with
16 the previous group, I think we are looking
17 specifically and asking. The subcommittee
18 looked specifically at the 1755 to 1850
19 activity because the players change, the
20 construct may change depending on which band
21 that you're looking at.

22 I did want to draw attention to

1 the fact that, although the group as they've
2 looked at this focused more on the sharing
3 approaches that are workable for industry for
4 the long-term, and I think they were right in
5 approaching it directly as to how will we deal
6 with that kind of high power industry as
7 opposed to the low power unlicensed primarily
8 groups. We were treating that primarily in I
9 think the unlicensed discussion. So I think
10 they're right in looking at it in those terms.
11 Because as the President has laid out, the
12 search for 500 MHz we're looking for both
13 types, but of course we are trying to find
14 spectrum specifically for the commercial
15 wireless industry as opposed to unlicensed.
16 It's not that we're not looking for both, but
17 we are looking for those aspects. Certainly
18 at 1755 to 1850 we're looking for a way that
19 we can make that spectrum available for the
20 commercial wireless industry. So, I think
21 that's a correct approach.

22 But in the long run we don't want

1 you to lose sight of the first question that
2 was on the table that sharing and how you do
3 that in a construct where the equipment is
4 evolving, the incumbents are evolving. The
5 idea that we're going to ask to share spectrum
6 and say you tell us exactly what you look like
7 and do not change what you look like because
8 if you start changing, then our sharing
9 arrangement isn't going to work anymore. That
10 is an anathema to the existing users of the
11 spectrum to be told sharing is all about
12 locking them in and then everybody else
13 operating around them.

14 So, we do need to deal with that
15 question. It's one of the major conflicts
16 right now on the 5 gigahertz wi-fi issue
17 because the FAA wants to change its radars
18 over the long run. So it is a critical
19 component here and I don't want to lose sight
20 of that.

21 So, as we go forward and you break
22 out the different environments and constructs,

1 we're certainly happy to participate in a way
2 of telling you as much as we can. But, for
3 instance, a real time database-drive process
4 of all of the federal assignments that include
5 the classified assignments is not possible at
6 this point. And it is important if that's
7 what you're trying to base on a recommendation
8 on. That is not possible. From a security
9 standpoint we cannot link classified databases
10 at this point with any type of public
11 interaction. It doesn't mean that we can't
12 come up with a way of having discussions about
13 how we might share spectrum, but ultimately
14 those decisions about how they interact with
15 people who would have to have a need to know
16 is in the hands of the owners of that
17 information, whether it's DoD, whoever it
18 happens to be. They have to reach a
19 conclusion that the industry has an actual
20 need to know that information in order to
21 include it in the dialogue.

22 So, those are just my thoughts at

1 this points. We appreciate you're still
2 midway down this course and we're happy to
3 talk more about the approaches that you're
4 suggesting. But they are kind of band-by-
5 band. The processes and people vary. But
6 ultimately whoever the incumbent is, whether
7 it's a federal government agency or a
8 commercial entity, I believe they're going to
9 be asking for some sort of ability to evolve
10 and to change who they are as opposed to
11 finding out that we fit the shoe so tightly
12 that there's only one Cinderella that actually
13 gets to go to the dance.

14 CHAIR FONTES: Let's hope the dance
15 is over noon or midnight, I don't know if I
16 want to see the consequences.

17 First Gary and then Michael.

18 MEMBER EPSTEIN: You know, this of
19 course, it's obviously not a new issue, but I
20 think I want to state something which we
21 probably all understand. But there are at
22 least three separate constraints when you try

1 to invent one of these processes.

2 The first one is the commercial
3 confidentiality aspect of it.

4 The second one is the classified
5 aspect of it.

6 And the third one is the legal
7 process aspects of it. Sunshine, you know,
8 participation, ability to withstand appeal.
9 And so you have to thread your way through all
10 three of those things in order to invent the
11 process here.

12 CHAIR FONTES: Michael?

13 MEMBER CALABRESE: Yes. I had a
14 question for Karl.

15 This is Michael Calabrese.

16 Yes. Certainly when you think
17 about the governance database that the FCC
18 established, for example, for unlicensed
19 access to the TV bands, so there's ten
20 commercial operators of those databases and
21 there was kind of a purposeful effort to make
22 the inputs transparent because it's almost all

1 complied licensing information that you could
2 find at the FCC anyway.

3 So, I guess my question is why
4 would classified database information
5 necessarily be given over to the commercial
6 sector or made publicly available, or even
7 given to the FCC as you seem to assume, why
8 couldn't the federal government, the NTIA for
9 example, simply manage that as a black box
10 that's connected to the commercial database,
11 if necessary or is simply the direct place to
12 go. So all you get is answer: I'm here, can
13 I use this frequency or not. And there's no
14 classified information revealed.

15 I think that's been the assumption
16 that people working through these issues at
17 the FCC and so on had made, that that's how
18 the NTIA and the Federal Government will be
19 cooperating with spectrum efficiency down the
20 road. So I'm wondering why you think that's
21 impossible?

22 MR. NEBBIA: This is Karl Nebbia

1 again.

2 Long-term it may not be
3 impossible, but currently the security
4 construct is we cannot attach a classified
5 database to any type of direct outside access
6 whether it's a matter of querying without
7 seeing the database or not. Because the people
8 in the IT world are very smart people and the
9 security folks have determined at this point
10 if you give them access, a way of connecting,
11 though for the common users you will just put
12 in your input, you'll get your output, for the
13 smart IT person that gives them an avenue into
14 the data itself. And at this point, we're not
15 able to do that.

16 The 70, 80, 90 gigahertz database
17 that we have constructed and operates in this
18 way and operates well, was able to be
19 constructed because we had no classified in
20 those frequency ranges that we would have to
21 protect.

22 So it puts you in a place of

1 creating an arrangement where you could take
2 an air-gap approaches where maybe you get your
3 answer back tomorrow as opposed to today,
4 because we would have to take the data, the
5 incoming request, download it into another
6 system and upload it back. That always has
7 its own security issues, but that would be one
8 way. And it's not real time, and that was the
9 connection that I was making. There are ways
10 of nonreal time that we might be able to do
11 it. Once again, you have to come up with the
12 system to operate it and so on that would make
13 sure that no of the wrong data flowed in and
14 out. So it can be done on that basis, but
15 right now we've been told that we cannot
16 connect the classified database to an open
17 access.

18 CHAIR FONTES: Mark?

19 MEMBER GIBSON: Yes. This is Mark
20 Gibson.

21 I wanted to comment on what
22 Michael and Karl both said. Yes, the 70 and

1 90 gig is an example, I think, of what Mike
2 was talking about. And so no classified data
3 is exposed, but it is a process where the data
4 are sent to NTIA and an analysis is run
5 independent. But there's another process
6 that's similar with sort of this air-gap that
7 you're talking about, and that's the portal
8 that DoD established for doing coordination
9 with classified systems with AWS at 1.7.

10 That's got a bigger gap and the turnaround
11 isn't quite as quick as for the 70 to 90. But
12 carriers submit their coordination
13 information. JSC, Joint Spectrum Center, does
14 it on behalf of DoD, this analysis. The
15 analysis is bifurcated into those that operate
16 for classified systems and those that operate
17 for nonclassified systems. And answers are
18 given in bulk, if you will, yes or no
19 specifically for the classified systems.

20 So, there's processes in place
21 that respect the integrity of classified data,
22 or even data that's FOIA exempt yet still

1 allow carriers and industry to interface with
2 that information.

3 And the portal concept, you know
4 while someone under the radar screen has
5 worked very well. We've interacted with it a
6 lot. And once we got some of the bugs worked
7 out, it's been very streamlined and very, very
8 well done.

9 CHAIR FONTES: Okay. Are there any
10 other comments? Great. So we encourage you
11 to continue working on. I hope at our next
12 meeting we'll have some specific proposals to
13 review. You know, this one area is
14 particularly challenging. So I appreciate the
15 amount of time, energy and effort going into
16 this.

17 Great. Now I'm going to turn it
18 over to Greg.

19 CHAIR ROSSTON: Great. So our next
20 group is the Unlicensed Spectrum
21 subcommittee's. And assuming that that's
22 Michael since Janice is not here. So, Michael

1 Calabrese, go ahead.

2 MEMBER CALABRESE: Okay. Yes,
3 unfortunately Janice had a conflict and sends
4 her regrets. But I will walk through.

5 So we have a document with some
6 draft recommendations. So this is still at a
7 stage where we are welcoming feedback and
8 refinements and additions. And right now
9 we're focused on getting finality on our
10 question, this is kind of our main question,
11 number 1, concerning enforcement issues. And,
12 actually, some of it speaks very much to the
13 problem that Karl was talking about, at the
14 end there, about concerns that federal systems
15 have.

16 So, I can just walk through these
17 five recommendations and then we'd welcome
18 some discussion or, obviously, input then as
19 we go ahead with our process.

20 So this is on basically the first
21 two pages here of this document. Then the rest
22 just goes into these same things in more

1 detail.

2 I should also note there's
3 appended two case studies of the garage door
4 opener situation and the Doppler terminal
5 weather radars that created the issue in the
6 5 gigahertz band, just for illustration and
7 because some of this speaks directly to
8 situations like that.

9 So Recommendation No. 1 is fairly
10 broad that to the extent possible, NTIA should
11 put in place regulatory requirements
12 coordinating with FCC that reduce reliance on
13 post hoc regulatory enforcement of
14 interference by turning more increasingly to
15 technology-based solutions for connected
16 devices that are prophylactic in nature.
17 Because so far we're very much in a post hoc
18 enforcement world still. So that's the
19 generic.

20 And along with that going forward,
21 the federal devices, devices for federal
22 systems, should be connected devices as well

1 to the extent possible so that essentially
2 everybody is in communication, you might say,
3 and not untethered. And, in fact, that's kind
4 of a major distinction in general we're making
5 here between untethered devices which has been
6 the history so far of unlicensed. Most of
7 what's deployed right now in 2.4 and 900 MHz,
8 you know be it baby monitors, garage door
9 openers or wi-fi, are untethered and sort of -
10 - unconnected and then connected devices.
11 They have all sorts of ways of dealing with
12 changes in the environment.

13 Recommendation No. 2: Is to
14 require that in most new unlicensed or shared
15 bands, unlicensed devices should be connected
16 devices that are required periodically -- I
17 think this was Kevin Kahn's term -- to call
18 home, that is either through a database
19 mechanism or directly to the manufacturer.
20 And this can be for a variety of purposes, for
21 example: To obtain a firmware upgrade; to be
22 remotely disabled on a particular frequency;

1 to renew permission to access a frequency; or
2 to receive direction to move to another
3 frequency. And again, this would probably be
4 determined on a band-by-band basis what was
5 necessary to share with, you know whatever
6 primary system's already in place since it
7 would be, I think, somewhat unprecedented and
8 then unusual for unlicensed bands to be
9 dedicated and only that. So we are
10 anticipating a sharing scenario.

11 Under the scenario, the burden of
12 interference mitigation would be shifted
13 primarily onto manufacturers to rely on
14 technology solutions rather than on consumer
15 education which does not seem to be very
16 effective given the incentives.

17 So imagine the case of the garage
18 door opener, perhaps in the future, or systems
19 like that where what the Air Force could do is
20 the Air Force could contact NTIA, have them
21 transmit a beacon that would cause all the
22 devices to call home, to contact the database,

1 get an automatic firmware upgrade, problem
2 solved, ideally.

3 Recommendation No 3: Is that in
4 cases where avoidance through technology
5 measures fail, we would recommend that NTIA
6 again in coordination with FCC, recommend that
7 the FCC strength enforcement measures to
8 provide stronger deterrence and that NTIA
9 should also educate policymakers concerning
10 the secondary status of unlicensed devices and
11 their obligation to accept interference.

12 So, to this end the Committee has
13 also, I think, largely embraced or wanted to
14 bring up again the recommendations in the
15 CSMAC Interference Committee report from last
16 year that had some these very things, such as:

17 A streamlined interference reporting
18 mechanism; increased penalties; a shot-clock
19 approach to responding to interference
20 compliance; remote shutoff as an option where
21 the band is sensitive. So those are the sorts
22 of things that actually were already discussed

1 in the last CSMAC and would be relevant here.

2 Proposed Recommendation No. 4: Is
3 in cases when it is not a matter of unlicensed
4 devices intentionally operating outside of the
5 rules, but you still get interference because,
6 you know, that certainly will happen that
7 manufacturers should increase consumer
8 education efforts as an important backstop to
9 enforcement and avoidance through technology
10 efforts. And, you know it could be that
11 industry coordination efforts are done more
12 proactively in advance so that, for example,
13 what ultimately was a big help in the garage
14 door opener situation we found was that in the
15 aftermath of the problem, NTIA established a
16 working group that got industry to agree to
17 offer a retrofit kit to consumers to help
18 solve the problem. But, you know, perhaps if
19 that sort of thing had been set up in the
20 advance, that backstop could have been arrived
21 at even more quickly.

22 Recommendation No. 5 is that NTIA

1 in coordination with FCC undertake further
2 study of the regulatory treatment for so-
3 called cheap, dumb devices. And here so far
4 all we've really done is raised some
5 questions.

6 Should cheap, dumb devices be
7 segregated, you know be limited in other words
8 to operation on a couple certain bands, such
9 as the legacy 900 and/or 2.4 gigahertz
10 bandwidths where they will certainly be in
11 place for a long, long time or should
12 policymakers move to phase them out
13 completely, such as by setting a deadline at
14 which time, you know, you cannot sell anything
15 with those characteristics either in general
16 or other than in one particular band?

17 So, on the one hand, and I'd just
18 throw this out because I can see people
19 already thinking of the downsides. You know,
20 one the one hand this obviously could increase
21 costs, which we've talked about as could be
22 considered as a necessary user fee that should

1 deter innovation. In other words, we're
2 talking about efficient access to open
3 spectrum, and yet if the need to make that
4 make sense is more expensive equipment, you
5 can regard that as a kind of a necessary user
6 fee.

7 On the other hand, then we have
8 consideration of things like the internet of
9 things, right? The projections of 50 billion
10 devices being connected to the internet by
11 2020. Certainly a huge proportion of those
12 should, I would think, be unlicensed spectrum.
13 And so connections like remotes for remote
14 sensing, we would not want to make those
15 overly expensive or complicated. And so that
16 would be a consideration in terms of whether
17 you would reserve certain spectrum for that
18 purpose or require that they be somehow be
19 connected devices themselves.

20 So, that last recommendation is
21 not really a recommendation so much as it was
22 a recommendation to really seriously consider

1 limiting this, you know these unconnected
2 devices in terms of where they would operate.
3 Because they do create complications for
4 sharing the bands.

5 So, I will stop there and welcome
6 comments.

7 CHAIR ROSSTON: Okay.

8 MEMBER CALABRESE: Any other
9 members any comments or questions?

10 MEMBER COOPER: Well, Michael,
11 should there not be a recommendation that
12 encourages creation of new technologies that
13 use the unlicensed band in more efficient ways
14 to actually replace --

15 MEMBER CALABRESE: Marty, I didn't
16 hear the end of that. To replace what?

17 MEMBER COOPER: The suggestion is
18 that ultimately, I know you're talking about
19 a long-term viewpoint, and ultimately I
20 believe that all activities in the spectrum
21 are going to need a license. And so we ought
22 to be encouraging the creation of

1 technologies that moves towards that
2 direction.

3 MEMBER PEPPER: This is Pepper.

4 Marty, I think that one of the
5 things that we talked about in the group was
6 that when we're looking at unlicensed devices,
7 low power in combination, almost by definition
8 they're either going to share with themselves
9 or they will share with primary users. And
10 the question going forward using technology,
11 especially in the cases of sharing spectrum
12 with current government uses, would be to have
13 the device connected for all the reasons that
14 Michael talked about. So, smart enough to be
15 able to know when and where they can operate
16 and addressing the issue that we talked about
17 in the shared spectrum, a question of the
18 flexibility and agility of existing users to
19 provide these services going forward, right?
20 And then the ability to update the unlicensed
21 devices operating low power and share.

22 I think this addresses some of

1 those questions as well, Karl.

2 Marty, in terms of going forward,
3 I mean again so your vision of nothing will
4 require a license because everything's going
5 to be smart enough to know when and where it
6 can operate. I think almost by definition
7 presupposes the type of connected device that
8 we're talking about so that there can be very
9 adaptive networks. I mean, that is off in the
10 future, but in this context as a small step in
11 that direction what we were trying to do was
12 identify bands, a spectrum that could be used
13 to create a whole new service platforms, whole
14 new industries to take advantage of the
15 existing unlicensed technologies but do it in
16 ways and on frequency that to date we couldn't
17 do that because there are other users. So
18 it's a different way of thinking about
19 sharing. This is where, Karl, the sharing and
20 the unlicensed comes together and how we try
21 to address that.

22 On the last question or

1 recommendation, which is really about the dumb
2 device, cheap-dumb. Cheap-dump, actually the
3 definition of that is unconnected, right? So
4 it can't be updated and the question there is
5 when we are talking about very, very small
6 devices in an internet of things in which the
7 cost of the device is going to be very small,
8 very low, there's some benefit-cost questions.
9 And there was no consensus within the group as
10 to whether or not we should adopt a
11 recommendation that everything should become
12 smart and connected in the future. In fact,
13 there was a lot of discussion that actually it
14 could lead to some very adverse consequences
15 if we did that, especially since we already
16 have bands that don't have that. So really we
17 can think about this as a migration strategy
18 to find new bands and frequencies for low
19 powered unlicensed shared devices and then
20 there's some things we can do to the existing
21 bands to make them more efficient. But the
22 fact that intelligence now can be embedded at

1 very low cost in devices and when they're
2 connected, almost by definition, they're radio
3 devices so they're connected to something,
4 provides a wider range of tools to avoid
5 interference and so that they work together.

6 CHAIR ROSSTON: So after I stop
7 buying the expensive dumb devices that I seem
8 to buy.

9 MEMBER TRAMONT: I just wanted to
10 make sure that the institutional observation,
11 which is the charge of this subcommittee was
12 the enforcement question and sort of how do we
13 deal with it the four very specific questions
14 around enforcement? I think the strength of
15 the model that's been adopted by the new co-
16 chairs has been the narrowness of the
17 questions presented. And so I think Marty's
18 observation about the long-term future and the
19 need for additional efficiency is important,
20 and I think it's been talked about, but I
21 think we need to sort of keep our eye on the
22 enforcement ball here. And I think that some

1 of the recommendations here make good progress
2 on that. But this enforcement question is one
3 that has vexed us repeatedly over the course
4 of the last four to five years that we've been
5 working on the Federal Advisory Committee.
6 And I want to make sure and just urge the
7 Committee to stay focused on that sort of
8 relatively narrow operational question about
9 how to handle enforcement across the four
10 vectors that Karl identified.

11 CHAIR ROSSTON: I'm going to step
12 in. This is Greg.

13 I've sort of been following along
14 on that. And we're here at NTIA, not at the
15 FCC, so we're trying to think about unlicensed
16 devices that would work in federal government
17 spectrum not in unlicensed spectrums. So we
18 sort of want to focus on rules that at least
19 for some period of time would be in the
20 Federal Government spectrum it's possible with
21 the unlicensed devices that operate in federal
22 government spectrum or the Federal Government

1 agencies may ultimately leave the spectrum, so
2 we may set the road path for that. But for
3 right now we're thinking of it as unlicensed
4 devices and how they would interfere or not
5 interfere with that. Just to sort of set that
6 as one of the big picture things that we're
7 thinking about along with Brian.

8 MEMBER CALABRESE: Can I clarify
9 something? Just because it's right on Greg's
10 point is that I should have been more
11 explicit. But we consciously considered I
12 think the problem that Karl raised earlier
13 during the discussion on Sharing Committee,
14 which is the one, you know he also mentioned
15 was that issue with the FAA and the Doppler
16 radars, which is enforcement also in the
17 context of, you know typically these scenarios
18 both the garage door opener and the terminal
19 Dopplers that the situations arose in the
20 context of unlicensed device sharing with
21 federal users on federal bands where federal
22 use was primary. And so we're very conscious

1 of a way to not only promote to facilitate
2 more sharing but also to avoid the concerns
3 would be to have devices that could evolve as
4 the federal users evolve. And so that was an
5 explicit part of the equation not going out so
6 much the long-term, this is as Bob said a step
7 in Marty's direction, so it's consistent with
8 where technology is going. But it's more
9 explicitly to address the needs of the federal
10 users to allay their concerns on both
11 enforcement and on hearing just generally.

12 CHAIR ROSSTON: David. Well, David
13 and then Jennifer.

14 MEMBER WARREN: So it is true; if
15 you have the mic, you have the floor.

16 Just a couple of quick comments.
17 First, I think this is great. There's a lot
18 of really great thinking. It's really
19 important, given as Brian said, this has vexed
20 us in the sharing discussion for so long.

21 I have one specific point in terms
22 of the narrow question and then two sort of

1 larger questions I just wanted to bring to the
2 group.

3 One is was there any discussion in
4 the subcommittee on recall authority, the
5 ability to actually recall equipment? I know
6 that in the context of a particular sharing
7 problem between unlicensed and a license
8 service at the FCC, one of the challenges that
9 the FCC had they stated was that there was no
10 authority to recall devices that were
11 currently on the shelves being sold that were
12 demonstrably causing interference to the
13 licensed service. So I just throw that out,
14 whether there's been any discussion and then
15 I'll just make my other two points.

16 MEMBER TRAMONT: Okay.

17 MEMBER PEPPER: So not recall
18 specifically, but the ability to turn it off?

19 MEMBER TRAMONT: Yes.

20 MEMBER PEPPER: So the question is
21 whether disabling --

22 MEMBER WARREN: That's for the

1 smart device.

2 MEMBER PEPPER: -- is the
3 equivalent of recall, but not recall per se?

4 MEMBER WARREN: Right. And that's
5 for the smart devices. And I think you said
6 you were talking about both dealing with the
7 smart and not smart devices. I think the
8 question was there a discussion with respect
9 to the dumb devices? So, I just would throw
10 that into the subcommittee to perhaps think
11 about.

12 Two, I'd like to ask a question on
13 Recommendation No. 2 and whether or not the
14 ability to call home I think you contributed
15 to Kevin would begin to address the issue of
16 whether the incumbents have the ability to
17 evolve. Will requiring the smart devices to
18 call home and make some changes somehow start
19 to address evolution for the incumbents? Is
20 there a way? I mean, do you see that in
21 there?

22 And then my third point is, do you

1 think that structuring some of these
2 recommendations would also then provide
3 incentives for manufacturers to make this
4 investment in smart devices over dumb devices?
5 Because there's access to spectrum that's
6 probably more guaranteed in the long run for
7 their product than for the dumb devices. So
8 there's a whole competitive incentive here
9 versus manufacturers that choose not to.
10 Perhaps we ought to draw out that this could
11 be an incentive structure as well: Just a
12 thought that some of the recommendations could
13 play towards that.

14 CHAIR ROSSTON: David?

15 MEMBER DONOVAN: I only have two.
16 That's always dangerous.

17 Thank you, Michael and Bob for a
18 terrific report.

19 I just have one question on the
20 enforcement side. As I read through the
21 document issues regarding enforcement seem to
22 be focused, as they should be, on the devices.

1 I mean, what happens if the device doesn't
2 work or things of that nature. Did you
3 subsume within that analysis what would happen
4 if the device was functioning perfectly but
5 was relying, for example, on a database and
6 the error occurred not in the device or in the
7 manufacture, but in an independent third party
8 database provider to the extent we use
9 geolocation in sharing with NTIA?

10 Now, obviously, it's a different
11 issue you use sensing. But if you have a
12 third entity, and let's assume it's part
13 commercial that is sharing with NTIA and the
14 devices are fine, but the information being
15 provided to the device somehow is off. Should
16 we at least maybe just expand a thought or two
17 how one would deal with the enforcement of
18 sort of a data-based entity with a database
19 has gone wrong? Just a thought. Otherwise,
20 I think it's a terrific report.

21 MEMBER CALABRESE: I don't think
22 we discussed that explicitly.

1 MEMBER DONOVAN: Right.

2 MEMBER CALABRESE: It would be
3 worth mentioning. I think on one hand it
4 would be an assumption that that would be
5 built into the authorization process.

6 MEMBER DONOVAN: Right.

7 MEMBER CALABRESE: You know, some
8 sort of process for dealing with those
9 situations.

10 MEMBER DONOVAN: Sure. Right.

11 MEMBER CALABRESE: On the other
12 hand, it's worth mentioning that that's a
13 potential hazard.

14 MEMBER DONOVAN: Right. And how
15 you would fix it. Because it's entirely
16 possible and if you're dealing with
17 enforcement and you guys go into wonderful
18 detail, terrific detail on what the
19 responsibility should be for devices. And the
20 thing that caught me was one of your
21 recommendations that said: "What happens if
22 the device is working perfectly but you still

1 have interference?" And that triggered this
2 scenario is what happened if I'm a consumer,
3 I've purchased a device that's working fine,
4 but the data is coming from a third party
5 entity and that's wrong. And that raises a
6 whole set of different set of issues,
7 particularly if I'm doing combined sharing
8 with federal systems. So it may require some
9 thought.

10 Otherwise, terrific. Thank you
11 very much.

12 MEMBER CALABRESE: In that report,
13 can I just ask him -- that report? The
14 Interference subcommittee report last year --

15 MEMBER DONOVAN: Right.

16 MEMBER CALABRESE: -- was it
17 addressed?

18 MEMBER DONOVAN: You know, I think
19 we didn't focused on it. We raised issues
20 regarding you can avoid interference with a
21 database approach. We raised interference
22 with using sensing and these are some of the

1 enforcements. But now that databases have
2 become more real, and certainly the Commission
3 has moved on, and the idea that you may have
4 an independent third party database or
5 multiple database providers I think raises the
6 specter of that issue that really should at
7 least be considered.

8 MEMBER CALABRESE: Okay.

9 CHAIR ROSSTON: Harold?

10 MEMBER FURCHTGOTT-ROTH: I also
11 want to commend the chairmen for framing these
12 issues so well. A lot of progress has been
13 done in the subcommittee.

14 I think some of the discussion
15 this morning has reinforced some concerns that
16 I raised in the subcommittee before and I just
17 want to bring those up to the full Committee.
18 And that has to do with what I might describe
19 as international coordination, in some sense.

20 The United States has been the
21 leader in unlicensed devices, but today I
22 would hazard a guess: The vast majority of

1 unlicensed devices are manufactured outside
2 the United States. And going forward if you
3 were to look 10 years from now, 20 years from
4 now, the vast majority of the consumption of
5 unlicensed services around the world will be
6 outside of the United States and our ability
7 to influence the structure of unlicensed
8 devices in what is an entirely global market
9 for devices and device manufacturing is going
10 to erode, and erode very quickly over time.
11 And we already see this.

12 We saw this with the wireless
13 microphone situation over the past few years.
14 We had absolutely no idea how many wireless
15 mics there were. They were manufactured and
16 used in a global market around the world and
17 it was very difficult to get a handle on the
18 interference that they were causing, not
19 because of any shortage of understanding of
20 the problem in the United States, but it was
21 that these devices were used around the world
22 and they would come into the United States

1 without a lot of difficulty.

2 I don't know the answer is to
3 this. But I think if we're going to have some
4 effective enforcement mechanism for unlicensed
5 devices, it's something that we have to
6 consider beyond just the United States. This
7 is a larger issue than that. And we can do an
8 awful lot here in the United States, but if
9 other countries have a different approach to
10 unlicensed spectrum, we won't have any ability
11 to change that. And it's particularly true on
12 the cheap devices of which there is just a
13 enormous proliferation. They cost pennies,
14 they are attached to every device that we have
15 and there's a potential for a lot of
16 interference from those as well.

17 CHAIR ROSSTON: Mark?

18 MEMBER GIBSON: This Mark Gibson.

19 I'd like to make a comment to
20 David's point that he made a little bit ago
21 about databases, I guess in the white space
22 context right now, but ultimately as they get

1 more capable. Actually, two points.

2 One is that at least that at least
3 under the current construct the data in those
4 databases is provided by the federal
5 authority. So, you know there's very little
6 that can be done to make that data any better
7 within the confines of the regulations.

8 Now having said that, our
9 subcommittee is addressing how to improve
10 data, so stay tuned. However, it does make a
11 point because as the use of databases we hope
12 proliferates, what it does mean is that there
13 needs to be a priori considerations put on to
14 make sure that data are as accurate as
15 possible before the databases are made live.

16 So, I think it's a very good
17 discussion to have and it sort of dovetails
18 with what our subcommittee worked on. But I
19 think in the commercial context, again as
20 those databases proliferate, a lot of work
21 needs to be put on up front on how to make
22 those databases more accurate.

1 The other thing I wanted to
2 comment was on enforcement. And this is odd
3 because the Commission is actually now using
4 the databases, at least in the white space
5 construct, for enforcement. And so what these
6 databases will be doing, based on the
7 Commission's procedures, and I'm sure they'll
8 be following full administrative procedures
9 for issues, that the Commission will go
10 through the databases. And actually the
11 databases administrators will be the ones
12 responsible for this shutting down classes of
13 devices, areas of device operation and even
14 specific devices. And I don't know that the
15 Commission has any capability of doing that
16 anywhere without using databases.

17 So, I think there's some
18 implications there that would keep me up at
19 night, and they should be keeping some other
20 folks up at night because we're now bounty
21 hunters, to some extent. And I don't have a
22 problem with that, but there is some policy

1 implications that I think that this is
2 beginning to scratch the surface.

3 And if you can do that with
4 unlicensed, and provide interference rights of
5 unlicensed devices against other unlicensed
6 devices through the use of a database, then
7 the issues for enforcement really need to be
8 examined.

9 CHAIR ROSSTON: Dale?

10 MEMBER HATFIELD: I just want to
11 say, make sure I'm clear, I thought the
12 discussion of somebody was operating
13 legitimately but interference still results
14 was the case where if you have a poor receiver
15 besides you and so you're producing intermod
16 or something, you're operating perfectly legal
17 but the interference ends up in someplace
18 else. And the issue there, of course, then
19 becomes whose responsibility is it to fix it?

20 If we have real interference but
21 the people are operating legally, I don't know
22 if that was the intent or not, but that's what

1 I took.

2 The other comment I had, more of a
3 question. I should know the answer to this.
4 There are non-communications devices that are
5 used in these bands, and the classic of course
6 is microwave ovens. And it wasn't clear to me
7 what you do about in these new bands would
8 those kind of devices be outlawed? And if they
9 would be outlawed, on what basis would they be
10 outlawed?

11 If I remember right, at least 900
12 was used for some pretty exotic things at one
13 time that had nothing to do with
14 communications. And whether that's still true,
15 I don't know. But it's something maybe to
16 think just a little bit about.

17 MEMBER CALABRESE: Isn't it also
18 where 2.4 got its name as being junk --

19 MEMBER HATFIELD: Yes.

20 MEMBER CALABRESE: -- because it
21 wasn't intended for comms, right?

22 MEMBER HATFIELD: Yes, in fact if

1 I remember right, this was a long time ago, is
2 the industrial plastic melting thing --

3 MEMBER CALABRESE: Oh, sure.

4 MEMBER HATFIELD: -- and things
5 like that that was not --

6 MEMBER CALABRESE: Right.

7 MEMBER PEPPER: That's why it was
8 called industrial thing.

9 MEMBER HATFIELD: Yes. Exactly.
10 Good point. Anyway, it's a small point, but
11 we have not ever talked, that I'm aware of,
12 about noncommunication devices and if they
13 would, they would be basically be outlawed.

14 CHAIR ROSSTON: So I want to just
15 take a couple of quick comments. I think we've
16 had a lot of discussion, but there's time for
17 a couple of more quick comments before we want
18 to try and end on time for our next session on
19 the agenda.

20 MEMBER CROSBY: I'll be brief.

21 Mark Crosby.

22 But we're talking about sharing

1 the Federal Government bands here, right?

2 MR. NEBBIA: Well, there's so few
3 Federal Government bands, I mean that may be
4 true for some of the spectrum.

5 MEMBER CROSBY: Then, Karl, then
6 you're answering my question. Because if the
7 issue, and we're all here to get to 500 MHz.
8 So I have a question for the Committee. Is
9 there some percentage of the 500 should be
10 dedicated to unlicensed devices or not? I
11 mean, because we got to make that decision, I
12 think. Because I think Karl said that the
13 fundamental consumer of the 500 will be
14 commercial carriers. You sort of said that.

15 MR. NEBBIA: On the one hand --

16 MEMBER CROSBY: You sort of said
17 that.

18 MR. NEBBIA: This is Karl.

19 Certainly --

20 MEMBER CROSBY: I mean because
21 we're not going to have microwave ovens in
22 Federal Government bands and internationally,

1 although how do you argue with Dr. Furchtgott-
2 Roth, but these are Federal Government bands,
3 for Pete's sake and I mean one would think
4 that we would be able to control devices:
5 Where they're made, whose come in, what they
6 are. I mean one would think that we could put
7 our foot down in some of this stuff.

8 MR. NEBBIA: But do you want to,
9 necessarily.

10 MEMBER CROSBY: Well, it's Federal
11 Government bands. You absolutely should, at
12 least in my humble opinion.

13 CHAIR FONTES: Karl?

14 MR. NEBBIA: Well, first of all, I
15 think we have to remember the U.S. construct
16 for unlicensed use. Unlicensed use can be in
17 almost every frequency band in the spectrum.
18 The problems we've had with garage door
19 openers weren't because they were going wrong
20 in an unlicensed band, whatever that is. They
21 ere in a government band. There's not that
22 many pure government bands. There are some of

1 them, 225 to 400 happens to be one of them
2 where you don't have nonfederal use in there.
3 But I think that if we look at this at a
4 whole, we have to recognize that, yes, there
5 is some federal spectrum, there's lots of
6 shared spectrum where government services or
7 other commercial services could certainly get
8 impacted.

9 In looking at the questions -- but
10 I agree with you, we do have to look ahead.
11 And one of the further questions here is:
12 Should we in fact set aside spectrum for
13 unlicensed? That's one of the further
14 questions.

15 And as we go through the 500 MHz
16 if there's other bands that people feel like
17 we should allow increased use by unlicensed,
18 what I say by that is higher powered levels or
19 increased duty cycles, or whatever? Because
20 900 and 2.4 started out as they were ISM bands
21 and they were also radar bands at the same
22 time, and those things work pretty well

1 together. But, we allowed unlicensed an
2 increased or different operating parameters
3 than the normal across the spectrum types of
4 things.

5 We still do need feedback. I
6 realize the emphasis of the recommendations
7 here are on how do we prevent this in the
8 future, but there are a lot of dumb devices
9 out there. A lot of devices, for instance if
10 I want to make a car key fob that's going to
11 open my car, you're really going to have to
12 argue with me as to why that key fob should
13 have to have a service contract with a service
14 provider to contact and find out whether I got
15 to change my key fob every once in a while.
16 I mean, there's lots of that stuff out there,
17 garage doors are probably a great example of
18 that.

19 So the emphasis of our question
20 was when the government faces these issues,
21 what should their response be to it? And it
22 was interesting that one of the

1 recommendations in here was NTIA and the FCC
2 should try to educate the folks up on the Hill
3 more. And in the garage door case part of the
4 problem was the users were going to their
5 congressmen and saying -- but I'll tell you,
6 it would be much more effective if the
7 industry representatives of the garage door
8 folks went to Congress and said "No, Mr.
9 Congressman, you're wrong here. This is our
10 industry. The government is right." Okay?

11 I think part of the education
12 responsibility here lies on the people who are
13 advocating for these devices, whether that is
14 New America Foundation as a group that has
15 that as their key function, or it's the
16 service industries themselves that are
17 supplying these devices have got to step up
18 with DoD and whoever and say "This is the
19 legal arrangement here. We will fix our
20 devices." And in that particular case they've
21 come up with some steps that they could take.
22 I'm not sure they were optimum steps; they

1 just pick another government channel and wait
2 until that shoe drops, but that's essentially
3 what they've decided to do.

4 So, I think we need to look at
5 that if we're going to look at some of the
6 regulatory improvements to avoid the post hoc.
7 I think we have to ask ourselves would we, in
8 fact, recommend multiple channels devices?
9 That was our problem on the garage doors. They
10 had one frequency, got hit by DoD, they were
11 out. Whereas, we have cordless phones that
12 have ten channels on them and how much they
13 cost? You know, you can buy a cordless phone
14 system for ten bucks for a couple of phones.

15 So are we going to implement that?
16 Are we going to talk more about improving the
17 unwanted emission spectrum for unlicensed or
18 is the emphasis just on making them cheaply?

19 But we do I think need to deal
20 with these questions about it's not just a
21 matter of fixing the future, which is the
22 connected environment, how much that's going

1 to cost I don't know. But we are going to have
2 to have responses for what do we do as people
3 are out there taking their current wi-fi
4 devices and they're playing with the software
5 in them and coming up with different
6 characteristics. We got to come up with
7 answers for that. Or, if there's ten million
8 of them out there, does DoD say "Okay, well
9 we'll eat the change in favor of the ten
10 million." That's certainly unfortunate under
11 the rules.

12 But certainly I think we would
13 like to see the responsibilities I think for
14 the education to be borne in part by the
15 industry that's promoting things here.

16 But also, I thought it interesting
17 to focus on the dumb and cheap devices going
18 to 900 and 2.4. Almost all the unlicensed
19 devices in those bands right now I think are
20 wi-fi is connected. The 900 we have a lot of
21 spread spectrum internet service providers and
22 so on. They are connected. So to me, it's a

1 pretty big question.

2 Are we're really talking about
3 moving all the dumb devices that are now
4 happily dumb in all the other bands they're in
5 into one of these bands? I'm not sure, but I
6 think we have to deal with those dumb devices
7 that are out there. And as Pepper said, you
8 know the cost factor of taking those dumb
9 things and trying to make them smart devices,
10 you know is, I think, a challenge.

11 And I also have the last question,
12 this is I guess a legal thing as you are
13 enforcing the smart capabilities. Somebody
14 buys a piece of equipment with known
15 characteristics to it. What is the legal
16 construct that's required for the FCC to
17 enforce the manufacturers then going into your
18 device at home and changing what you bought?
19 That I think is a significant issue.

20 CHAIR FONTES: Okay. So I'm going
21 to turn it back over to Greg so we can move on
22 in the agenda.

1 CHAIR ROSSTON: So I think,
2 Michael, you and your Committee have a lot of
3 issues that have been brought up and things to
4 think about. So I think we're going to take a
5 five minute break and then start again and get
6 back on schedule.

7 I do think that the New American
8 Foundation should refer to these are
9 differentially, intellectually-abled devices
10 for the 99 percent. I went to Berkeley as an
11 undergrad, you know.

12 So, back in five minutes.

13 (Whereupon, at 11:05 a.m. the
14 above-entitled matter went off the record and
15 resumed at 11:13 a.m.)

16 CHAIR ROSSTON: Okay. We are ready
17 to move to the Spectrum Management Improvement
18 Subcommittee, and Mark and Bryan.

19 MEMBER GIBSON: Bryan disappeared.
20 Actually, Bryan was going to make some
21 introductory comments. So if he can make
22 introductory comments when he gets back. I

1 don't know what that's called, maybe post-
2 ductory. Let's hope not.

3 So our group was the Spectrum
4 Management Working Group and our
5 responsibility was looking at how to improve
6 data and how to clean data up and the best
7 practices for doing that. So we presented our
8 work in Boulder. It was 90 percent done, and
9 in the ensuing time since Boulder we finished
10 the ten percent and cleaned it up and had a
11 series of recommendations.

12 I'd like to first take a minute
13 and thank the subcommittee because I think we
14 drove pretty hard on it. But also the NTIA for
15 their cooperation. You know, they were very
16 helpful in helping us better understand some
17 of what's going on.

18 So, do you want to make your
19 introductory comments now?

20 MEMBER TRAMONT: Yes. My problem
21 is I didn't respect the five minute rule. All
22 right.

1 So, there are two contributions
2 from our Committee today. One is consistent
3 with our presentation in Boulder. We have
4 transformed our PowerPoint presentation into
5 what is aspired to be a five page report
6 consistent with our co-chairs' directive,
7 however this time it turned out to be seven,
8 but hopefully the chairs will give us
9 discretion to proceed in a longer format.

10 All right.

11 And then in addition, we had
12 previewed our second question in Boulder and
13 we have expanded on that, the question we're
14 going to discuss next and turned that into our
15 preliminary PowerPoint.

16 The report itself is focused on
17 the techniques that can be used to validate
18 new data. This is all growing out of the GAO
19 report. Identifying incorrect erroneous data,
20 maintain accuracy over time and then ensure
21 compliance. And then the second really is
22 focusing on the data set that is necessary for

1 future effective Federal Government spectrum
2 maintenance and planning activities.

3 And so with that, Mark is going to
4 present the final report on the first question
5 and the preliminary report on the second.

6 MEMBER GIBSON: All right. Thanks,
7 Bryan.

8 So with that as a backdrop, I'll
9 go ahead.

10 If you'll recall, the work was to
11 -- well, we defined our task as looking at
12 best practices that are undergone in a couple
13 of areas.

14 One was we wanted a regulatory
15 best practices, and so we took a look at the
16 Commission and they do indeed have best
17 practices, as well as industry including
18 frequency coordinators, database
19 administrators and the like and, you know got
20 a good sense. And then we looked at some other
21 areas where data is exchanged that's not
22 telecom data and we pulled some information

1 in. There was some intelligence from, for
2 example, the Whois database and how that
3 works.

4 And then we also looked at
5 guidance that came out of the OSTP on best
6 practices for just data in general.

7 And those were our data for data,
8 if you will, but those were our intelligence
9 or information. And so based on that we came
10 up with, I think, six or seven
11 recommendations. And so I'll walk through them
12 and then we can discuss if we need to, and
13 then vote at the end.

14 As we said in Boulder, our first
15 recommendation was to perform a one time
16 system wide data accuracy and clean up effort.
17 And I'll read that: "As soon as practicable,
18 NTIA should perform a one time system wide
19 data accuracy and clean up effort. The effort
20 is needed to establish a baseline and address
21 existing errors."

22 If you recall, the backdrop on

1 this was something that GAO said were some
2 glaring errors in GMF.

3 All Federal Government spectrum
4 assignments should be reviewed. NTIA should
5 lead this effort with an mandate for the
6 federal agencies to cooperate. The goal should
7 be to assure that assignments in the GMF
8 accurately reflect the systems deployed and in
9 operation and capture any missing assignments.

10 Karl had asked, and this is in the
11 last recommendation, that we put a cost to
12 that. And we took a swag at that -- maybe a
13 wag, but we did try to put a cost to that. So
14 that's the first recommendation is essentially
15 clean up the data that's there. You can't
16 instill best practice if you're basing it on
17 bad data.

18 And the second recommendation it
19 could be a subset, if you will, of the first
20 but we wanted to break these out. The second
21 recommendation is: To establish goals and
22 metrics for data accuracy and milestones for

1 achieving those. So we say recognizing the
2 implementation of the first recommendation may
3 take time. NTIA should consider a phased
4 approach with established interim phased
5 milestones. NTIA could apportion this effort
6 by band, agency, station class, et cetera.

7 In addition, the effort could be
8 separated into a system wide review of all
9 data records to determine whether errors may
10 be concentrated in a particular band, agency,
11 class, so on and so forth.

12 The clean up effort could focus on
13 the areas with the highest concentration of
14 errors or in errors that have the greatest
15 impact on accurate spectrum assignments. The
16 idea behind this is break it in pieces. How do
17 you eat an elephant? One bite at a time. Well
18 how do you clean database? One bite at a time.
19 And that's what this focuses on.

20 The third recommendation is to
21 increase the agency accountability for data
22 accuracy by strengthening enforcement. We

1 learned in their discussions, and we knew
2 this, that the GMF reflects the ownership of
3 the agencies for that data. NTIA is really the
4 database administrator, they don't own that
5 data. It's owned by the agencies, and I know
6 we all know that. So in the end in the
7 agencies really have to be the ones
8 responsible for at least initiating the
9 effort.

10 And so one of the best practices
11 we tried to overlay on this is how industry
12 deals with data clean up and whatnot. And
13 there are penalties for not doing a good job
14 and rewards for doing a good job, and that's
15 what this next bullet addresses. Increase
16 agency accountability for data errors by
17 strengthening enforcement. NTIA should
18 increase federal agency accountability for
19 data accuracy by strengthening enforcement in
20 three ways:

21 First, NTIA should adopt more
22 rapid and clear escalation procedures,

1 specifically high ranking government officials
2 should be responsible and accountable for
3 ensuring prompt review of data and ongoing
4 data accuracy.

5 Second, NTIA should strengthen the
6 process of requiring responsible individuals
7 to certify that accuracy of spectrum data.

8 And third, NTIA should shorten the
9 five-year review cycle. A two or three-year
10 cycle is more appropriate to identify and
11 correct errors in a sufficient time frame. So
12 that's the fifth recommendation.

13 The fourth recommendation is to
14 investigate use of distributed databases. The
15 idea behind this is that, and we've learned
16 this by looking at GMF and other federal
17 databases, is that a lot of the data is jammed
18 in one data table, if you will. So, there's no
19 facility to do what you say in the data world
20 normalized. So you're compartmentalizing data
21 elements that are unique so that you don't
22 have to enter it each time. So the idea behind

1 this is you use distributed databases to
2 improve accuracy so that you only update one
3 database at one.

4 So the NTIA should investigate the
5 use of distributed databases to improve
6 accuracy. Distributed databases link together
7 multiple sources of unique data with flow
8 through which includes data access and
9 transparency while minimizing data errors.

10 I'd also call normalization the
11 process organizes the data to minimize
12 redundancy. These databases also localize
13 responsibility for data collection and
14 maintenance which limits control.

15 The idea, for example, if you have
16 a data record that has an antenna, you don't
17 want to put the antenna pattern in that record
18 if the antenna pattern is going to be used by
19 multiple databases. That's an example.

20 The fifth recommendation is to
21 consider requirements to support data accuracy
22 as FSMS is developed. And actually, the FSMS

1 under work you'll see that represented in
2 ongoing work. For us, the FSMS while known as
3 a program is a little murky because we don't
4 understand a lot about what are the
5 requirements of FSMS as it relates to data
6 accuracy. So, you know to the extent that
7 we're suggesting things that are already being
8 considered in the program plan, you know we
9 need to understand that a little better.

10 Nonetheless, the recommendation is
11 as the FSMS is developed, NTIA should consider
12 implementing methodologies described in the
13 sections above to support data accuracy.
14 Those are things like distribute databases and
15 whatnot.

16 The full range of such
17 methodologies should be examined and
18 considered for implementation.

19 Finally, we put some cost to it.
20 We did try to put money where our mouth is,
21 and that was based on Karl's request, from
22 Boulder. And so the recommendation is that

1 Congress allocate funding to support these
2 initiatives.

3 And so we came up with a ballpark
4 number that we can certainly talk about, but
5 we said NTIA should request that Congress fund
6 these initiatives. Indeed, they won't happen
7 if they're not funded. Across all federal
8 agencies not just NTIA.

9 We estimate the appropriate
10 funding level to fully perform the accuracy
11 effort is about \$2 to 4 million, depending
12 upon how the scope is defined when the project
13 starts, period of performance and whatnot.

14 Now we based this estimate on
15 assuming a percentage of data errors across
16 all federal assignments. We assumed there are
17 about 244,000 assignments, that's based on
18 some comments on the record, maybe more, maybe
19 less but that's our starting point. And we
20 assumed a certain amount of time to fix a
21 certain amount of data errors and a certain
22 amount of time to fix them and apportioned the

1 cost to that. And so that's how we came up
2 with that number.

3 And then the funding should come
4 from several sources including possibly
5 spectrum auction proceeds. And that precedent
6 has been established.

7 And I believe that is the end of
8 the recommendations. So we can have discussion
9 and vote, and then we'll talk about our next
10 work.

11 CHAIR FONTES: Is there a motion
12 to accept -- do we have a second?

13 MEMBER EPSTEIN: Second.

14 CHAIR FONTES: Okay. Discussion?
15 Karl?

16 MR. NEBBIA: Once again, thank you
17 for your work on this. I know this group is
18 driving pretty hard with regular meetings and
19 so on.

20 And I do appreciate the
21 recognition that making these happen does
22 require either funding or shifts of resources

1 to apply to it. Because to go out to an
2 existing database that's been built over quite
3 a number of years is going to take some
4 specific effort.

5 We already have begun discussing
6 with the IRAT the aspect of getting
7 confirmation or affirmation of the
8 characteristics linked to somebody's specific
9 name, which I think is always helpful.
10 There's always a little bit of a pride of
11 ownership there. And it's just finding the
12 people who are willing to sign in the right
13 place that is an issue.

14 I think on the question of
15 metrics, we have I think at least by our
16 experience identified that the places where
17 we've had the most errors in terms of
18 equipment that may have existed at one time
19 and no longer exists, that type of thing,
20 generally has to do with our fixed microwave
21 lengths that have been put up at various times
22 and then taken down or with the placement of

1 specific sites as part of a mobile radio
2 system on the ground. The challenge we have
3 there is that if we try to measure the impact
4 of those errors, it appears in terms of making
5 spectrum available more broadly and so on to
6 be fairly small in terms of their impact.

7 So, for instance, when we were
8 relocating out of 1710 to 1755 and certain
9 agencies have said here's our estimate of
10 cost, then when it came time to actually move
11 and they went out to the site where they
12 thought they had a system and then found out,
13 yes, that system got pulled down a number of
14 years ago and they had to give back that
15 money, it did show that for those fixed
16 microwave systems that we had some percentage
17 of them that we found were no longer in
18 existence.

19 Did that change ultimately our
20 ability to relocate the spectrum or in reality
21 speed the process of the wireless industry
22 moving into the band? I'm not sure that it

1 did.

2 On the mobile side if we find some
3 of the specific sites as part of a mobile
4 system are not being used, does that
5 significantly alter the process when in fact
6 the Federal Government has two small bands
7 essentially that we use for LAN mobile
8 systems. So it's not like that opens up a
9 great deal.

10 Still I think it's important as we
11 go forward in any of our analysis and so we've
12 got to have accurate data, and we certainly
13 accept and appreciate the recommendation about
14 trying to do certainly a one time sweep to
15 bring it up to date.

16 We have discussed with the
17 agencies the possibility of increasing the
18 frequency of their updates, their five-year
19 moving to two or three-year. Obviously, that
20 requires them to apply resources to it.
21 Because the thing we don't want is twice as
22 many reports that don't mean anything if

1 they're not actually going through the
2 checking process. So, I think having them more
3 often I think does make it more likely that
4 somebody will remember that, yes, we're going
5 to turn this system off. But we don't want to
6 just create more paperwork in the process.

7 MEMBER GIBSON: All right.

8 Thanks, Karl.

9 This is Mark again.

10 One comment I'd like to make on
11 the validity of cleaning up certain records as
12 it relates to making spectrum available. And
13 I know some of the carriers in the room would
14 resonate with this.

15 That it might not make more
16 spectrum available on a macro basis, but when
17 you are trying to design a system in an area,
18 and you're looking at launching and up against
19 a launch deadline, the value of accurate data
20 is invaluable, if that make some sense. But it
21 is invaluable to have accurate data.

22 It's late in the day.

1 As you know, you all made that
2 data available before any relocations occurred
3 because it was also helpful to inform auction
4 analysis, pre-auction analysis to determine
5 bidding strategy. And we went through that
6 data and found lots of errors in it that were
7 large errors. You know, certain links were
8 going across the country, and that sort of
9 thing.

10 So, I think once that data were
11 cleaned up and then made available for
12 engineering work, as we went down to agencies
13 to get more information we still were ongoing
14 clean up efforts. And we know several carriers
15 that were facing problems with getting to
16 launch. I know once case specific where there
17 was a clear data error. It was a piece of
18 classified information, we understood. A clear
19 data error that once the data was cleaned up
20 that launch could move forward.

21 So, it might not make a difference
22 for a broad allocation, but it really is

1 important in certain micro development
2 important areas.

3 CHAIR ROSSTON: Tom?

4 MEMBER SUGRUE: Tom Sugrue.

5 On the funding question did you
6 look at whether these activities could be
7 supported out of auction proceeds under
8 current law?

9 MEMBER GIBSON: Well, the current
10 law, CSEA accommodates that now. I'm not sure.
11 I'll leave it to the lawyers in the room to
12 pontificate on that. But at least in our
13 estimation the law for the relocation should
14 have accommodated that.

15 Indeed, the law if you recall,
16 accommodated certain monies for agencies to do
17 pre-engineering. There was probably a
18 misinterpretation among agencies as to how
19 they would apportion that funds, but certain
20 agencies did do it and others didn't. So our
21 belief at least, and I'll let Bryan the
22 attorney comment on it in greater detail, that

1 it can.

2 MEMBER TRAMONT: I think it can
3 for bands to be reallocated, right, but you
4 probably need to pass CSEA for longer term
5 planning to make it happen.

6 We did not specifically look at
7 it, but I would suspect that it would only be
8 applied to existing bands that have been
9 identified under existing laws. So you would
10 need to have the enhanced CSEA language in
11 order to do the system broad sweep.

12 Is that consistent, Karl, with
13 your understanding?

14 MR. NEBBIA: Yes. I mean,
15 certainly at this point the CSEA is tied to a
16 specific relocation. As we move forward, that
17 may be broadened. And I think still if you can
18 tie the clean up of the data to a relocation
19 analysis and study, that will probably be
20 possible under the new arrangement.

21 If you're just talking about
22 funding broadly a clean up of the database,

1 completely aside from that process, I'm not
2 sure that there's any connection to that right
3 now. But I mean one of the possibilities here
4 because there's going to be questions about
5 the cost. You've done your analysis, it was a
6 certain number. Certainly we would hope that
7 that specific number, you know somebody
8 doesn't draw a conclusion here it's the locked
9 in number, but it does give a sense that it's
10 going to be several millions of dollars to go
11 across and clean up the whole database, which
12 is not too far afield from some of the things
13 that we've looked at before.

14 But, for instance, if we want to
15 do a specific analysis on a band to see if
16 this can be shared or reallocated, to say that
17 well maybe there should be some fundings to be
18 provided specifically to do a clean up of that
19 band, that may be some way of lessening the
20 whole cost and getting specific to the bands
21 that are of greater of interest to folks.

22 So, I mean that would be a

1 variation.

2 MEMBER SUGRUE: I mean, there is
3 \$5 billion from the last auction sitting in a
4 trust fund that is designated for relocation.

5 And you're right, the present law
6 is tied to a relocation decision. It's our
7 view based by legal opinion, that once your
8 relocation decision is made, you could
9 actually tap into that. And you didn't have to
10 wait for the next auction?

11 MEMBER GIBSON: Right.

12 MEMBER SUGRUE: And we share those
13 views with OMB, who sort of grumped about them
14 but we didn't get a clear view, other than at
15 the time they were just holding on, you know
16 "this is my money" type of thing, you know.

17 I mean, compared to \$5 billion,
18 this is a small amount and they seem to be
19 interested sometimes when you can make a
20 credible case that it will lead to greater
21 funding down the road.

22 MEMBER GIBSON: And I just want to

1 put some clarity on the funding thing. You
2 know, one's always hesitant to put a number,
3 especially when it's got a million after it,
4 although in the billion dollar budget I guess
5 it doesn't matter. But that assumed a
6 streamlined effort that was done all at once
7 without really any of the issues associated
8 with agencies having to overlay their
9 procedures on it. So, if you were going to do
10 it once, it was going to be a program, if you
11 will, that's what it would take. You know, I
12 think in practice it probably will be not that
13 that, but we didn't want to go there and try
14 to assume efficiencies or inefficiencies. We
15 felt that that was an appropriate number based
16 on the level of effort.

17 CHAIR ROSSTON: Okay. So we have a
18 pending motion and second. And anymore
19 discussion or can we go to a vote for our
20 second report to Larry?

21 All those in favor?

22 ALL: Aye.

1 CHAIR ROSSTON: All opposed? Any
2 abstentions? Okay. Great. That passes.

3 So now I'm going to pass it back
4 to Mark to talk about the next steps for this
5 group.

6 MEMBER GIBSON: Okay. Well, you
7 know as Karl said, we drove it pretty hard.
8 So I think we're going to take our foot off
9 the gas here. You know, we have a job, we got
10 to do.

11 So, what I wanted to do here is
12 present the ongoing work, that we teed this up
13 in Boulder and so we have had a little bit of
14 effort.

15 The next plan was to look at the
16 data you need to do spectrum analyses and how
17 do you transition to a more data set. It is
18 important. The answer is it important, is
19 yes, so we got that off the table.

20 We reframed the question basically
21 in this way, but here's what we're looking at,
22 the question really is: What data is needed to

1 perform a complete set sufficient for spectrum
2 planning? And this is for spectrum planning
3 given any class of device or service. You
4 know, our background is microwave and mobile
5 but if you're doing planning for LAN mobile
6 type systems, it's going to be different. So
7 we kind of tried to throw against the
8 refrigerator, if you will, these data elements
9 to see what stuck, and this is what sticks.

10 We want to tease these out a
11 little more before we provide it as a
12 recommendation, but these data elements that
13 you see before you on this page and on this
14 page are generally the data you need to do
15 spectrum engineering and spectrum planning.
16 And obviously these data are not generally
17 maintained in licensing databases.

18 And I'll note that we're talking
19 about maintaining data on received systems.
20 You know, we can address that as the group
21 continues to do work. But these are the data
22 elements at least that the group thinks now

1 are required for a sufficient spectrum
2 planning effort.

3 Still under consideration are how
4 you handle receive-only devices. These might
5 be like receive-only earth stations and things
6 like that, or you know receive-only mobile
7 devices.

8 Unlicensed spectrum/devices, how
9 do you deal with that?

10 Waveform data to accommodate the
11 cognitive radio and some of the policy-based
12 work as well as other data to support dynamic
13 spectrum access and whatnot.

14 Auto-frequency selection
15 methodologies. Now we're sort of stepping off
16 into the new world where you actually are
17 putting more data to do auto-frequency
18 selection, which makes it easier to do
19 spectrum planning.

20 And then how do we get to these
21 data sets? Obviously that's not going to pop
22 up one day and it's already there.

1 The other follow up work we need
2 to continue to do is on the FSM development to
3 understand better what the FSMS is doing to
4 accommodate this to address these data
5 elements and how will it perform auto-
6 frequency selection. So, you know we
7 anticipate some additional discussion on that.

8 So that's the follow up work we're
9 doing. Stay tuned.

10 CHAIR ROSSTON: Are there any
11 discussion or questions for Mark or Bryan on
12 the next steps for that Committee? I think
13 they have set forth an ambitious agenda, and
14 I hope you keep your foot on the gas.

15 On the agenda the next thing is
16 next steps -- I'm sorry. Karl?

17 MR. NEBBIA: Just with respect to
18 the ambitious agenda. Once again, I think in
19 all of those questions that you laid out if
20 you could try to take them on kind of one at
21 a time. Because not only do we not want to
22 burn all of you out, we can't necessarily

1 respond to a 100 new recommendations tomorrow.

2 So, we'll bring these in as we're
3 looking for 500 MHz, as we're preparing a
4 spectrum inventory, as we're talking about
5 other controversial interference possibilities
6 going on, which will still go unnamed. You
7 know, we do these things day in and day out.

8 So we encourage you to focus on
9 one, provide us the feedback. And it's both
10 for all of your sake and for our sakes.

11 CHAIR ROSSTON: Thank you. Happy
12 to hear that.

13 So I'm going to take a very, very,
14 very narrow view of next steps and just say
15 that after I finish talking, Brian will take
16 on the opportunity for public comment. And
17 then we're going to talk about our next
18 meeting. And then we will adjourn officially
19 and clear the room of non-members of the
20 Committee, so that we have our ethics
21 training.

22 I apologize. I don't know how we

1 can clear the phone line.

2 Okay. So we will then have our
3 ethics training and move on. We may,
4 hopefully, be ahead of schedule on that. But
5 let Brian take off if he has a bigger picture
6 of next steps and then public comment.

7 CHAIR FONTES: Okay. First off, I
8 just want to thank everybody for all the work
9 they've done. And this is a different approach
10 to CSMAC in terms of identifying questions,
11 focusing on them, getting responses to those
12 questions and submitting them. And I think it
13 allows us to kind of focus our energy rather
14 than to be so consumed with a 100 questions in
15 a report, et cetera.

16 So, I hope that this is something
17 that is beneficial to everybody who is working
18 on this and it allows work to move forward in
19 terms of recommendations to NTIA throughout
20 the CSMAC process rather than just at the end.

21 So, you know I hope you do
22 appreciate this different approach to doing

1 things.

2 The next steps include what we
3 just discussed, the idea of identifying
4 additional questions. We'll work with Karl and
5 a couple of the subcommittees wanted some
6 direction on additional questions. So, we'll
7 go ahead and work on those in getting them set
8 out.

9 Our next meeting is our face-to-
10 face meeting, if you will. March 1 of 2012.
11 Can you believe that?

12 CHAIR ROSSTON: Let me clarify one
13 thing just on the agenda, the Gunn Building.
14 Is that the Gunns have been extremely generous
15 Stanford and in the last couple of years.
16 They've given two buildings. So make sure you
17 look for the SIEPR Gunn Building if you get
18 lost when you get there.

19 CHAIR FONTES: Who knew? Who knew?
20 So, in any event, I don't have any
21 additional comments with respect to the next
22 steps other than focusing on the additional

1 questions that will be coming to the
2 subcommittees for their work.

3 Oh, I'm sorry.

4 MEMBER REASER: I think that the
5 new CSMAC process ought to be identified as a
6 best practice for all the federal advisory
7 committees, quite honestly. Because the rest
8 of these other ones just wind all over. I've
9 been the victim -- I mean, I've been the head
10 of several people reporting to me. This is a
11 much better to do business and I think it
12 ought to be something that would be adopted by
13 other federal advisory committees if somebody
14 wants to talk to GSA or somebody about that.
15 Because it's much more focused and basically
16 it does exactly what I think needs to be done;
17 and that's having an input from experts into
18 public policy making rather than the view du
19 jour of whatever goes on.

20 So I thought it was very, very
21 good and I'm proud to be a part of it.

22 CHAIR FONTES: Thank you for the

1 positive feedback. And we've tried to do this
2 in some of the other groups over CSRIC at the
3 Commission and trying to focus on specific
4 questions as well.

5 Gary?

6 MEMBER EPSTEIN: Yes, I agree with
7 that. And in keeping with that I would ask you
8 to get back to the Committees as soon as
9 feasible with specific questions. Because
10 we're waiting and we won't start working until
11 we really hear something.

12 CHAIR FONTES: Yes. That will not
13 be an issue. So, thank you.

14 Again, now it's time to open it up
15 for public comment. And what we'd like to do,
16 I don't know how many people are -- could we
17 just get a show of hands how many people are
18 likely to provide public comment? Okay. One?

19 What's the best way to do this so
20 that we have a microphone? If you don't mind
21 going to the chair by the mic where Jennifer
22 is vacating.

1 You know, there'll be time
2 limitations on this largely in part because of
3 the additional agenda we have to go through.

4 State your name please.

5 MR. SNIDER: Jim Snider,
6 SpectrumBS.info.

7 It has been over six months since
8 I provided an update on the accessibility of
9 CSMAC's proceedings to the public concerning
10 CSMAC's meeting access via webcast.

11 CHAIR ROSSTON: Jim -- Jim?

12 MR. SNIDER: Yes.

13 CHAIR ROSSTON: We'd like to ask
14 you to do it about the substance of this
15 meeting. We've talked about procedures many
16 times.

17 MR. SNIDER: This is on the
18 accessibility that relates specifically to
19 this meeting.

20 CHAIR ROSSTON: All the materials
21 were available for this meeting on the web, as
22 far as I could tell, with total access.

1 MR. SNIDER: Yes. This is on the
2 accessibility of meeting information.

3 The May 25, 2011 CSMAC meeting was
4 announced without prior notice that the
5 meeting would not be webcast because
6 webcasting was prohibitively costly, costing
7 some \$6,000 a year. I complained about that
8 policy during public comments at the end of
9 the meeting. And the next CSMAC meeting on
10 July 27th was webcast.

11 Prior to the July meeting I twice
12 asked NTIA's DFO in writing for the budget
13 calculations in which the \$6,000 a year was
14 based. I also asked about future plans for
15 webcasting CSMAC meetings. As of early
16 October, I had received no response and so I
17 asked a third time. I was told that only half
18 of future CSMAC meetings would be webcast
19 because of budgetary constraints and received
20 no response again to my budget questions.

21 When I asked again for the budget
22 calculations and what was the principle by

1 which a meeting would be selected for
2 webcasting coverage, noting that I did not
3 find out about the lack of webcasting coverage
4 of the May meeting until I was already present
5 at the meeting, I was told that to find an
6 answer to these questions I would have to file
7 a formal request under FOIA. Now this was an
8 interesting response for several reasons.

9 First, my request to find out what
10 was the method by which 50 percent of the
11 meetings would be webcast would be unlikely to
12 get a response because it is unlikely that it
13 is a written policy. If it were a written
14 policy, I imagine it would be posted on the
15 web.

16 Second, I have made numerous FOIA
17 request for NTIA over many years, and I can
18 assure you that the process has been hell.
19 The complete process usually takes more than
20 half a year, even for perfectly routine legal
21 requests. The charges from my standpoint are
22 typically outrageous, and then I must get lots

1 of unrequested documents, but not those I did
2 request.

3 Now, concerning CSMAC's meeting
4 access via the phone. At the last CSMAC
5 meeting on July 27th of 2011, Chairman Brian
6 Fontes made the following statement when
7 public comment was to be taken: "Okay. Great.
8 We're through with the presentations. So what
9 I'd like to do now is open it up for comments
10 from the public, if you will. Those on the
11 phone first. Now I'll be perfectly honest with
12 you, the phone connection is abysmal. If I
13 were responsible for it, I would apologize,
14 but I'm still apologizing. Is that being
15 polite? But is there anybody calling with a
16 question? I will take that as a no. I
17 apologize." To which I replied "Yes," I was
18 on the phone and the connection was abysmal.

19 Now I would to respond to
20 allegations made to me at the May 25th
21 meeting, to which I was not given a chance to
22 respond at that meeting. I will focus on just

1 two of the allegations reported in the trade
2 press after that meeting without any
3 opportunity for me to respond.

4 NTIA Administrator Larry
5 Strickling said "I sat here for two years
6 listening to you raise these totally spurious
7 allegations about us, and they've gone without
8 a response." To this I would briefly reply,
9 members of CSMAC have made many responses to
10 my comments over the last few years.

11 For example, one of the reasons
12 CSMAC meetings now have readable transcripts
13 is because there was general agreement that
14 the transcripts were of such poor quality that
15 they had been largely unusable.

16 As for my FOIA complaints and
17 NTIA's responses, everyone here knows that I
18 posted many of them and will post more when I
19 have time on a public website. I believe that
20 the record is clear. NTIA has violated both
21 the spirit and the letter of the FOIA laws.

22 Second and lastly, Strickling

1 said: "Snider asked NTIA to expel a member of
2 NTIA based on allegations that the unnamed
3 individual plagiarized some of Snider's work,"
4 to which I replied "I made no such request. I
5 defy you to find any such statement in the
6 transcripts of the dozen or so CSMAC meetings
7 where I've spoken before you. Nor have I made
8 such a request elsewhere. What I have done is
9 alert CSMAC to a CSMAC report who author used
10 attribution inconsistent with academic norms
11 of attribution. To the best of my knowledge,
12 no change was made to that report."

13 I have also repeatedly alerted
14 CSMAC to the fact that the credentials the
15 same individual submitted to serve on this
16 body were misleading, and even possibly in
17 violation of the law. Neither Strickling or
18 anyone else associated with CSMAC has
19 requested additional information from me nor
20 responded to the merits of the information I
21 provided them.

22 As far as I'm concerned, the

1 NTIA's response to this matter couldn't be
2 clearer. Although I've spent less than 30
3 seconds of CSMAC's meeting time during the
4 last year raising this issue, since I don't
5 want to take up people's time beating a dead
6 horse, I don't intend to bring it up again.

7 In closing, I doubt NTIA's
8 Administrator would have exploded with fury at
9 me at the last meeting and made the
10 accusations the way he did if he knew the
11 meeting would be webcast and archived. That's
12 one reason I and other open-government
13 advocates think webcasting meetings is
14 important. It reveals important information
15 that cannot other be acquired.

16 Thank you for your time. And I
17 believe these type of comment are quite in
18 order for a CSMAC meeting.

19 Thank you.

20 CHAIR FONTES: Thank you very
21 much, Jim, for your comments.

22 Are there any other public

1 comments? Thank you.

2 Next, we're over. This is it.

3 So I want to thank everybody for
4 being here today. For those on the call,
5 appreciate your sitting on the other end of
6 the phone during the duration of this almost
7 three hour meeting. And those who are CSMAC
8 members on the phone, should stay on the phone
9 for the ethics briefing, which will now take
10 place.

11 I wish everybody the best of the
12 holiday season. Travel safely, enjoy time with
13 family and friends. And I'll see you as a
14 group in the new year.

15 Thank you.

16 (Whereupon, at 11:48 the above-
17 entitled matter was adjourned.)

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Advisory Committee

Before: US DOC

Date: 11-10-11

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