UNITED STATES DEPARTMENT OF COMMERCE
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COMMERCE SPECTRUM MANAGEMENT
ADVISORY COMMITTEE (CSMAC)
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MEETING
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THURSDAY
FEBRUARY 21st, 2013
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The CSMAC met in the Koret-Taube Room at Stanford Institute for Economic Policy Research, 366 Galvez Street, Stanford, California, at 9:00 a.m., Greg Rosston and Brian Fontes, Co-Chairs, presiding.

MEMBERS PRESENT:
GREG ROSSTON, Co-Chair
BRIAN FONTES, Co-Chair

DAVID BORTH
MICHAEL CALABRESE
THOMAS DOMBROWSKY, JR.*
MOLLY FELDMAN*
H. MARK GIBSON*
KEVIN C. KAHN
DOUG McGINNIS*

MARK McKENRY*
THE HONORABLE JANICE OBUCHOWSKI*
CARL POVELITES
RICK REASER*
CHARLIE RUSH*
DANIEL D. STANCIL*
TOM SUGRUE*

BRYAN TRAMONT*

ALSO PRESENT:

RICH MOSLEY*

KARL B. NEBBIA, Associate Administrator,
Office of Spectrum Management, NTIA

ROBERT L. SIMMEN

JIM SNIDER*

LAWRENCE E. STRICKLING, Assistant Secretary
for Communications and Information, NTIA

BRUCE M. WASHINGTON, Designated Federal
Officer for CSMAC and Chief of Staff,
Office of Spectrum Management, NTIA

***Participating via telephone**

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

9:02 a.m.

CO-CHAIR ROSSTON: So welcome. I think what we should -- this is Greg Rosston. And I think probably before we get started with Larry Strickling, we should just go around the table so everyone on the phone can hear the voices. And then I'll do a roll call for the people who may or may not be on the telephone.

So, I'm sorry, Kevin.

DR. KAHN: Kevin Kahn, Intel.

MR. NEBBIA: Karl Nebbia, NTIA.

CO-CHAIR ROSSTON: Greg Rosston, Stanford.

CO-CHAIR FONTES: Brian Fontes, Co-Chair with Greg.

MR. STRICKLING: Larry Strickling, NTIA.

MR. POVELITES: Carl Povelites, AT&T.

MR. CALABRESE: Michael Calabrese,

New America Foundation.

CO-CHAIR ROSSTON: Okay. I'm going to read off the names of people and if you just say "here" on the phone, I think that's easier than having people say. So David Borth, are you there?

(No response.)

CO-CHAIR ROSSTON: Okay. Marty Cooper?

(No response.)

CO-CHAIR ROSSTON: Mark Crosby.

(No response.)

DR. KAHN: Serious echo there.

CO-CHAIR ROSSTON: Tom Dombrowsky.

MR. DOMBROWSKY: I'm here.

(Telephone interference.)

CO-CHAIR ROSSTON: Okay. I think it sounds like we're doing much better now.

Okay. Dave Donovan.

(No response.)

CO-CHAIR ROSSTON: Molly --

DR. KAHN: On mute, first to hear

now.

CO-CHAIR ROSSTON: Can anyone hear us?

MS. FELDMAN: Yes. This is Molly. I'm here.

CO-CHAIR ROSSTON: Okay. Dave Donovan did not respond.

Mark Gibson.

MR. GIBSON: I'm here.

CO-CHAIR ROSSTON: Dale Hatfield.

(No response.)

CO-CHAIR ROSSTON: Doug McGinnis.

MR. MCGINNIS: I'm here. McGinnis is here.

CO-CHAIR ROSSTON: Mark McHenry.

DR. MCHENRY: I'm here.

CO-CHAIR ROSSTON: Janice Obuchowski.

MS. OBUCHOWSKI: I'm here.

CO-CHAIR ROSSTON: Robert Pepper.

(No response.)

CO-CHAIR ROSSTON: Dennis

Roberson.

(No response.)

CO-CHAIR ROSSTON: Charlie Rush.

DR. RUSH: I am here in Rosslyn, Virginia.

CO-CHAIR ROSSTON: Okay. Dan Stancil.

DR. STANCIL: I'm here.

CO-CHAIR ROSSTON: Okay. Tom Sugrue.

MR. SUGRUE: Yes, I'm here.

CO-CHAIR ROSSTON: Brian Tramont.

MR. TRAMONT: Here.

CO-CHAIR ROSSTON: Jennifer Warren.

(No response.)

(Telephone interference.)

CO-CHAIR ROSSTON: Okay. Jennifer. I think she's not coming.

Okay. Did I miss anybody on the committee?

MR. REASER: Yes. Rick Reaser.

CO-CHAIR ROSSTON: Oh, okay. It said no, track meet, but I guess that was from the last time.

MR. REASER: Yes. I'm at a track meet right now.

CO-CHAIR ROSSTON: Oh, okay. Anyone else?

MR. MOSLEY: Rich Mosley is on.

CO-CHAIR ROSSTON: Anyone else on the CSMAC?

(No response.)

CO-CHAIR ROSSTON: Okay.

CO-CHAIR FONTES: One thing, when everyone speaks during the course of the meeting, it would be helpful if they would say their name before they speak, particularly in the phone call environments. It's hard to see who or know who is speaking.

CO-CHAIR ROSSTON: Right. And we should probably make sure we try to do that around the table as well.

CO-CHAIR FONTES: That was Brian.

CO-CHAIR ROSSTON: Yes. So this is good. So we are going to start with opening remarks from Larry Strickling, so.

MR. STRICKLING: Well, thank you, Greg. And thank you, Brian. And thanks to those of you who are able to join us today, both here in person and on the phone. It's an important meeting today.

We obviously need to keep making progress on the working groups that are taking a hard look at 1695 to 1710, as well as the 1755 to 1850 bands of -- and I'm looking forward to hearing the updates. And hopefully we'll have an opportunity to take some final action today on at least one if not two of the committee reports.

But that's -- you know, other issues still are coming to the forefront. We've got a very full agenda today, so I hope those of you who are participating remotely can stay with us and be able to participate as fully as you could being here in the room,

because we're very anxious to hear your thoughts on some of the newer issues that are emerging that Karl will be getting into in the second half of the meeting.

So looking forward to the discussion. And, again, thank you very much to Greg Rosston for hosting today's meeting. And, again, thanks to all of you for continued participation and commitment to this effort.

CO-CHAIR ROSSTON: Great. Thank you very much.

Okay. I think what we should do is move -- unless you have anything, we should move straight to the working groups. And I think we're going to do this slightly out of order because Charlie Rush has requested to go first. He has another commitment. So I think we're going to hear from Working Group 3 and then go in numerical order after that.

Is that right, Bruce?

MR. WASHINGTON: Yes.

MR. POVELITES: Okay. So,

Charlie, we're going to move onto Working Group 3's, I believe, status report at this point.

DR. RUSH: Thank you very much, Greg. I do appreciate that. Now that Rick is on the phone, I don't know whether he would prefer to give this report.

(No response.)

DR. RUSH: Well, perhaps Rick is not on the phone any longer. I will assume that by silence, it's okay for --

MR. REASER: I can't find the unmute button. Sorry.

DR. RUSH: So I'll just go ahead. And this report should be very quick because, in essence, it's not that much different between what it is that we can report today compared to the CSMAC management meeting that we held in January.

It's the second of my slides, and I apologize, I cannot participate via the internet because there seems to be a number of

places in and around this area that are where computers and access to the internet have gone down.

At any rate, if you could turn to the second slide, key subject areas, there has been really no change to what it is that we are studying and where we are compared to the -- where we want to be. At least three main areas we've looked at: Interference from the commercial devices, user handsets into satellite receivers. An initial study done by Bob Kubik has indicated that it should not be an interference issue.

The government has undertaken to do a similar study based on information that they obviously have relative to receiver sensitivities in their network that would not be available to those in the commercial side. And we're awaiting their final results.

I understand that the study didn't essentially complete and it's just a matter of going through the process of having it

released to the working group as a whole.

Similarly with regard to our issue of interference on the satellite Earth terminals into the commercial base stations, studies that was done up on the commercial side indicates that the possibility for sharing exists. There may be some need for coordination between the operators, the future operators of the mobile service -- the commercial service and the incumbent government operators. But I think in principle that appears to be workable, at least as far as the commercial studies have indicated.

And, again, we're waiting for the public release of the study that has been undertaken on behalf of the government side. And we're optimistic that that release will come within the next -- if not the next few days, certainly within the next week or so.

And with regard to the electronic warfare, we've pretty much completed that

study. And when I say "we," I have to really specify who the "we" is in this particular instance. And that is, that early on in this whole effort, it became clear that there wasn't much that people who had not -- did not have access to the appropriate clearance levels to really participate in a meaningful way in the discussion with regard to electronic warfare, and therefore the whole effort has resided within the confines of the government.

And we now have a report from the folks responsible for undertaking the electronic warfare operations in this band. And we're right now within the group trying to figure out exactly what the recommends should be and could be based on the information that is available to us.

But to look at the bottom line, where it says no changes to the preliminary findings to date, and that's pretty much a true statement. But we're not that far away

from having the information that we need to come to some conclusions. And we're optimistic that we'll still be able to make it by our to be our final drop-dead date.

The next slide, slide 3 addresses the interference from mobile users into the satellite receivers. We've indicated that based on what we've done thus far on the commercial side, it appears it's not going to be too much of a problem, if at all. There are some talk about needing to finish first in some manner yet to be specified, that whatever we conclude at this point in time is clearly dependent upon the assumptions that were made, the mobile usage, its distribution both in terms of frequency and location and power.

And, as that distribution may change over the course of time, we may have to reassess -- reassess what may have to be made as to what's the likelihood of interference on that -- those changes, but that's something that at this point in time we haven't been

able to address because we haven't gotten the final results from the government side of this particular study.

And with regard to the interference from the satellite Earth terminals at the commercial base station receivers, essentially the same sort of situation. The commercial studies have indicated they're probably work-arounds that we can deal with, as I mentioned before. We're awaiting release of the DoD studies and are optimistic that what the DoD will conclude is not all that much different than what we have done on the commercial side. But I'm attempting to prejudge, but, on the other hand, there has been no signs of a wailing and gnashing of teeth, and anything of that sort, so the optimism certainly does prevail.

With regard to electronic warfare. As I had indicated, this is part of the work that's been done solely by the government. We don't see that there's any key issues

involved. If you just look at the fact that electronic warfare operations currently are undertaken on a noninterference basis, then the issue becomes one of how to address the similar sort of operation in an environment that is very much changed from what's currently the case with regard to electronic warfare operations in this -- in the 1755 to 1850 band, where they are able to coordinate, evidently quite effectively and efficiently, with their colleagues that are also occupying the band. But that may change quite substantially when you have to deal with potentially millions of mobile users running around with, we assume for this band, with the fan set. So that's something that would have to be worked out.

And someone has to do some studies and make a detailed assessment as to whether or not there would be a significant change in how the procedures that are now being implemented to conduct electronic warfare

operations would have to be changed, and what those changes would be. That is something that clearly we cannot address within the Working Group 3 other than to point out a possible area of concern. Because this involves having access to what the procedures are right at the moment and projecting how they will change over the course of time. And we have no idea as to any of those sorts of items.

And coming to the last new graph is our schedule, see on the right-hand side, the status. It appears that only the first three items have been completed. We have one item, the fourth item, delayed to February 18th, where we may be a few days away from having that one at least addressed. We do have the document. We're in the process, as I said, of working out what recommendations could be put forward.

And all the other items, we have dates that are, I think, doable. They slip a

few of the dates on the individual tasks, but we're still optimistic that the final consensus report will be able to be delivered on or about the 4th of April.

And, you know, I think we've undertaken and have conducted the work in a very, very cooperative manner. The issue right now is with regard to completion of the task is one that really is tied to the releasability of the information and is understandable. And as soon as they get released, I think we're ready, we stand ready to progress as quickly as we can and complete the task.

Thank you. And thank you very much for allowing me to go first. And, again, if you have any questions and if that would be appropriate to take at this time, fine. Otherwise I will attempt to come back onto the call by next teleconference, hopefully that won't last for more than an hour. Thank you.

CO-CHAIR ROSSTON: Okay.

MR. REASER: Hi. This is Rick Reaser. I'm sorry. I was actually on mute and I couldn't figure out how to get off mute on the phone here. But I wanted to make one other comment about the electronic warfare.

I think as Charlie pointed out, one of the dilemmas we have is that we were basically only given six slides of information by DoD. And it was their reluctance to have the committee take a look at the existing procedures and models, whatever, to see how it's done today and whether those could be adapted. So at this point it looks like the federal government wants to keep that process sort of in-house. And so there's not a whole lot we can recommend in that regard, unless there's a move to have us take a look at how it works today, but they felt that that wasn't really releasable, about how the current process was conducted today.

So our recommendations, unless that changes, aren't going to be very earth-

shattering.

CO-CHAIR ROSSTON: Okay. Do we have, I'm just going to start around here, questions for the report? First, Karl Nebbia.

MR. NEBBIA: A couple of quick questions. With respect to the EW side, has DoD provided anything in terms of a short statement or framework that kind of generalizes how they would deal with that in terms of, you know, using existing procedures or anything that would give some general sense of what they were looking for in terms of assurances or changes?

DR. RUSH: Not that I'm aware of, Karl. It hasn't become apparent to me if they have.

MR. REASER: The answer is no. This is Rick. They haven't given us anything. Basically, what they said was they have existing procedures today. We asked that we might hear about how the FAA does it, to see whether that might be transportable to this

band. And that was -- they decided that we didn't need to hear that.

And then the existing process that FTC uses, they weren't interested in telling us about that. So I think what was said was they said: well, we have these processes and procedures today, and we believe those same processes and procedures would be applicable for this.

The NASA rep at yesterday's meeting said, well, maybe one recommendation, we could make a recommendation that the existing procedures be investigated by NTIA and DoD and the other agencies to see whether they're applicable or not, then assess whether they need to be modified. But unless we have access to how it's done today, there's not really a lot we can do. Basically they just said it works fine today. So, and they're going to operate NID and that's kind of what they said.

MR. NEBBIA: Okay. But even that,

I was -- you know, I was wondering certainly -- this is Karl again -- early in the process whether they were going to ask for more than that, given that they do have some need to operate in cellphone bands. But if the current procedures, which I think they've reflected accurately, there is a note in the NTIA manual concerning these activities, but then it references a nonpublic document, where DoD and other agencies deal with this issue. So I think from that standpoint, they're dealing with what their limits are in releasing that information.

But certainly if they're saying that they're willing to work under the existing approach, then I think we've -- in that, we've got a recommendation right there. It sounds like they're not asking for something more than that, so --

MR. REASER: Well, that's not entirely true. They're asking for more in that what they wanted us to recommend, and I

said I have a hard time doing this without any information, is: Well, what we'd like you to recommend is that the process be down to 21 days and then down to near real time in terms of authorizations for each of the authorization. And then they also wanted us to recommended to go make the validity dates for these authorizations go from one to two years.

And so I --

MR. SNIDER: Jim Snider.

MR. REASER: -- what's the right -- what's the basis of that, and they were not able to do that. But they did ask for more. They did want it to be faster and they did want it to last longer.

DR. RUSH: Yes. Karl, this is Charlie Rush. You know I think the issue here, plain and simple, is that we are operating here in the dark, and I don't mean that to be a complaint. I mean, that's just a statement of fact. And it's beyond our

capabilities to make -- to draw a conclusion as to whether or not things will change when you have a possibility of millions of people running around in the band transmitting, compared to when you have much more control over who it is that's doing what, when, and where.

And that is something that I think we cannot address. And if the users, if the electronic warfare community feels that they're cool and can keep their procedures apart from some of the changes, as Rick mentioned, then you know that's fine. But I just thought and some of us think that's it's worthwhile pointing out that the background that they're going to have to deal with will certainly be changed.

MR. NEBBIA: Okay. This is Karl again. I have one other question and that is related to the Phase 1 analysis of the interference into the commercial providers. Can you give us some sense of what kind of

distances were being calculated in that and whether industry had any concerns about that?

My assumption is that the follow-on Phase 2, the more detailed work that DoD is doing, my guess is that that would, in fact, make the band less of -- or the interference less of a problem as they get more specific. But can you tell us like what kind of distances they were reaching in the Phase 1 analysis?

DR. RUSH: Offhand, I can't remember exact numbers. My feeling is that they're probably on the order of 10 to 15 kilometers, or something like that, assuming that people are going to be transmitting at an angle that is somewhat above the zero-degree elevation and probably in areas that will have some sort of geographic or demographic obstructions, and things like that, and are going to be, for the most part, transmitting in urban areas.

I think the general feeling of the

group, I believe the general feeling of the group had been that one could, for the most part, be able to develop viable work-arounds, and this was not a show-stopper, by any stretch of the imagination.

MR. NEBBIA: Okay. Any specifics on what kind of work-arounds they're talking about, Charlie?

DR. RUSH: I don't have it on the tip of my tongue at this point, Karl. I'm sorry.

MR. REASER: They were going to talk about -- this is Rick. There is another study they're doing that has to do with mitigation things and where they're going to release that to us.

But the way that Rob did the study was it was basically the worst case. It assumed that every satellite uplink station was transmitting in all directions at all frequencies at the minimum elevation angle, which was three degrees. So it was a fairly

big circle. And so the worst-case thing, it was on the order of 50 kilometers at least. And there was no train masking, or anything like that, as a part of that study.

So we're waiting to see what the DoD comes back with and if they will, you know, make any kind of commitments to certain things, which we'll find out when we get the data. But it's a fairly wide slot.

The other issue is that there is no -- they could build a new one or put it up anywhere at any time. They sort of reserve the right. Because we don't even know where all the sites are right now, so that's another kind of a problem with that.

But we have like a general, you know, what the radius is, and it's fairly large. And hoping then we'll get the data from the DoD. Maybe that will build strength based on the information they have that we don't have.

MR. NEBBIA: And is the LTE

operation -- this is Karl again -- of the sort that they can live with? For instance, the satellite operation coming up, starting at the horizon and then tracking the satellite up through the non-geo orbit, is that type of situation a problem for industry? They might have somebody come up, you know, on their operation for a brief period as the satellite Earth station tracks the system?

Is that -- I mean obviously most of the time that the satellite is actually communicating it's going to be pointing up and over, not at the horizon.

DR. RUSH: Well, I think, Karl, yes, the answer to your question that has the most certainty is: It all depends. But you're exactly right --

(Laughter.)

DR. RUSH: -- that there are going to be instances when the ground station is going to be transmitting and it's going to be moving in an elevation angle. And in those

instances I think what will happen at the base station we will see interference or potential interference or at least the signal that is indicative of something that's consistent with both its -- the received antenna pattern as well as the transmitter antenna pattern.

And depending on how often that occurs and when it occurs and the predictability of that, except in the case of emergencies, there may be work-arounds. And that's one of the things -- I mean, Rick alluded to the fact that we're anticipating from the Phase 2 study, information with regard to possible mitigation techniques. What has to be done of course is that the industry has to look at those proposed mitigation techniques and make an assessment as to what the practicality of those are with regard to the kinds of systems that are now being operated and the ones that we anticipate.

I don't know if that answers your

question.

MR. NEBBIA: Well, I think that I'm specifically interested in whether the flexibility in the LTE system can adapt to signals that come up for brief periods of time and more or less work around them briefly or ignore them. Ultimately, there may be other approaches, you know, from each base station potentially blocking out the specific direction to the known antenna. That's may be one possibility they're thinking of. I'm not sure. But certainly if the LTE system is flexible enough, that as it gets brief interference that people potentially, people on the phone are moving to another channels and then are able to move back again, it seems like something that industry could probably live with.

DR. RUSH: Yes. I would think that the LTE systems are flexible in terms of their responsiveness. The issue then becomes how is the operator going to deal with having

to make a change and how does he or she do that and change to what. If it's to another frequency band or may be all they need to do is be able to switch to another sector of the overall cell, and things like that, on all sorts of function of a service that they're providing, voice versus a data service.

CO-CHAIR ROSSTON: Okay.

MR. REASER: I think we ought to just ask the question outright at the next meeting, Charlie, because I think that's where this is going to go. Because the other issue is, you know, we don't know whether we're going to get any commitments in terms of whether the incumbent's going to commit to anything. So, you know, I think we've got to ask the question about whether the LTE base stations can handle this or not, because I have a feeling what's going to happen is like we said at this last meeting, is this is going to end up being that they're going to operate on a noninterference basis, anyway.

So it's not clear whether they're going to get any commitments out, you know, stay away from this angle or keep my towers this way or minimize my time, or anything like that.

But right now, if you're outside the circle, you don't get interfered with. That was the basis for Rob's study. So I think we ought to ask the question specifically at the next working group and get that out to the service monitors.

CO-CHAIR ROSSTON: Are there other questions from around the table or on the telephone, does anyone have a question for this working group?

(No response.)

CO-CHAIR ROSSTON: Okay. I'm going to jump in because I do have -- this is Greg, and I'm taking my hat off as Co-Chair and putting on one as a Committee member.

My concern is that I don't -- I want to make sure that we're putting forth a

working group report that's a CSMAC working group report, not just a DoD report. That we're just stamping what they give us. That we're actually making recommendations that are -- you know, DoD can make its own recommendations and do its own thing.

So just to make sure that we're actually doing something that's unique to CSMAC, not just rubber-stamping a DoD report. That was my concern on that, in hearing that.

MR. REASER: This is Rick. I absolutely share your concern because that was the direction that this is going. Because basically DoD wrote up what they wanted the recommendation to be and they were not supported by any of the information that we had. So I'm kind of calling that -- it's important that we do so this as an independent federal advisory committee. You know, if there's good information, we'll certainly consider that. But, you're right, we can't make recommendations that aren't supported by

the CSMAC itself, you know. And so we're being very sensitive to that.

DR. RUSH: Yes, this is Charlie. I think there are basically two items that we're studying. One is, you know, the satellite issue, for lack of a better characterization, and the other is the electronic warfare issue.

With regard to the satellite issue, there shouldn't be any doubt in anyone's mind that what the report will come up with is a report -- if it's not a consensus report, will certainly represent the views of both sides. And it's not just going to be a one-way street, for sure.

With regard to the electronic warfare, there's a lot of details that one would like to have that's not available to us. So in that instance, I think the kinds of recommendations that will emanate from this committee will wind up being ones that are much more general and maybe lean toward voting

the status quo. And I don't know what we can do about that in the absence of having any information upon which to make a decision.

CO-CHAIR ROSSTON: So my concern was not that, you know, hey, you're doing something wrong. It was that we should make sure to be clear as to what this report is. And then -- and I especially, I share your concern about what can or can't do with electronic warfare. Your comment about the satellite makes me a little bit more comfortable, because I sort of was hearing: Well, the DoD is going to tell us what their report says.

And I look at Working Group 1 where they had information and the exclusion zones have dropped dramatically because of the work of the group. And I want to make sure that there's input that it has that. So I'm glad that you're assuring me of that. And I just wanted to highlight this. I don't think we need to spend more time on it, but that was

just my concern.

MR. STRICKLING: I would just --

CO-CHAIR ROSSTON: This is Larry Strickling.

MR. STRICKLING: Yes. I'm sorry. Larry Strickling. I would just say that nobody should feel that you have to accept a report that you haven't had a chance to examine the assumptions for and so provide whatever caveats need to be provided.

But, more importantly, I don't understand why you couldn't register that concern as Chair of CSMAC as opposed to just a member.

(Laughter.)

CO-CHAIR ROSSTON: That's okay. All right. So I think we can move onto Working Group 1. And what I'm hoping we can do is that Working Group 1 can do what I do in my classes and assume that people have read it, and have a short summary of what we're going to vote on and not have a long report,

just unless there's some objection to that. I guess, Mark and Dennis, do a short presentation of what Working Group 1 is and then we have discussion on it.

So, Mark or Dennis, would you like to go ahead?

DR. MCHENRY: Mark, I'm going to present.

The Working Group 1 report is essentially the same as we presented last time. It's got three recommendations, which we went over last time. The first recommendation is the band should be able to uplink. The second recommendation is that the -- consider the possibility of moving some of the weather satellite receivers. And the third recommendation was a detailed framework on how to do the sharing. And those were all talked about in the last meeting.

What's happened new is there's been a slight revision of the report that was issued on February 19th. And it corrects that

protection zone distance calculation. And it impacted Appendix 1, Table 1 a little bit.

And I notice on the website that the latest report's not there yet. I guess it hasn't been sent around yet. But otherwise the report is the same. I mean there might be other changes in the future because some of the locations of the receivers was still being determined.

CO-CHAIR ROSSTON: Can you hang on one second?

Bruce.

MR. WASHINGTON: It's on the website.

CO-CHAIR ROSSTON: Bruce Washington assures us that it is up on the website.

DR. MCHENRY: Well, I looked at it before and there's a table that's in this latest one that we got from Sharkey. There's one table that's different. Appendix 1, Table 1.

CO-CHAIR ROSSTON: Okay. Well, --

DR. MCHENRY: It's just got exclusion from distance differences. It's not a major difference.

CO-CHAIR ROSSTON: Okay.

DR. MCHENRY: Just some of the numbers are different in the table.

CO-CHAIR ROSSTON: Okay. Well, make sure we get the right one up.

DR. MCHENRY: I don't think it's using the wrong one. I think there was another one that came out and it didn't make the deadline. I don't think it's wrong.

CO-CHAIR ROSSTON: Okay. Sorry to interrupt. Go ahead.

DR. MCHENRY: The report -- the committee, for a month we got no comments. Dennis and I didn't receive any comments, so we're recommending that the CSMAC approve the report. And that's the end of the progress report.

CO-CHAIR ROSSTON: Are there

questions from around the table?

I had one very small question. This is Greg again. On page 2 you talk about validate on a site-by-site basis the effectiveness of proposed interference-mitigation methods at the bottom of page 2. And I just wanted to make sure that was not sites of the commercial users but sites of the satellite base stations, earth stations, or what are those sites? I think that just wasn't clear to me when I read it.

DR. MCHENRY: The sites are the satellite receiver locations.

CO-CHAIR ROSSTON: Okay. Just wanted to make sure that I understood that.

Yes, I just wanted to make sure that it wasn't every site, that somebody wanted to use it on a commercial basis.

Are there comments or questions on the phone?

(No response.)

CO-CHAIR ROSSTON: Okay. I guess

we can move to a vote on this, adopting this Working Group 1 Report with the provision that we will have a slight difference in Appendix 1 for the distances that will be placed on the website. I think we can vote even though that's -- yes. Can you put the phone on mute again please?

So all those in favor of adopting Working Group 1?

(Chorus of ayes.)

CO-CHAIR ROSSTON: All those opposed?

(No response.)

CO-CHAIR ROSSTON: Okay. I think that we adopt Working Group 1's Report.

And now moving onto Working Group 2. Since we started, David Borth has joined us --

DR. BORTH: Yes.

CO-CHAIR ROSSTON: -- in person.

DR. BORTH: Right.

CO-CHAIR ROSSTON: So I'm hoping

-- yes. Yes.

DR. BORTH: It's real quick. We made the presentation last time. We didn't make any changes since last time, except a few names were added towards the end, I think it was the back of the report, it's the contributors. But, apart from that, the analysis was completed after the last meeting. We presented it as presented last meeting, so the overview that's given here is the same as what was presented previously. And there have been no substantive changes to this report.

And actually we thought we were done at that time, so I think we just need to put it up for a formal vote now.

CO-CHAIR ROSSTON: Okay. Are there comments or questions either around the table or on the phone for Working Group 2?

(No response.)

CO-CHAIR ROSSTON: We're moving much more rapidly now. Okay. We'll have a vote on Working Group 2's Report. All those

in favor, aye?

(Chorus of ayes.)

CO-CHAIR ROSSTON: All those opposed?

(No response.)

CO-CHAIR ROSSTON: Okay. I think we have that passed as well.

Now my quick mathematical skills allows me to skip 3 and go to 4.

MR. GIBSON: Okay. That would be me, I guess. Mark Gibson.

CO-CHAIR ROSSTON: Yes, this is Mark Gibson.

MR. GIBSON: Yes, it is. And I apologize for not being there in person. Just time didn't work out for that. Part of the reason is that the Working Group doesn't have a whole lot to report since our brief in January.

The work continues. We've had a few minutes. We are still a bit hamstrung from the inability to get results. It's

taking a while longer than we had expected. We had a meeting yesterday and where we are with things is we're expecting results to be delivered through the review process in about three to four weeks.

So with that, and you will recall that we are doing analysis on three bases for both the TRRs and the JTRS. And so we are working on the report itself to find what we can agree on with respect to recommendations, absent that date and those results. And also expecting that we're not going to get anything more than the three areas that we are analyzing right now.

So the next meeting, which will be in two weeks, we will be digging deeper into the report and on the recommendations. We will be memorializing sort of the high-level recommendations that we've made on the microwave systems, which are pretty much straightforward from the past. And so that should be pretty easy, but we're going to --

one issue that we're -- and we got some more data also from the DoD on the TRRs in terms of the assignments and the number of assignments and the bases. So that was very helpful so we can get a chance to see what is going on at each base. And that helps to determine the sharing capability, the sharing possibility.

But we are -- but there's an issue with -- some of the information that was published at that time indicated that there are assignments that are statewide assignments. And so that speaks to a different coordination process and sharing process than you might have if you were only operating on a base.

So what we're going to -- what we need to do now is focus a little bit more on what it looks like -- what a sharing and coordination process looks like for a situation where these TRRs can operate anywhere within a state. And we're finding out that's it more than we thought. Initially

I think we thought it was two states and now we're learning it's probably seven. So we need to dig into that a little bit and find out what that means.

And then finally we're finding out that the only way any more information is going to be made available on the JTRS is through this partner or trusted-agent concept. So I think when we get into that toward the middle of the meeting, it will be interesting to hear how that's going to happen, because absent any more information on the JTRS than we have, it's going to be challenging to make, you know, meaningful recommendations.

So, with that, that's pretty much all we have to report. I'll be happy to take questions, though.

CO-CHAIR ROSSTON: Okay. Karl.

MR. NEBBIA: Mark, one of the questions I have -- well, first of all, I should note that DoD is looking closely at those statewide assignment and --

MR. GIBSON: Okay.

MR. NEBBIA: -- we're very hopeful that they will ultimately look like the other assignments that I think they were requested some time in the past with a sense that it gave them greater flexibility for emergency circumstances, and that sort of thing. But we're talking to them and they're looking into it. And hopefully ultimately those assignments will be changed to look like location base, you know, specific locations, as all the others are. They're certainly not used differently than the other, so we're hopefully to resolve that.

The other question I have is in analyzing those locations, where you said there -- and I realize at least from what I've heard from some of the people involved with running the analysis, these folks are basically running the computers day and night, grinding through the analysis they're doing using terrain data and other factors. And so

that may be one of the reasons why you're only going to get three of these locations out.

So my question is: Is there any reason to believe that going through this exercise on three locations is not going to provide significant satisfactory information for reaching a judgment on how this could be done from base to base?

MR. GIBSON: Well, let me answer your questions in reverse order. The answer to the last question is I think that both sides are -- the industry side and the government side, which is primarily DoD, believe that that is certainly possible. But until the results are presented, you know, no one really wants to step out onto the ice in that situation.

The concern that people had from the results that were done before was that the sharing zones tend to be rather extensive. And we've done some analysis of the areas where these are TRRs are deployed or at least

where, you know, the bases in relation to the top 100 market areas. And most of the TRRs are at least within 150 kilometers of one of the 100 market areas, if not, several.

So the alacrity of entities to share will be, to some extent, based on anything that we can extrapolate from the results we get into some of these other areas. And so I think we can and I'm pushing us in that direction, and we'll see what we end up with. But I think a lot of the ability of that will be based on the results and, again, how much we can extrapolate.

The answer to the first -- or I got the comment on your first statement, which is that's good to hear -- that's news to us, because when we talked yesterday about it with members of the DoD, no one really mentioned that. So that will be a big piece of information, if we know that the statewide assignments actually sort of devolve into point-radius operations, because that means

that is an entire use case that we may not have to worry about, and that is sort of -- well, again, like sort of disaster-recovery type coordination process for a statewide operation. If that gets removed from the consideration, then that may make -- that certainly will make our work a lot easier. That and the fact that the latest data indicates that there are seven states as opposed to two.

So if we get that information sooner rather than later that will be helpful, and then we can focus more on these other things. So I'm hopeful that we will be able to make some recommendations, some meaningful recommendations based on the results we're going to get. You know, and that's kind of what we're moving to.

CO-CHAIR ROSSTON: Okay. Are there comments or questions for Mark?

(No response.)

CO-CHAIR ROSSTON: All right.

Thank you, Mark.

MR. GIBSON: Thank you.

CO-CHAIR ROSSTON: Moving onto Working Group 5, and I think it's Bryan Tramont.

Well, hopefully we can hear you without an echo, Bryan.

MR. TRAMONT: I can't believe I'm being charged with this.

(Laughter.)

MR. TRAMONT: Now I'm the echo for the entire presentation. And Jennifer is sorry that she wasn't able to join us. She actually originally was going to be running the presentation today, but her international travel got in the way, so she's sorry she can't join us.

Our next meeting of Working Group 5, you will recall that Working Group 5 is divided into four sub-working groups, effectively. And we are meeting again as a group on February 26th. That's next Tuesday.

We're waiting for the AMT stuff to come back. It was supposed to be released earlier. And we're hoping that it's now scheduled for release between February 25th and March 1st. If it is, then we'll do a telecom next week and address it. If not, we'll post as soon as it is available and make it available there to folks. And then we'll move on with that. But a lot of -- and you'll see this recurring theme -- a lot of our work at this point is dependent on things getting cleared and things aren't getting cleared as quickly as we'd like. So we're just trying to work through these processes.

For AMT, they're a little delayed as well. There we have to collect some additional technical and operational data for the systems to be used at the site locations as they're selected, so that's a little bit delayed.

PTMs, there's actually a funding issue there. When we switched to the

randomized real LT network from the original grid-network approach, it required some additional funding. And we don't have an estimated resolution date on that one. So that's a work in progress.

And, once again, we're still working on Working Group 4 as well.

So, overall, I think there are some delays in analyzing the different systems. We're still hopeful that we can get done by mid-June, but some of these things are going to be beyond the control and obviously some of these issues are being worked out at the larger -- at a higher political level than the Working Group. And hopefully we can continue to adapt and get this done on time through the week process or not on time by that week in June. And I think that's the overview.

So a work in progress, waiting for some processes to sit complete both in terms of funding and some clearing issues, and

hopefully some of this will start to break free as soon as next week. That's all I got. Without an echo, I might add.

CO-CHAIR ROSSTON: Thank you very much, Bryan.

Are there -- Karl's got his hand up already, so.

MR. NEBBIA: Bryan or maybe even Mark Gibson on the phone, any information that you've gotten back thus far on the measurements that are underway at this point? Most of them of course are looking at the airborne use, although I know some of them were dealing with the satellite terminals. But anything you can say to us at this point about that input?

MR. TRAMONT: I don't have any visibility on that. I don't know if Mark does.

MR. GIBSON: Yes. I can -- as you probably know, Karl, there's been a lot of data presented and released through the

process that's been established. And so what we are seeing in that is good representation of the general-use cases for AMT in terms of the spectrum occupancy in terms of time and bandwidth at the areas where it's been deployed.

For some of the other equities, we are still in the analysis process. I want to take a moment and say that the DoD has been super cooperative in this effort. And although it's been a long time unfolding, you know, once we got into it, the base folks have been very helpful and very cooperative. And so we really appreciate it.

So we are still going through the analysis process on the data that we've been collecting on the monitoring effort. There's another effort, as you are aware, that's on some of the analysis of the modeling simulations that ITS is doing. And I don't know enough about what they're doing other than they're getting meaningful results as

well. But they're coming up with -- you know they're looking at this a different way.

But from the monitoring standpoint, I guess the Cliffs Notes version is we're getting good data. We can identify what's going on. And, you know, it's going through the DoD-clearance process, so we should be able -- I think we're supposed to be done with the efforts in about the end of March. That's when we're slated to go to each of the bases and remove the equipment. And so we'll be working on the report, you know, shortly after that. And we're hopefully to have a report done within a few weeks after that. So that's the basic update there.

CO-CHAIR ROSSTON: Other comments or questions for Bryan or Mark?

(No response.)

CO-CHAIR ROSSTON: Okay. So we are about -- oh, is this me echoing again? No, good. Okay. We're about a half hour ahead of schedule, so I think that we should,

instead of taking a break we'll continue to take the break at 10:30 or so, but why don't we move onto the NTIA Spectrum Management Hot Topics. And this is going to be, I assume, Karl presenting this.

MR. NEBBIA: We wanted to bring up a couple of the recent reports that NTIA has put out in, I think it was January 25th NTIA put out its 5 GHz report that was directed under the Middle Class Tax Relief Act, actually directed in two separate parts. We chose to pull the 5350 to 5470 and the 5850 to 5925. We chose to pull them together in one report.

And in that report we indicate that there are a number of radar systems in the frequency range of 5350 to 5470. And those radar systems are, in some cases, ground-based, used by DoD and FAA primarily. I think there were some NASA radars in there. But there's also airborne radars that were not considered in previous 5 GHz work. And there

are also some shipborne radars of a different type operated by the Coast Guard, primarily. There may also be some DoD use.

Also in that band is a thing called a radar sat that's operated by the Canadian government. It's a radar-based satellite-sensing system. And there's a lot of U.S. government interest in the data that comes from that satellite. And we've received certainly letters from the Canadian government asking to ensure that we protect their operation.

And then also in the band are UAV links that are used by the Department of Defense, by NASA, and by DHS, I think is the other main group that's referenced in there. And these links of course are a completely different animal than the radars, the signal type's different, the geometry working with the aircraft, so on, are different. And these systems actually operate under an authorization from NTIA that is not actually

reflected in the allocation table. So we have, over a period of years now, taken advantage of the fact that there many radars operate in the band. And, kind of within that framework, we've been able to do some UAV activities, which obviously are an improvement in terms of spectrum-efficient use of the band. But they certainly bring us to a situation here where, given that they're not reflected in the table, it's raised some questions. And yet the operation still needs to go on and still needs to be protected.

So we are interested in your thoughts on that work. I've had a couple other interesting steps forward in that the commission released their rulemaking yesterday, I believe it was, and NTIA the day before had provided to the Commission a letter indicating some of the areas that we believed needed to be considered in this work. So we are interested in your thoughts on what you've seen thus far.

And the one other thing I wanted to mention, the report is described in a number of locations as a qualitative report, in that we've identified what systems are in there, we've identified what types of mitigation techniques might need to be considered. But, ultimately, the kind of quantitative analysis that has to go on to see how all these things will work needs to go on between government and industry, in more or less the same fashion that we are working now within the CSMAC working groups, or given the similarity of subject area, in the same fashion that we did this work in the initial 5 GHz wifi bands a number of years ago.

All of that work progressed toward an agreement that was first reached at the World Radio Conference in 2003, that kind of opened the door then to further work on this issue where in the couple of years after that radio conference, we came to final agreement on measurement methods and standards and that

sort of thing.

So we envision at this point that we will use, again, that same international preparatory process, given the international interest in wifi-type technology. We will be moving forward with the quantitative work being done in that same environment. So there are people already engaged in the joint task group work, pulling together inputs from government and industry to come up with quantitative solutions to help us deal with the various systems that are in this band. So that's where we are right now.

Of course there's also been a great deal of interest from the transportation community, as they have been working on their 802.11-based technology for the intelligent highway systems, known under the Commission's rules as designated short-range communication systems, I guess. And they have expressed a great deal of interest, since the band that they have been planning for a number of years

to operate in is one of the bands that's under discussion. So we have been working with them to get them engaged in the international preparatory discussions. I think that's probably an area that they have not worked in before. So we see that work moving forward and moving forward pretty rapidly in accordance with the kind of WRC 2015 preparatory schedule. So that's where those activities are.

But we're interested in hearing any thoughts that all of the Committee might have on those reports and the direction we're taking.

CO-CHAIR ROSSTON: Michael Calabrese.

MR. CALABRESE: Yes, Michael Calabrese. Karl, you know, I didn't get a chance to -- I haven't seen any detail about what the Commission adopted yesterday, in part because I was flying and I'm not even sure if they actually put out -- the NPRM, they did?

Okay. Because I haven't seen it.

So what is the significance of the fact that the Commission is moving forward? Does that mean that the NTIA has decided that it will be possible to open those bands and it's just a matter of degree, it's just a matter of work out the details of the condition, such as here?

MR. NEBBIA: I think the Commission had a requirement under the legislation to begin proceeding. That's essentially, I think, the limits of the requirement was to begin the proceeding. So it was to kick the effort off, to make sure, you know, in that way that it moved forward.

So I think by the Commission doing this certainly shows an interest on their part to move the ball forward, but it doesn't -- this doesn't, as far as I can see, convey a conclusion that everything is going to be workable. But certainly I think it reflects a commitment to work with us and try to work

through what issues there are.

I think there were some other component -- there was some piece in there about the 5150 - 5250 band that was not expected in the rulemakings. It doesn't deal with the specific issue or the expanded wifi. That -- there's something in there. And that was part of our letter the day before, we just reminded them that that was one of the bands that we had reflected as being one of the possible relocation bands for the federal agencies out of 1755 to 1850.

So we certainly don't want to get in a situation where we move forward on that band, in some other direction, and end up cutting ourselves -- that direction off for possible relocation, if that's what we need to do.

But, yeah, I think it reflects a commitment to work through the same process. The Commission people are engaged in the JTG, alongside industry people. And that, I think,

is my interpretation.

MR. CALABRESE: Okay. But there's no conclusions yet really about feasibility on the administration side?

MR. NEBBIA: No.

MR. CALABRESE: Okay.

CO-CHAIR ROSSTON: My impression was they had a February 20th deadline.

MR. NEBBIA: That's right.

CO-CHAIR ROSSTON: You'll notice that today's February 21st, so.

(Laughter.)

MR. CALABRESE: Okay.

CO-CHAIR ROSSTON: Are there other comments from the phone on this?

MR. GIBSON: Hey, Karl, it's Mark Gibson.

MR. NEBBIA: Yes, sir.

MR. GIBSON: I just wanted to ask you a quick question. Like Michael, I haven't had a chance to read the Commission's order or NPRM. But, once again, there was in your work

was how you addressed the C band -- the adjacent Channel C Band Earth stations. And I realize those are commercial systems, so maybe they're out of your purview.

But there is a potential for those C Band Earth stations that are transmitting to interfere with DSRC operations and any other operations that would occur. Did you guys punt that to the Commission or just decided that somebody's concern, or how do you think about that?

MR. NEBBIA: Well, I think the report reflects the fact that we acknowledge that it is primarily the Commission's issue.

MR. GIBSON: Right.

MR. NEBBIA: You know, other than the fact that a number of federal agencies use the C band satellite systems, but it's still -- you know, they're operated with commercial satellite operations and so on. So it is primarily a Commission issue.

And, you know, interestingly

enough, the same way on the transportation side, most users that we're going to end up dealing with are, in fact, non-federal entities. But the Department of Transportation has some direct interests and responsibilities to make our transportation work well, and so they have a vested interest also. But it is mostly Commission licensees. Or I guess it is under a form of license.

MR. GIBSON: Yeah. Okay. That makes sense. I mean, most of the activity in the DSRC, in fact I think all of it, is public safety. There is a service code for commercial, but most of the commercials, if not all of them, are gone. So there's a handful of public safety operations that are mostly owned by municipals.

And the DSRC community worked with the fixed satellite community and worked on a sharing protocol, which is, you know, sort of outside of this discussion, but those issues have been addressed. So I think as this

rulemaking matures, that might see the light of day again.

MR. NEBBIA: All right. And, I mean, it's certainly our hope that these two communities, the wifi community, if you want to call them that, and the DSRC communities are very closely related. Many of the same companies are involved in both processes. And the DSRC community, on the other hand, has been working for quite a number of years on this band. And, from what we hear from the Department of Transportation, they are close to completing the work on their standard. And the Department of Transportation is close to the decision place of determining whether these system will be required in automobiles in the future.

So they're getting kind of to a decision point. I think that was one of their biggest concerns, that as decisions on five-years wifi were being considered, that it might in some way prevent or hinder their

ability to move ahead and the decision process that they've been working on for quite some time.

CO-CHAIR ROSSTON: Kevin, did you have a question?

MR. GIBSON: Okay. That's my comment. Thanks.

CO-CHAIR ROSSTON: You okay?

DR. KAHN: Yeah. Yeah.

MR. NEBBIA: But this is Karl again. But I should note we have been encouraging them to please talk to one another, that it would seem like a great outcome if the two industries could work together, where the technology on the wifi side and the technology on the transportation side were compatible with one another, knew how to shake hands with one another, that sort of thing, because we clearly want to protect the safety aspects of the transportation systems.

They, of course, are a little bit

uneasy about an unlicensed environment kind of thing when they're trying to perform a safety function. On the other hand, I think the wifi industry itself and the market worldwide for wifi-type devices is so significant that it seems like the technology development there would offer a great boost to the transportation community, instead of trying to be, you know, a more-narrowly focused activity, but one that could ultimately benefit from the joint sharing of technology and working together.

DR. KAHN: It does strike me that --

CO-CHAIR ROSSTON: This is Kevin Kahn.

DR. KAHN: I'm sorry. Kevin Kahn, yeah -- that one of the things probably we're trying to do, I know we do this as a community, but is to educate folks that are beginning to use wireless stuff, and I don't mean wifi people, but like the transportation-

safety type folks, for example, here, that the nature of the beast is to be unreliable at some level. And so you've got to do systems design that is resilient no matter whether there is unlicensed or potentially licensed people wandering around the band, because there are always going to be sources of interference that appear.

And the notion that somehow that there is something inherently much more dangerous about the possibility that there might be some unlicensed sharing or activity going on than licensed, I think is just a misreading of the physics of the situation in reality relative to what good design for a safety-critical system needs to be.

And I think people get that wrong, I mean, that there's somehow this magical thinking that goes on, that if it's licensed then, you know, if I'm designing a safety-critical system that's adjacent to it or near it or in a shared band, that somehow it makes

my job easier.

And I don't think it does. If you're designing safety-critical systems, you still have to design with real failsafes and real redundancy and resiliency that brings your reliability up to whatever the acceptable metric is. So making people nervous that it's unlicensed, you know, I think that's the wrong place for them to be concerned is what I'm saying.

CO-CHAIR ROSSTON: Okay.

CO-CHAIR FONTES: Do you have any more comments?

CO-CHAIR ROSSTON: So are you also going to talk about the --

MR. NEBBIA: So I'll talk about the --

CO-CHAIR ROSSTON: Are you going to go into the second bullet?

MR. NEBBIA: Yeah. So if there won't be any other questions or comments on the first one -- and, once again, I want to

reemphasize the place where the quantitative work is going on right now is in the ITAC-R preparations for the Joint Task Group and the ITU-R. That's where the work is going on. So if people want to participate, that's where the discussions are being worked on. That's where the modeling is taking place. That's where the various discussions about how much time the devices are going to have to move off-channel, and all those things are going to get discussed. That's where it's happening right now. So I want to encourage people that are interested to please get in touch with those folks. If you --

MR. CALABRESE: That's with a focus on 5 GHz?

MR. NEBBIA: That's where the focus on both of these bands is going on in the quantitative analysis. So if you need a contact point, Charles Glass in our office has got the lead in that work. And he would be happy to help you get engaged, but that's a

critical point.

Every once in a while I get a call from somebody and they ask me, 'what is this ITU-R work. We don't even know what it is.' And, you know, it's taking off, so -- but we are very successful in doing it this way the last time around and I think we'll do it again.

The second report, we --

CO-CHAIR ROSSTON: Are you doing this part?

MR. NEBBIA: Yes.

CO-CHAIR ROSSTON: Okay. Just want to make sure we're on the same page here.

NTIA 1675 - 1710 MHZ REPORT

MR. NEBBIA: Anyway, the second report we wanted to bring to your attention is we were also required under the Middle Class Tax Relief Act to provide a report to the President regarding the 1675 to 1710 MHz band and to identify 15 MHz in that range that we would be willing to make available for

wireless broadband.

And, interestingly enough in this case, after the Fast Track Report we had already identified the 15. Nonetheless, the Act directed us to report to the President on this. So we essentially, working along with the CSMAC Work Group, following the work in that group very attentively to see how that was moving, came to a point where we were ready to send over our report to the President. And it's essentially a couple pages reaffirming the fact that we think the work here was going forward successfully enough for us to say, yes, this is 15 MHz that we can, in fact, move. There are going to be processes that we can develop and put in place that are going to make this very usable. So that report was sent also Tuesday, I think. So that's over there and that --

MR. STRICKLING: It was submitted early. You should --

MR. NEBBIA: Yes, yes.

CO-CHAIR ROSSTON: One day or two days?

MR. STRICKLING: We were counting February 22nd, I think, as our deadline.

CO-CHAIR ROSSTON: Oh, so you didn't want to wait for a vote.

MR. STRICKLING: Huh?

CO-CHAIR ROSSTON: You didn't want to wait for a vote on that? You said we expect them to vote, I think, in your report.

MR. NEBBIA: Yeah. Well, we --

(Laughter.)

CO-CHAIR ROSSTON: Didn't trust us.

MR. NEBBIA: Yeah. Given the interagency review process, we felt like we had to count on something we could put down in writing and move it forward. Anyway, so that report is out, once again, reaffirming that 15 MHz.

So any questions on that piece?

MR. POVELITES: So what is the

next step then with regard to 1695 to 1710 in relation to the recommendation that was adopted here today?

MR. NEBBIA: Well, certainly they are at our disposal to use in working with the Commission. The Commission, of course, also see them. And I'm not sure at this point of their time table for starting the rulemaking with the band. I think that they have deadlines also set by them for the licensing, I believe, of systems in the 2155 to 2180 band and in a portion of this band, I recall, by 2014 -- '15, '15. Three years, so it would have been February 20th or 22nd, whatever, 2015.

So I think that date, in a way, drives their schedule. So they of course are, I'm sure, going to be looking for frequency matches since this was recommended as a handset transmit band. They're going to be looking for a band to go the opposite direction. That all fits into the general

scheme.

So, yeah, we would be going from here -- now we -- the recommendations also recommend that we need to work with the Commission and the agency's concern about developing the actual coordination procedure. So we will be moving forward on that. I certainly will be talking with my folks as to whether that means there needs to be more discussion within the working group that might help flesh that out a little bit. But my understanding is that they have -- they have got an analytical method that they've set up that they've used for the calculations thus far.

So the question will be: In an actual coordination process, how will that analytical method be manipulatable to come up with other known outcomes?

So originally I certainly was thinking that after we got done with the distances, the interaction within the

protection distances was basically going to be up to the company or agency that was involved, and them just talking through whatever they were going to need to do. Certainly they expressed a desire to have a more known analytical method, so that it wasn't they're having a conversation and the first time the conversation kind of goes sour everybody kind of starts calling Congressmen or, you know, going up the general's chain, or whatever it happens to be. They wanted a process that everybody was agreed to in terms of this coordination.

On the other hand, there is an opening in the coordination process, that it says even in the future we might take on things like working with the timing of the satellite passing, and that sort of thing. So it doesn't close off those approaches. It just puts them in a position where somebody's going to have to present that and demonstrate how it works, and that sort of thing.

The other thing -- so the recommendation actually directs us toward coming up with basically an automated-coordination process. So that needs to be developed. One of the interesting things, of course, challenges for us is neither NTIA nor the FCC have systems that qualify under the CSCA in terms of we're not relocating any of our systems, we're not sharing any of our systems.

So I think it's probably questionable that we would qualify for getting the money to create the automated system. It's probably going to have to be with Commerce or maybe an extension of DoD's portal that was created during the last exercise. But that's going to need to be done to be put in place so everybody can feel confident about how the things are being done.

We did have the question earlier about whether these things are working around specific government sites and so on. But it's

my understanding that ultimately as a company presents its layout within the protection area, they are actually going to be presenting: Here is where all of our base stations are and here's what we're doing with them, in terms of then obviously the handset speaking to them, and so on, so that it's still going to give the companies opportunities to manipulate and change the layout of their system.

MR. TRAMONT: And, Karl --

MR. NEBBIA: Yes.

MR. TRAMONT: -- this is Bryan. Can you just clarify one thing you said about the funding? So you're saying it doesn't qualify for CSCA funding, and it kind of plays into something we discussed at the last meeting about whether we need to be recommending legislative changes, and what-have-you. But it doesn't qualify --

MR. NEBBIA: No, I'm not -- I didn't say that --

MR. TRAMONT: Why doesn't it qualify again?

MR. NEBBIA: Okay. Sorry. That will probably be the headline in the press tomorrow. I didn't say it didn't qualify for CSCA funding. I just said that the recommendation says NTIA and the FCC should put up this -- or make sure that there's this automated system. And given that we don't have systems that are moving, it's unlikely that we can get the money, I think, is the issue. It doesn't mean that NOAA can't get the money and put the system up online, or even that the companies couldn't work together and create the system that everybody accepted. It's just that NTIA and the FCC, as agencies that are not actually operating systems, probably don't -- it doesn't fall under eligible costs by the law. It would for NOAA.

MR. TRAMONT: Okay. So just speculating, but I would think there might be an auction-funding mechanism that could also

be in place, since it's a condition precedent to having a successful ultimate auction. But, okay, I just wanted to understand what the rub was on that. Thank you, Karl.

MR. NEBBIA: Right. Well, we at NTIA, in fact, we're looking forward to an auction-funding mechanism, so we'd be happy to cash in a little bit more of that, so.

MR. TRAMONT: Bring it on, right.

CO-CHAIR FONTES: Karl, this is Brian. On the process in terms of commercial entity and the government agency, do you anticipate also including in that a timeline so that things will not be overly drawn out, so that the coordination and the effort continues to move forward rather than having one or the other hold it back just because they wish to hold it back?

MR. NEBBIA: Well, I think the assumption here, and the recommendation in creating this automated process, is that both sides would understand how the automated

capability works. They all know the location. This is not like some of the other DoD operations, where there was certain information being held back on the government side.

So I think the assumption here is that people would put in the data. Both sides could actually run the data, if they wanted to, and come out with what the answer is. It should not require a lot of people holding cards on their side of the table.

And I think in this community we've seen a strong interest in wanting to move forward on making the system work. There are also some positives in here for the satellite-receive terminals in that there's statements in the recommendations about understanding that if interference is caused, that the companies will take action to rectify that, and so on. So I think the people working with the weather satellite systems actually saw benefits in getting away from the

strict exclusion areas and moving toward more of this coordinated mechanism and more of a cooperative mechanism.

CO-CHAIR ROSSTON: Brian and I were talking about the rest of the agenda. And I think as long as the technical people are okay, we would just go ahead and have 20 more minutes or so. Is that okay with you guys?

MR. NEBBIA: Yes, because, I mean, we certainly would save the people on the phone from having to get off and --

CO-CHAIR ROSSTON: Right.

CO-CHAIR FONTES: That's what we were hoping.

CO-CHAIR ROSSTON: So that was our hope, was just to plow on, just to continue on without the break and we'll end early.

So do you want me to get you some water since you keep talking?

(Laughter.)

BRAINSTORMING FUTURE APPROACHES TO INDUSTRY/GOVERNMENT DIALOG, INCLUDING THE TRUSTED AGENT CONCEPT

MR. NEBBIA: That might help.

Okay. So we had some other areas here and the 20 minutes that we set aside was because we thought the rest of the meeting might take longer, and so on. So if it takes us a little bit longer than the 20 minutes, my flight doesn't leave for a little while, but --

(Laughter.)

MR. NEBBIA: Anyway, however it -- and so, as you all know, I never run out of something to say.

Okay. The first thing deals with part of what we've been discussing here earlier, and that is what future approaches should we be looking at, in terms of this industry/government dialogue, including this concept of a trusted agent.

And what I should note here is

that, you know, we start off on the government side with this challenging issue that we can only receive consensus recommendations through certain established fora. A FACA is certainly a good example, where we can receive a consensus recommendation.

On the other hand, we run into problems if we try to pick groups from industry and say we would like you individuals to come in and give us a consensus recommendation, we start running into legal issues, and so on. So over a number of years we've been trying to wrestle with how do we get the people who need to be involved in these discussions together with the government and how do we put the government in a position where they can have a dialogue.

As you know, traditionally most of our government spectrum-management activity dialogue actually goes on within the Interdepartment Radio Advisory Committee. It's not a public discussion. And we get

inputs from the federal agencies on all sorts of issues, including FCC rulemakings, to help formulate our views on them. And that's all done in a non-public way.

A few years ago we put out an NOI with respect to experience that we had gained in the 1710 to 1755 relocation. And, interestingly enough, all the commercial users of that spectrum responded to our NOI. All the government people provided their inputs directly to us, not through the NOI process, and they were done in a way that was treated as internal discussions of the federal government.

So we've had this challenge for some time. How do we get the proper people from industry and government together to have this discussion? And we more or less, you know, came upon this approach in preparation for WRC 2003 where we got the wifi community together with the government agencies, primarily DoD and FAA, and we worked through

the possible sharing scenario and technical modeling and interference analysis, and so on, in the preparations for that world conference.

Some people at that point said, well, why are we doing it there where it's an unlicensed operation, why are we taking that to an international radio conference. Well, other parts of the world didn't treat -- don't treat things as unlicensed. They come up with other names. It's in effect much the same, but in reality, groups do have product licenses, or something, another way of controlling it.

But the greatest reason for taking it there was the fact that the international community cared about the wifi systems, and DoD, on our side, had an interest in ensuring that wherever they had to go and whatever mission they had to do, that they were not going to run into problems from wifi systems deployed around the world.

So it was to everybody's benefit

to try to work together toward an agreement. It was a bumpy road, but we did get there. It was not actually completed at WRC 2003, but we came back from the results, industry had some concerns about some of the results, and they ended up changing the process some so that the wifi systems actually identify radars over kind of a range of characteristics. It's not like they're looking for one specific radar, but they are looking for radars over a set of characteristics. And identifying them as radars is one of the ways that helped them not identify one another as radars, so that helped the industry solve that problem.

So that process went forward. In the end, NTIA working with industry and DoD actually developed the measurement procedures through that kind of round robin discussion and the actual standards, interference standards that were going to be required. So when the Commission went out with their rulemaking, we were able to just present them

with here are the answers that everybody agrees works.

So we were hopeful that we would be able to replicate that kind of thing again and took it on in the CSMAC working groups. Could we replicate that same concept? The challenge here that we're finding is, first of all, there's a lot more participants. So even though the wifi industry is fairly large, I would say at any time, if DoD was engaged with between 10 and 20 people, it was probably -- that was probably the top end. And when they actually had to do some of the test measurements, they got people with security clearances to participate in those test measurements, and it was individuals representing one or two of the companies. It wasn't representing everybody. They didn't have clearances. Many of the companies weren't necessarily U.S. companies.

So as we stepped into the CSMAC working group arena, and then found that we

had 80 or more people signed up for each of the working groups, it created a whole new environment. And DoD has raised concerns that a lot of times when they are on these phone conference meetings, they have no idea who is on the other end. And so they --

DR. KAHN: At least it seemed to me that --

MR. NEBBIA: This is Kevin, sorry.

DR. KAHN: This is Kevin. It seemed to me that there were more DoD people. I mean, you know, because I remember calling into one of the earlier Working Group 5 meetings and it told me I was like number eighty-something joining the conference. But when I actually looked at the list of people, it was DoD or DoD contractors that were, you know, the majority of those people.

CO-CHAIR ROSSTON: But I think the question is that there are -- this is Greg -- that some of these people, you don't know who is on the phone, and DoD is concerned about --

DR. KAHN: No, I appreciate that. I'm just saying that --

CO-CHAIR ROSSTON: There may have been a lot of DoD people --

DR. KAHN: -- you know, say, geez, we've gotten engaged with too many people, while looking at the industry side of this, if you will, the commercial/industry side of this as fair, you might also want to have DoD look at their own side of this and say do you really need all of those contractors and service folks participating, if you're worried about just there's too many bodies to know.

CO-CHAIR ROSSTON: Yeah.

MR. NEBBIA: Sure. So as they moved along in this process, given the concerns that they had, what they came up with was a system where they received the characteristics from industry, primarily developed in Working Group 1 here, and then they were using those characteristics to run through -- to have one of their Defense

Department contractors then run the analysis, knowing the DoD characteristics on the other side.

In some cases they were able to provide some of the DoD characteristics, but in other cases they were not. So we end up with a situation where industry provides their information. They do have a discussion about the analytical method, so if there's any concerns about that, they can talk about what those are. The data goes into the contractor, and they begin to crank out these numbers, which, as I said before, given the inclusion of terrain data and a lot of other complicating factors, is taking them a long time to do each run. And if they find out there's a problem with the run, they have to do it over and over again. That takes a lot of time.

So that's the process they're working on. And I think in one case they did come back with some initial feedback. And

industry said, well, you used this grid layout system in the analysis, couldn't we give you an actual, you know, layout of our proposed networks?

Now that took them a little bit of time to work through that because none of the companies wanted to tell each other exactly what their layout was, and that's part of the complications of the process. But they did provide it back, an updated thing, that the problem was it then set the analysis back two weeks. They had to then rerun all the items.

So that's the way the system is structured right now. If industry looks at the results, ultimately that when they come back and said, well, couldn't you tweak this a little bit, it goes back into the two-week recycle again. So that has its challenges.

DoD then raised the issue that some of the technical data they just could not provide, but they were willing to allow for a third party to analyze how the data was run

and any of the outcomes, and provide what they consider to be a trusted agent activity. Their suggestion was that that would be the FCC and NTIA reviewing that outcome. The challenge we had on the Commission side is that the Commission ultimately gets into the rulemaking process. And from their view, they were not very comfortable with being portrayed in that role.

NTIA, being in that role by itself, probably would not have been much better in many of the commercial world's eyes than DoD's, you know, person, or something, so trying to look for a balance.

So I understand that there have been some suggestions that maybe industry working together could put up a set of a smaller list of names, people that DoD might be able to work with in terms of getting NDAs with them. Maybe some of them would have security clearances. I know a list of names was provided at one point and many of the

people on the list were not U.S. citizens, which that has its own issue there. But at this point that appears to be part of what we're talking about.

Another possibility was industry agreeing upon their own contractor that may have a clearance that could work directly with the DoD contractor. The concern I heard on that side was that there weren't generalized contractors in the business who fully understood the companies' technology and what they were doing, so they preferred not to go that route.

So that's under discussion right now. But I think for our own purposes here, I wanted to talk in general about that direction. I mean, where do we go from here? Does this, in fact, have in this direct industry-and-government discussion, have we found kind of a way through the pass to get to where we need to be? Can it be reproduced in the future? Is that certainly our -- we would

hope if we find a way through, that we can do it again.

I know after the last meeting a couple of you approached me about whether we were going to be able to bring the 3.5 GHz issue into the discussion in maybe one of the CSMAC working groups. And we've had some discussion with the Commission. And I think at this point I think we're thinking that we haven't quite gotten far enough along in understanding what any of the proposals might be, what any of the technology layouts might be, in order to have that kind of real meaningful discussion between the industry and the government side. I mean, there's been a variety of different proposals kind of put on the table by different industry groups.

So I think at this point we're probably going to have to wait a little longer to see, you know, how that might go. We didn't have that at 1755 to 1850. We knew we were all working with LTE, you know, cell

phone operation.

So I am interested in your thoughts on how we can take this idea forward, you know, working within the legal requirements and yet reach those goals, how we might identify groups to adequately represent industry.

CO-CHAIR ROSSTON: Okay.

MR. GIBSON: Karl, it's Mark. Let me ask -- Mark Gibson -- let me ask a quick question. Is this issue more with release of data that's just not publicly releasable or classified or both?

MR. NEBBIA: I think most of the data we've been dealing with here is just not publicly releasable. I mean, it's similar to the government master file, I think something like 85 percent, or something, of the records that we have are marked exempt from public release. It's not that they fit under the traditional national security classification means, but they're just information that the

entities don't want out in the general public's hands.

MR. GIBSON: Okay.

MR. NEBBIA: So I think that's about --

MR. GIBSON: If the issue were classified, I think -- and you know as well as anybody that to find an entity that could represent industry interests that also has the requisite clearances to safeguard data, it would be challenging. There may be a couple, but if the issue is more of just FOUO type data, then I think there are ways forward, I mean, to do that with companies that are on both sides of it. I mean, we do that, but I'm not supposed to be saying that as a CSMAC member. But I think that that could be a way forward.

I think the bigger issue is making sure that we all agree on the analysis methodologies, and we never really got to that part. When we got to the point when we

realized that there was no way for industry to have oversight on, you know, the specific details, we realized that, well, we'll just let the DoD run the analysis with their contractor. And we just didn't have the wherewithal at the time to revisit that. So that's -- some of what you're saying is a little interesting because it's not really what we've been led to believe in some of the discussions we've been having.

MR. NEBBIA: Well, certainly, Mark, our intention, and everybody I've heard from DoD and the participants, that they fully expect that the groups would be deciding the analytical approach. They may not get the specific characteristics data of the government systems, but the analytical approach, certainly Working Group 1 worked through that. And that's our expectation for the other groups, that they would work through the analytical approach.

Working Group 3, for instance, did

-- my understanding was did provide --

MR. REASER: Karl, that's not true. It wasn't just 3. We don't know what the government's analytical approach was. In fact, at the last meeting they said, well, we did something slightly different than you guys did.

MR. NEBBIA: Okay.

MR. REASER: And so we'll find out when we get there, but we did not agree on an analytical approach to Working Group 3.

MR. DOMBROWSKY: And, Karl, this is Tom Dombrowsky. I want to chime in too. I feel like we're a little premature, to be sure, with 3, Working Group 3, Working Group 4, Working Group 5, because we really haven't gotten into any analytical at this point. So it's sort of hard to see if there is a framework here or not. And I think with Working Group 1, we were -- we had a bit of advantage in that some of your group did a lot of the work and helped everything out. But in

these other working groups, I'm not sure we've gotten to the point where we're confident that this process is working yet.

MR. NEBBIA: Okay.

MR. GIBSON: And this is Mark again. I would add to what Tom just said and Rick, that within Working Group 4, the statement was made yesterday that -- and I think I mentioned this when I made my brief -- that the data offered -- for example, the data on the JTRS systems would be made available under this process, but not the results.

In other words, they would be able to provide the results, but not the underlying data. And so, you know, we're kind of at a loss to know what we would do with the data if we're given results. So it's a little bit bigger than I think just the ability to run a parallel, secondary analysis. It is just engaging in conversations that need to happen -- I think you looked at this at the beginning -- that need to happen to drive

recommendations on sharing versus relocation. And if it's sharing, it's, you know, how do you do transitional sharing.

And so it's larger than just, you know, an independent analysis and that sort of thing.

DR. KAHN: This is Kevin. You know, if I take this up a level, what it really seems like you'd like to have, and I guess my question is have you really exhausted the legal frameworks for this kind of thing?

But what you'd really like to have is an institute -- I'll use that word kind of loosely -- populated by a set of people nominated from government and from industry, all of whom are clearable, that when you -- certainly from the industry point of view if you were approved into this institute, you know, it was that you were effectively really working as an SGE when you were in the institute in the sense that you were not representing your company. You were

representing your expertise. And that you could create essentially something that would be effectively trusted by both sides to do the diligence, have the arguments that are inevitably going to occur, but that what came out of said institute in terms of conclusions, was acceptably trusted at least by the industry side, I mean, since the government side of it typically would have a lot of people with clearances. I suppose they would be able to look over the shoulder of it and decide if they trusted it or not.

So I guess my question is: Is there really no legal construct under which that kind of an entity could be created. Because you're going to come up against -- now that we've kind of accepted, as a country, that we're going to look for more and more opportunities to do this kind of sharing, and what not, and the technology is kind of giving us that tool, I agree, you're going to wind up hitting this problem over and over and over

again, right? So you can continue to be in the unfortunate position you find yourself in, which is, you know, are we managing and navigating it? I mean, for right now it's the best you can do, I would agree.

But I guess my question is: Is it worth trying to elevate it up a level and say, you know, whether this process ultimately leaves people feeling good or not about this particular band, I think everybody involved in it would certainly be willing to agree that it's hardly been an efficient process. And if you're going to try to replicate this for more than a very small band like this, you know, that inefficiency and that inevitable distrust that kind of accrues from the process isn't going to be very helpful.

So I guess, you know, my question is: Is there really no legal structure that we could create that would require a level of trust on industry side going in as to who got nominated and how that process worked, but

that once you put the energy into creating it, you know, could operate and in some sense I guess I'd be saying at one level -- I mean, I suppose it would come under FACA no matter what, but it wouldn't so much be giving advice to government as putting conclusions on the table for everyone. And whether everyone took those conclusions or not, what you would have from them is sort of sanitized conclusions approved by a group of people that both sides of the argument, you know, sort of had been willing to say, 'All right, I'll trust what comes out of that.'

And maybe you could insulate that perhaps from the FACA thing by saying, hey, these results are simply published to the world, almost in an academic sense. And now perhaps what we can do is kind of launder those results back through something like a CSMAC, to hand them back into you guys through the legal fiction of a real FACA.

But I'm wondering if something of

that sort could be constructed legally to create a little more viable long-term institution that would help make these processes work better.

MR. STRICKLING: Kevin, this is Larry. An interesting idea, and we can take a deeper look at it. I'm not sure it would have to stumble over the FACA issues.

DR. KAHN: Well, maybe it wouldn't. That would be better.

MR. STRICKLING: I guess what I'm trying to understand is how does having something more permanent help and is it realistic, as opposed to bringing people together and solving them as we approach individual bands for consideration. Because you're probably going to have different people depending on what the systems are and what the band is.

So you could put a structure in place, let's assume we could, and have industry basically say here are the five

people that we all trust that we'd like to see engaged and we could make them SGEs and whatever, we could give them a business card, or whatever it takes. But I think at that point they're basically working for the government, so we can avoid the FACA issues. But the problem is, so that works for band A, but then the next band out, band B, none of these five have the level of expertise that you need.

So I guess I'm trying to understand, what's the value of having the continuity and the permanence --

DR. KAHN: I'm not so sure they wouldn't have the level. I guess my -- I'm not willing to just sort of say they wouldn't have the level of expertise, particularly if you explored at least part of that group with some good, say, academic researchers and populate some of it with people who have a pretty broad technical expertise in interference-type issues.

I mean, I think at the end of the day the question is would the non-governmental players be willing to say, you know, I really do trust -- if these guys come back and say, you know, that band, it's just not shareable, you know, we have looked at the real data that's going on, we've done the analyses, we've listened to suggestions that you guys have published, it's not shareable, that you wouldn't wind up with this, aha, you know, that's DoD playing games with us again. That somehow you would create a place that had enough insulation from DoD, that the people there were not viewed as just DoD lackeys -- I'm using loaded words just because it's what kind of you hear on the distrust side of it -- that what you're seeing, these are not a bunch of just DoD contractors that are towing the DoD line. That these are folks who we trust, are neutral enough to look at it and say, yes, this conclusion does make sense, or this is shareable but only with these kinds of

restrictions and we've done our best efforts.

What I'm looking for is a way to kind of -- I see an awful lot of -- it seems to me an awful lot of time wasted with people spinning wheels that are pretty much lubricated with distrust. And, you know, that's maybe a little loaded, but a lot of the 'Where does the analysis get done,' you know, 'We're not seeing the data,' I mean, all of those kind of discussions are really rooted in the, 'If I saw that, I don't think what I'd see is really what I'm being told.'

So what I'm trying to do is say is there some way to get past that part. And maybe you're right, maybe the individual band problems are so specific that you can't generalize it. But I guess I'm not so sure of that, I mean, that a lot of the issues are really more about how do you put in place a set of people that, reluctantly or not, industry will look and go, 'Yeah, you know, I would have thought we could share it, but I

know who these people are, I know their credentials, and if they say it doesn't work, let's move onto something else.'

MR. STRICKLING: And I --

DR. KAHN: And that's just based on --

MR. STRICKLING: Yeah, yeah. And I agree with all of what you're saying. It seems to me this is a threshold issue that we have to solve in terms of our ability to replicate this process in a more efficient way as when we look at things in the future.

I'm just trying to understand -- and so I think either way you need to have a framework that you can pull into it --

MR. NEBBIA: Right.

DR. KAHN: Yes, sir.

MR. STRICKLING: -- at any point in time. Where I guess I was reacting was the idea that we kind of create a permanent set of experts somewhere who can be brought to bear in this. That creates issues in terms of,

well, they always have to be the right people --

DR. KAHN: Well, and maybe the framework is the right --

MR. STRICKLING: -- and also it creates issues in terms of conflicts they may have and --

DR. KAHN: Sure. So maybe the right thing is to say we're going to create a framework that has a board onto which there are ten non-governmental people, they get nominated each time. And the way this is going to work is that all relevant companies each, you know, get to look at that result and names get put forth. And the guys with the top ten votes from academic, et cetera, they're the ones that are in it for this go-around, you know, because we publish what they're going to be analyzing. You know, perhaps something of that sort.

MR. STRICKLING: Yeah.

DR. KAHN: But -- so maybe you're

right, maybe you want to have more flexibility as opposed to sort of some permanent, nominating thing. But I do think finding some way to create an institutionalized notion of a neutral ground --

MR. STRICKLING: Right.

DR. KAHN: -- where folks that are known to not have an a priori government or DoD axe to grind are -- you know, you get them cleared, you get them put in there so that they can do the analysis in a sane way. And then come back and just say: Okay, we did the analysis, trust us, this works, this doesn't work, et cetera. We'd just make the whole process more efficient if you could get there.

MR. STRICKLING: Yes.

MR. GIBSON: Yeah, Karl, it's Mark. Let me kind of chime again, Mark Gibson, because I heard you say something earlier that made sense because this is what we did, if you remember, in the 1710 and 1755 band when the various carriers wanted

information, you know, from the industry -- or from the agencies, and that was negotiated NDAs -- negotiated and signed NDAs.

So you got your NDA and that might be a way forward. If we're talking about data that's FOIA exempt, that's FOUO, and -- primarily, then the NDA process seems to be the way to unlock that. And, you know, if you set up a set of guidelines for involvement here, whether it's under FACA or not can be a question, but it's one the -- like what we do with interaction with DISA, if we sign individual NDAs, so I'm bound by my operations working with DISA through an NDA that I signed personally, not that I've signed with -- not my company, so each industry representative that would want to be there would have to, you know, fall under a certain set of criteria, one of which would be a U.S. citizen; and, two, at least sign a personal NDA, and then really the only thing you're left is where you would have such meetings and how you would

handle classified data.

And if the situation with classified data is not that prevalent, then you could have some guidelines, and that being kind of where we were, I thought, with this current discussion, is the industry was going off and trying to find people with clearances. You know, you could present a discussion when the time is right, or -- well, probably not. But, you know, put whomever had clearances into the discussion if you're talking about classified data.

But, really, if all we're talking is FOUO data, it seems like sign the NDAs, getting a venue to discuss it, and then moving forward might be working.

MR. DOMBROWSKY: And this is Tom Dombrowsky. I just want to chime in with -- on top of what Mark just said. And I think my reaction to having sort of neutral third parties is -- I think that would be problematic from an industry perspective in

that they have folks that are going to have information of what the company is doing internally that they're not going to be sharing broadly. And they would be the only ones that would know that information. And that would factor into some of their analysis of these things, of how it would affect a particular company. So more towards an NDA type process or FOUA type of data would be, I think, a better approach at some level, at least for a portion of this work.

CO-CHAIR ROSSTON: So we have --

MR. TRAMONT: And I -- it's Bryan. I do think the procedural framework is as important as anything. So the timeline for getting people cleared, you know, some of the things that Kevin just touched on, how many people are generally going to be involved, but I think that Tom's point is -- I really agree with it strongly, which is a lot of these folks are going to need to have information they bring from their private sector

experience to bring it to bear in assessing what this looks like. So I think it is going to have to come on an ad hoc basis, probably band by band. But that the process and the timing, in particular, would really benefit from the kind of standardization that they you were talking about.

DR. KAHN: This is Kevin. Just one quick observation. You know I accept that there's company proprietary information that goes into this. But, you know, realistically there's one overriding thing that goes on here on the industry side which is that the industries typically, I would say almost universally, using standardized protocols. The government is not -- I mean, or if they are standardized, but they're standardized inside the DoD.

But you can argue that there are certainly different approaches to how somebody might decide to lay out an LTE deployment, but you're not going to get -- you know, it's

still LTE. So I am a little more skeptical about how much the company-specific information influences, ultimately, this, especially because at the end of the day the agreement has to be about utilizing the band for a kind of service well in advance of whenever an auction might take place that would decide who it is that actually is going to utilize that band.

So, you know, I do think that the problem we have here is much more about a standard that industry has decided upon and its ability to operate in the government context, in a sharing context, than it is about a particular company.

CO-CHAIR ROSSTON: Carl Povelites has the next question.

DR. KAHN: Finally we'll let Carl speak.

MR. POVELITES: Thank you, Brian.

MR. STRICKLING: Never thought being in the room would actually be --

MR. POVELITES: Yeah, would be a hindrance, golly.

I'm agreeing with Mark, Tom, and Bryan. And I guess my question is along -- you said that --

MR. STRICKLING: Not Kevin?

MR. POVELITES: Not Kevin, no, I don't ever agree with Kevin.

DR. KAHN: That's fine.

MR. POVELITES: The various entities had supplied names, so was the problem with that then the fact that there were not guidelines that were established? For example, being a U.S. citizen, and could then have gone forward if you did have guidelines and then those were followed and then you would have a trusted agent? Is that kind of what --

MR. NEBBIA: Well, certainly having agreed guidelines and a process like we've talked about here would certainly have moved that ball forward faster, because then

we wouldn't have gone through the iteration of they put forward names that weren't U.S. citizens and we had to back that out. I'm not exactly sure where that discussion is right now between DoD and the Commission, but they were working toward closure on that. So I think that's the direction that they're going to agree to. It's just nailing down these final names. I know they provided an updated set of names. I've just been on a plane and talking to you guys since they put it together.

MR. POVELITES: It seems to me that that would be -- that may be the model that you end up developing because once you get past this initial how-do-you-do-it, then that may be going forward you have something in place and those guidelines will be hopefully something that can move things along quickly.

MR. STRICKLING: Yeah. This is Larry. I'm hearing the sense of the

discussion so far is that the industry people would prefer to have their own people getting to see this stuff, if they can. That's preferable to either finding a contractor to do it or finding ten graybeards to become the oracles for all of industry on these matters.

Is that a fair statement of where people are at in terms of their preference?

MR. POVELITES: Yes.

MR. NEBBIA: And I certainly know -- this is Karl again -- on the 5 GHz --

MR. POVELITES: The other Karl.

MR. NEBBIA: The other Karl, sorry. Pass the baton there. On the 5 GHz wifi effort, the fact that some of the people participating in the discussions knew how quickly their devices could react to the inputs, move off channels, and so on, and there were actually some differences in technology approaches in that case, maybe we're not seeing that right now with LTE, but there were frame-based approaches and other

types of approaches as they were looking at that, so I think it was critical that people with hands-on knowledge were participating.

Interesting enough, I would consider the wifi community possibly less well-defined in terms of who's a limited number of folks you would be looking at, and yet they were able to reach agreement with DoD on a few people who went out and attended the tests, and so on.

So I think it is workable down that -- taking that approach. I think in this particular case we were taking somewhat of a new venture, weren't quite sure how many people were going to actually volunteer, but in fact we started off asking for a small list of names. And the list kept growing and growing. And then we made the announcement, we felt like we didn't want to put a stipulation saying that others could not volunteer, and that's how we jumped to where we are. But I think certainly the movement is

back in the other direction to see if we can't kind of get a more limited expert group.

But, as Kevin said, the big thing is how do we kind of institutionalize the concept and process for the future. It would be really nice if we were to have standardized NDAs that everybody knew ahead of time: This is what you're going to have to sign, and that sort of thing. A little bit like as we've gone through our process here in CSMAC, we now know what things that we have to ask from all of you, and that sort of thing.

So I think institutionalizing that would certainly be a big help.

CO-CHAIR FONTES: This is Brian Fontes. One of the things I think may be helpful is the committee chairs come together on a call and just try to pull together some key bullet points of what they would consider to be key elements to this type of an agreement.

You know, we've had, I think, a

very successful meeting so far, and that is the fact that we've got two reports approved and then we've had these discussions that lead us to this point where we are now is to recognize, and this is where I do agree with you, Kevin, is that we're going to be in an environment on a going-forward basis where there is going to be continued pressure, if you will, to share spectrum. And if we can work to get a process in place or a blueprint for a process in place that could be developed and utilized again and again, it may become more refined as it's used over time, but then I think it would help immensely in moving the opportunities to examine sharing.

And I know how frustrating it must be for the committees to continue to wait for information to come back. But that frustration itself is almost a learning process for this group. And I think that, you know, through that frustration we can come together and try to formulate a blueprint or

a plan to enable us to function more effectively and efficiently in a going-forward basis.

CO-CHAIR ROSSTON: Okay. Move on here to your bullet list.

MR. NEBBIA: So I guess one of the questions here is whether at some point we want to look to this group to provide that feedback. We've certainly had liaisons in each of the groups, and so on, that might help us come to some conclusion on how that works. It would probably be good for us to get past this next step of reaching this smaller group and see how well that produces, but we may want to ask the group to come back at some point and say this is what our input is. I do think we're going to be faced more and more with this.

CO-CHAIR ROSSTON: Michael.

MR. CALABRESE: Yeah. Michael Calabrese. We should also just keep in mind, I mean, this may have been somewhat alluded to

earlier, but also keep in mind there's sort of an in-between option perhaps to have -- you know, typically when we have our own subcommittees, they are strictly of CSMAC members, but we could perhaps -- you know, whereas, at the other extreme, these five working groups were set for the 1755 band have been almost all outsiders with, you know, CSMAC being, in a sense, facilitators and monitors and synthesizers. You know, an in-between thing that might be helpful in certain situations, is to have a CSMAC subcommittee that also involves some outside experts to advise us and to participate, but keeping it more within our framework and under our control rather than risking that we're just a rubberstamp for, you know, or -- or a laundering mechanism for some truly outside process.

DR. BORTH: So this is Dave Borth. We actually did this going back years ago now, it seems like, in the interference report that

Dave Donovan reported on last time. We actually brought in a number of people from outside as part of that report to get the additional inputs that we needed.

And, if you look carefully, they wrote sections of that report and then subsequently by us by the CSMAC members, but that came in that way. So it can work that way. It's a different mechanism.

MR. DOMBROWSKY: This is Tom Dombrowsky. I just wanted to chime in. I think the one thing we've heard from DoD is they have not been enamored of discussing things much at all through the CSMAC working group process because they think it's attached to CSMAC, therefore it's a public process, therefore they can't control the information. So just sort of a voice of what we heard from DoD in terms of that and what their concerns seemed to be.

So I think I certainly support the idea and I just think we need to ensure that

DoD is going to be participating to the extent we put together a framework.

CO-CHAIR FONTES: But I think that's part -- this is Brian -- I truly agree with you, Tom. I think it's important then. If there is the stress of this group, then what I've this group begins to formulate the process, the blueprint that I referred to earlier, that eventually will lead to a greater degree of trust and participation, if you will, by all parties.

CO-CHAIR ROSSTON: Karl.

MR. NEBBIA: Yes. What --

MR. REASER: This is Rick back here. I -- if only found a way it's possible to clear people, then you could solve that problem. I put together my own stack of executive folks, and I was able to get people clear that were just having criticism. I mean certainly the SCUs and all that. What I found out is that there's all sorts of avenues to get people cleared. The issue on clearance

for contractors is storage at their facilities and those kinds of things. If that's something that's ruled out, I mean just clearing the individual to participate in the thing, there is a lot of other kind of burden of things that go on with being a cleared Defense contractor or any contractor. Because remember Defense is not the only place that has security clearances. So what I want to say is I think it's possible to do something.

CO-CHAIR ROSSTON: So I think what we want to do is -- it seems like there is a possibility of when we get through this wave of the working groups, having a subcommittee of the CSMAC look into this and to develop a long-term framework, recommendations for how we might work together. And I think this has been a useful discussion. And I think we sort of move onto the next item on the agenda, but this has been really useful to give ideas about what to do.

MR. STRICKLING: I think that's a

great idea. This is Larry Strickling. I would hope that at the end of this we'll give everybody a chance to kind of think through the entire process and make suggestions for how we improve it. We've identified this as an important one that we need to solve, but we're going to be very interested in hearing every reaction to the whole operation and finding ways to improve it as we move forward to try and standardize it and institutionalize it.

CO-CHAIR ROSSTON: Thanks.

USE OF GENERAL OCCUPANCY MEASUREMENTS

MR. NEBBIA: Okay. Next topic we wanted to introduce is the use of general occupancy measurements. We have been looking at ways to understand how the government uses the radio spectrum. We've had a lot of conversations internal to this group about potential data access methods. And the question has come up again whether if we can't give data from the databases over in the

decision process, is there a way that spectrum occupancy measurements can be used to support the ongoing policymaking and decisionmaking processes in spectrum management.

It's obvious like we're doing right now in 1710 to 1755 -- or 1755 to 1850, excuse me, if you have a specific band you're looking at, you can go out and do occupancy measurements to help you resolve issues within that specific band. But if you're looking more broadly for where the opportunities are and what technologies you might want to develop, is there a place for, you know, more generalized spectrum occupancy measurements in this process. And how would we go about doing that, what would be the best approach to take in doing that.

And, on one hand, we've heard cases from a company in the U.K. that put monitoring devices, basically, in, I think it was, U.S. -- or taxi cabs in the U.K. And they drove around monitoring the signal levels

with these things in their trunks. And but I think they were pretty much limited to some of the broadcast bands, where you might expect to be able to measure by putting a box in a trunk and sticking -- or a boot, sorry, over there -- and sticking an omnidirectional antenna of some sort up out of the top of the car. That approach wouldn't necessarily work in a lot of the bands that the government uses.

I know that Mark McHenry, one of our members, has noted in the past, he's gone out and run measurements and not seen anything. But I don't really know how those measurements were taken and whether I would have expected to see something, using them. We're now measuring those same bands at 1755 to 1850 and, as stated earlier by Mark Gibson, they are seeing something, are recording something.

So I think the question is what -- you know, how can we use or should we use general occupancy measurements to inform

spectrum decision/policymaking.

MR. STRICKLING: This is Larry. I'd just add to Karl's statement that I think for today's discussion we're not interested in what's the right way to go collect the information, but I think it goes to Karl's threshold question which is is this useful to people. And then we can figure out how we might actually approach the problem. There's been a lot of interest in this inside the Administration. And there is a possibility there might be a small amount of money available in 2014 to do some pilots on this. And so we're just trying to think through what the goals of this exercise ought to be and how do we make sure that we are designing something that industry is going to find useful at the end of the day.

CO-CHAIR ROSSTON: Michael.

MR. CALABRESE: Yes, Michael Calabrese. You know I would certainly defer to -- on much of this to folks like members of

the Committee like Dennis Roberson, who's doing this all the time, obviously with his spectrum observatories; and Mark McHenry, who did one of the first such studies from our rooftop, actually, in Dupont Circle years ago, and brought some attention to the issue.

But, yes, I think it's really very, very important that we should find a way to do this. It just seems to provide such important information. I mean it dovetails perfectly, it seems, with the PCAST report and recommendations, because the PCAST is saying just -- this would be just one example, but it's a very good example, they're saying, well, there's this 1,000 MHz from 2.7 to 3.7 which is mostly federal use, seems to be mostly under utilized. But the PCAST really has no corroborating evidence on that, I mean other than to sort of put some citations and footnotes to Dennis's work and Mark's studies for National Science Foundation.

And so it would just really be,

you know, not only better to have more substantial information but also to have something that the government could feel confident, some data along these lines the government could feel confident in because they participated in doing the measurements.

And even if we just looked at 1,000 MHz like that, it would be very worthwhile, it could be designed maybe specifically to look for things that answer the criticisms of work that people like Mark and Dennis have done in terms of what we might be missing.

And I would think in terms of -- you know, Larry said don't get into all the mechanisms, but I know OFCOM has a lot of experience doing it through -- again, on a mobile basis through --

MR. POVELITES: That's what Karl was talking about, yes.

MR. CALABRESE: Yes. But then there's also -- you know, given that there's

government buildings everywhere, mounting antennas, that's the sort of thing I know Dennis has experience with, and it would seem like it would be marginal cost, considering both -- you know, when you combine the -- that you have the sites with WiFi, to aggregate the data, it seems really worth exploring.

DR. KAHN: This is Kevin. I think it would be particularly interesting if you could get that now in a credible way, then have the particular resources to bang it against your allocations and whatnot internally that are not public and ask the question, well, you know, on the one hand, we think there's lots of folks in the government who have said they're using it, but the data sort of suggests that there's a lot of folks not using it, and where does it disconnect.

I mean because, again, I come back to this from a trust perspective, right. I mean in a situation where there's this anecdotal information that floats around in

the open community about, wow, you know, there's all this government spectrum nobody's using it, but you go out and measure it. You know, when you bang that against, well, and we can't really say anything about it, it creates that sort of assumption of distrust, oh, well, they're just not willing to tell us.

Whereas if you do something a little more structured and then do the kind of back-end analysis, yes, okay, you're not saying this place subband, but, yes, there really are things there and you just can't see them because of characteristics about when they're in use, but they need to be in use at any time, et cetera, so don't look there. We've verified that there's really stuff there, but, you know, oh, this other stuff. Yes, you know, you may be right. You know, you could get a little more open dialog, which would improve, I think, the -- I don't know, the way in which people approach the question, I guess.

CO-CHAIR ROSSTON: This is Greg Rosston. So I like the idea of finding out what people are doing with the spectrum, but, as an economist, one of the key questions is what's the value of their use of the spectrum. So we might have channel 34 is using television all day long and it's doing home shopping that is not very valuable, but it's broadcasting 24 hours a day. And we don't know, you know, hey, that's not worth very much, but it's being used a lot. And other stuff may be not be used very often, but when it needs to be used it's extremely valuable because it's protecting homeland security, or something like that.

So we want to make sure that we don't just focus on general occupancy measurements, but we look at what's the value of the use and the need for priority of use --

MR. STRICKLING: So we'll wait for you economists to design a measurement tool that will capture that.

CO-CHAIR ROSSTON: It's called an auction.

(Laughter.)

CO-CHAIR ROSSTON: Yes, we designed it. It's no problem; it's the market.

DR. KAHN: It's great when --

MR. GIBSON: This is -- this is Mark Gibson --

DR. KAHN: -- that are sitting on a channel just so they get bus-carry rights.

CO-CHAIR FONTES: This is Kevin talking.

Go ahead, Mark.

MR. GIBSON: Yes. I would add to what Greg just said and say that that's what we're finding with the measurements we're doing now, is that the -- you know, for example, the HTT systems, the time of occupancy may not be long, but we've heard from, in no uncertain terms, from the owners of those equities that they need it when they

have it.

I would also add, I know what Larry said about not wanting to dig into a methodology, but in order to get meaningful results you need to do it over a sufficiently long period of time and a sufficiently diverse area. I know Dennis has the observatory and it's a couple of pretty high sites, and they're very telling. But you might go and look at the DARPA last summer had a solicitation called radio map where they tried to deal with this issue on a realtime basis looking at how you would use measured data in an urban environment to identify where things are operating. And the idea would be to take measured data through a distributed network and then use a bunch of informational resources, including databases and spectrum analysis and spectrum signatures, to identify what is operating, the operational parameters, and essentially sort of add value to the database that you may already have.

So those are some key things to think about. The CRFS work that they're doing which is, by the way, the gear that we're using for the monitoring effort for the stuff we're doing now, they put it in several types of vehicles. And you can see the results and they're very telling, but he also indicated they were only over a short period of time. I think it was several months. And so in order to really get a good correlation to any sort of anomalous check, you want to make sure you do it over a long period of time.

MR. NEBBIA: So, Mark, one of the things from my standpoint I think presents some issues is that there are certain types of systems that, for instance, the aeronautical telemetry operations, for which the people that do it are using a specifically-designed, high-gain antenna to get the data back from long distances away. They know where the aircraft are, so they're actually directly tracking them and then able to pull that data

down.

How do you see something like that being -- you know, those types of operations being reflected in some sort of general occupancy measurement?

MR. GIBSON: Well, you know that's the problem I think with the details versus the concept. The situation with AMT is the -- and this is sort of trying to correlate with what receive in terms of energy to how you can transmit in that energy in that space. And with AMT what you have is a tracking, high-gain tracking antenna, and the AMT community is worried about when that antenna is pointing toward the ground for aircraft fairly far away. You have to try reverse or reciprocal considerations, I mean which is part of the analysis, but what it means is that you need to know a little bit more about what you're seeing there. And so I think it speaks to what you need to put together in terms of a test plan with specifically what you're trying

to find out, because no one will disagree that just a bunch of waterfall curves without anything telling you what they're doing is not going to be very helpful.

DR. KAHN: Well, this is Kevin. That's why I said, you know, whatever you get out of occupancy you then have to bang back against the known allocations that exist in order to, you know, have a real understanding of what -- are you seeing no occupancy because you're not looking in the right way or because the occupancy is intermittent but incredibly important or are you seeing no occupancy because somebody's got an allocation they're just not using.

MR. DOMBROWSKY: Karl, this is Tom Dombrowsky again. At ISART last summer ITS presented a number of data, of amount of data that they had been monitoring different bands. And, I don't know, they said they had to do some back-channel checking with the parties and all that to sort of determine if that

measurement data was useful or not useful, but I just know we haven't heard more about that process. And maybe that's at least a first step in this direction too.

MR. NEBBIA: Well, I mean certainly ITS over the years has done a good number of general occupancy measurements. They in the past have been used to determine in the federal land mobile bands what the occupancy levels were on major events like the inauguration. But even in that case you're still talking about a fairly small band. They're looking for specific kinds of systems.

The broader the measurement goes the bigger the challenge is in creating a measurement system that will see what you want to see in each of the bands that it scans through. And, as Mark knows, the longer you look the better or more complete your results are going to be.

But ITS does have some real experience in doing specific radar-oriented

measurements. And I think a part of what was interesting in the work that they showed at ISART last year is that they actually measured some of the radar spectrum above 3.1 GHz in the San Diego area and they actually saw the Navy ships coming into port on the basis of their radar operations. And these are some of the radars that we would be dealing with at 3.5 to 3.6 GHz through this next rulemaking effort.

So they do have some specifics there, but I can guarantee you that the approach they take to measuring those ranges is quite different than what you would use in a broadcast band or a land mobile band, but they do have a lot of experience there.

MS. OBUCHOWSKI: Can I ask you, Karl -- can you hear me? I don't know if --

MR. NEBBIA: Is that Janice?

MS. OBUCHOWSKI: Janice.

MR. NEBBIA: Oh, yes. Yes.

CO-CHAIR FONTES: Yes, we can hear

you.

MR. NEBBIA: We recognize you.

MS. OBUCHOWSKI: Can I ask you, Karl, how you would -- what are the limits of that occupancy deliberations? Because if you look at the way the table of allocations works, of course it reflects when government has that option to use the spectrum. And I guess part of it is the -- we've already covered in the discussion that if you use a long enough period you get some really more relevant data.

But I have to say I think there are some pretty material limits to this discussion given the kinds of services that are allocated. You know I've heard a lot of commentary at this meeting about sort of people's skepticism about the government. I've seen a lot of cheap shots in the press that don't have a whole lot to do with data or not. It's just a point of view that resonates in the public policy environment. And I'd be

concerned with this particular work if that's the way it actually played out.

MR. NEBBIA: Well, I think certainly from our standpoint, if we were to be involved in it we would be specifically trying to ensure that the kinds of things the government does were reflected accurately. I think if you get a group out there that's strictly looking for openings in the spectrum, they will find them by not looking in the right direction. So I do think we're looking for ways that we can agree together to do general occupancy type measurements and what value there would be.

I know at times people have asked me, well, what would you do if you were measuring a government band and you get this data, what would be the releasability of that information, and I think that's something that would have to be looked at. But we, at the same time, have to recognize that if anybody had the same equipment, they could go out --

DR. KAHN: Yes.

MR. NEBBIA: -- and run those measurements and provide the measured information anyway. So, in fact, right now we did spend quite a bit of time working with industry and government together on the 1755 to 1850 band, but certainly a company could have gone outside any of these locations and set up equipment and tried monitoring. Hopefully, because I think of the dialog that's gone on, the monitoring will prove better and provide better results. But I think the key here is, Janice, we've been looking for a direction to go that we think would support accurate reflection and reporting of the use. Certainly we would have to deal with whether those measurements reflected things that shouldn't be made public. I think we'd have to wrestle with how that's done.

CO-CHAIR ROSSTON: Okay. Karl, do you want to --

MR. NEBBIA: Okay. So we'll be looking for more input over time. I know Dennis wasn't able to be on today, I think as I recall the list we went through, and I know he's got a lot of experience. So we'll probably be coming back to this as a subject to help us work through that.

PROVIDING GOVERNMENT GREATER FLEXIBILITY AND MORE OPTIONS THROUGH ACCESS TO NONFEDERAL BANDS

MR. NEBBIA: The next item I wanted to talk about is, and this is of great interest to the federal agencies, they are indicating that as we look to share more, as we look to give commercial entities greater access to bands that the federal government is operating in, they also would like greater flexibility to look in the opposite direction. So I thought this would be a subject that all of you could agree to and that you think this is a good idea, we should write a recommendation here today, and move this idea

forward.

But I'm interested in your initial thoughts on that idea. They felt like there was at least some upfront material in the PCAST report that said while we're looking at federal bands in this report, but there's no reason why it couldn't be applied in another direction. So we're kind of interested in your thoughts on that.

DR. KAHN: This is Kevin. I would be thrilled to see the federal government use more commercial systems --

MR. NEBBIA: That's a slightly different subject, Kevin.

DR. KAHN: Well, but -- well, not -- yes and no. I mean in the unlicensed case, that means utilizing unlicensed technology off the shelf to accomplish their mission. And I think there are a lot of places where, in fact, the government should be more actively looking at utilizing that sort of thing. And that is not a question of cutting a contract

with Verizon or somebody to use cell services, which is a separate issue, but it is the case that there's some very highly developed and very cheap technology available in the unlicensed world that provides a lot of very good short-range broadband coverage, and I think more use of that would put the unlicensed folks and the government users and unlicensed folk on the same side of some of these, which would be terrific.

I also think that in the commercial services side that either building compatible systems, you know, you had another operator or better utilizing commercial services is actually a very effective way to get what I call mundane traffic off of special allocations. And I think a lot of what we think of as public-safety kind of stuff is to a large degree mundane traffic if it's handled in the right prioritized way, so.

MR. TRAMONT: This is Bryan. Following up on Kevin's not directly

responsive but some interesting observations about this problem category, you know I think that one thing I'd be really interested in exploring is is there a way to look at ways in which the commercial spectrum option is a lower cost alternative for the federal government users to solve their mission-critical needs, including potentially as a lessee for a commercial-government system. So we've gone through a lot of that process around the OMB Circular A-11 process in trying to incorporate the costs of spectrum as a raw material into this, is there a way to allow the federal users to have access to funds that would allow them to do leases, as the commercial guys do, or commercial spectrum use for their individual systems that could take advantage of some of the scale economies that Kevin just pointed out.

This is the same kind of flexibility I think that the commercial guys would like to see on the federal government

use, situations where they might be able to lease. And we -- I think both institutions, the FCC and NTIA and the federal government should look at whether or not the current system of spectrum allocation and service rules unduly limit the ability for spectrum to flow in both directions. Because I think in a lot of cases we've had real hits, regulatory barriers to that kind of efficient exchange between federal government users and commercial users to ensure that both get the most out of this.

So I think there's some interesting barriers to this process that should really be explored on both sides that could actually really facilitate more efficient spectrum use by each.

MS. OBUCHOWSKI: I would support what Bryan says. And as we're looking at an era of tighter budgets, certainly on the government side, everything from commercial space to LTE to unlicensed, there's no reason

why those systems that are built originally with an eye to the commercial domain could not offer up their economies of scale also to the federal user. So it's a worthy topic.

CO-CHAIR ROSSTON: Michael Calabrese.

MR. CALABRESE: Yes, Michael Calabrese. Yes, I agree it's an important topic, to see how this could, you know this sharing of under-utilized spectrum bands could run both directions, because it seems that there's a number of upsides, one being to the extent that certain spectrum that's not being used could serve a federal purpose, then there's not more federal spectrum being occupied. And it may make some of these reallocations or other sharing more feasible.

It also can create a virtuous cycle, I mean I think in relation to what Kevin said, it could be that sharing on a commercial band could lead to using more commercial equipment and systems. And I

mention this as a perhaps mundane example but it's maybe part of this, in the comments we filed just yesterday with the FCC on the 3550 and 3650 band, the PCAST short-term recommendation, one of the things they were asking about the priority access tier and who should be eligible for that. They talk about mission-critical uses, and they asked should the federal government be able to get interference protection for their own indoor uses. We said yes, you know, emphatically, let federal agencies get priority access for indoor use, because, for one thing, what that would do is that would give them access to this off-the-shelf equipment that's developed for the commercial small cell industry that we hope would develop on this band and it would hopefully encourage more spectrum sharing on the federal side because they would be realizing some of the benefits of developing these shared-band relationships.

So, yes, I think it's a promising

area of study.

MR. NEBBIA: Well, I mean one of the areas that the agencies have specifically shown interest in is that there's a number of locations around the country where at least to their report there's not much service being provided. And they would like to be able to do either electronic warfare type testing, as we talked about before, or they would like to be able to provide their own internal network and operate in those facilities.

In some cases maybe even using the same kind of equipment that's used in the commercial world, so you might be able to operate on the large training facility or test facility using this technology. And as you're driving off the base, you pick up the commercial network and you continue on. That would require some kind of handshakes between those networks, but one of the things they meet with now is that of course the Commission has essentially licensed or auctioned the

entire country. And every time they want to make use of what appears to them to be completely unused, they're told, please ante up some money. We purchased that. It's ours and you shouldn't be -- even though we're not using it at all, you shouldn't be using it unless you're willing to pay us something, so --

MR. CALABRESE: Well, this is Carl. I think there are discussions ongoing consistently with various sites on how they use that spectrum efficiently and use it at all. And I just caution oftentimes the ability to provide service is somewhat hung up by the ability to put up towers and everything else to serve that area. And so as long as -- that has to be part of the discussion too, is how do you make sure that the licensee is able to put up facilities that they need to serve better.

DR. KAHN: But -- this is Kevin. That's part of what I was trying to refer to

when I first commented on this, was that there are large tracts of the U.S. that are not particularly served by commercial operators because there's no commercial motivation to serve most of that space. And if the government has a need to be providing communication services for its own purposes in those tracts, I think it would be in fact terrific if they adopted commercial standards and were able to figure out the licensing issues to run their own essentially equivalent network in those spaces and hopefully with the kind of hand-off contracts and agreements that would allow that to make sense, not just because it would provide the government with cheaper equipment, because they're using equipment that's being bought by the masses, but because it would also mean that that motorist who wound up someplace in the middle of a national park because he followed a broken GPS, would suddenly discover that when he picked up his cellphone, that there

actually was a network out there that he could tap into in a bizarre way because the National Park Service or somebody was running some coverage out there.

I mean I think there are collateral benefits, is what I'm saying, to getting as many people as possible on common communication systems, where that makes sense. And I would think it would be great if the government was interested in trying to do that kind of thing.

Now obviously there's issues with, you know, who owns the spectrum or has the rights to the spectrum and what kind of commercial agreements have to be made, but I would hate to see a requirement to further lease the very spectrum back be the blockade to that. I mean I think that would be a mistake if it's not being utilized.

MR. SUGRUE: Hello. This is Tom Sugrue. I mean maybe there would be mechanisms for us to trade our unused for the

federal government's unused. And if they match up geographically, if there's some legal ability to do that, then there could be some deals that could be made.

CO-CHAIR FONTES: That's an option.

MR. NEBBIA: Got some cold, hard cash here today, Tom, and work a deal.

(Laughter.)

MR. SUGRUE: We've been trying for years to give you some cold, hard cash, and you --

MR. NEBBIA: I know. You know we're not allowed to take it, so.

CO-CHAIR ROSSTON: But we did have coffee and pastries.

FCC - TECHNOLOGICAL ADVISORY COUNCIL

WHITE PAPER - INTERFERENCE LIMITS POLICY

MR. NEBBIA: Okay. One last subject I wanted to raise, just ask for any thoughts that the committee had on the FCC's white paper coming out of the TAC dealing with

receiver standards and so on.

DR. KAHN: Where's Dale when you need him.

MR. NEBBIA: Yes, where is Dale today.

MS. OBUCHOWSKI: Well, I wanted to just generally compliment, I have to say I'm not tremendously knowledgeable about the white paper, but I think the TAC in general has been doing very good work to advance the cause and has kept it very substantive and in a lot of different directions. So at some point it might be good to have our committee briefed by the TAC and vice-versa.

DR. KAHN: There's a number of folk involved there. There's some common faces we see.

MR. NEBBIA: Okay. Certainly one of the challenges I see in trying to -- I mean certainly it seemed to me to be oriented around a little bit more of a voluntary approach where people came to understand what

the receiver characteristics needed to look like in order to get protected. Maybe that sort of approach. And if you chose not to live within that structure, then you went forward, but you just didn't get protected in the operation you have.

I think one of the challenges of course is system by system that tends to vary and therefore you have to go through that determination over and over again. I know we've had some discussions before on the challenge of trying to determine what constitutes harmful interference for any particular operation. And that's been very difficult to do given all the different types of systems, all different types of operations.

So any other thoughts?

MS. OBUCHOWSKI: Karl, I have one more topic I wanted to raise as a possible -- I don't know if it would be -- well, it is a discussion point going forward. One of the issues that is going to be chronic going

forward of course is the budget. And much of the research -- or much of the work the government gets to do for clearing is tied to auction revenues.

And, as you know, I think there is a statutory problem that a lot of this just gets freed once the auction has been had. I think we've discussed this before at the CSMAC. I'd like to see the CSMAC, and it's really not a technical question, but maybe request some input from OMB as well as companies as to how can the government get some funding for the technical work associated with some of these good, new ideas.

And one of the categories of course is unlicensed, the 5 GHz, as the press would have it, typically victory is declared before the studies are done. I believe my issue in this 2003, I'm happy to see how much good is happening in that band, but it's not without complexity, and yet that research, I don't think, you know, gets funded -- I mean

it doesn't get funded out of any extraordinary commercial sums, that's for sure. So I'd just like to table that, because going forward money will be scarce all around.

MR. NEBBIA: Well --

MS. OBUCHOWSKI: You can only have so many Ed Drocellas, who probably cloned himself. They're like -- he does the work of ten. But we need a lot of technical work to get this job done going forward, and I'm not sure that it can be tied exclusively to auctions that are successful.

MR. NEBBIA: Right. Certainly the change in the law did not incorporate funding for agencies to deal with sharing if it wasn't tied to an auction. So in that way if we were creating a band like at 5 GHz where we're going to potentially increase the use of unlicensed, there wasn't a mechanism included in the law that would, in the end, reimburse agencies for the amount of work they did in sharing and follow-up work once the changes

are made.

And on the side where there are auctions going to be present, of course there is not an ability to get the money up front at least until there is a transition plan in place, I think is the way it's linked in the law right now. So in that I think we had some discussion on last time.

Neither of those is really kind of an open priming of the pump in terms of research. They're certainly set up for when you're really focused on what answers you're getting and how -- what you're going to use a specific band for. They're not an open opportunity for research. And I think some of the members before had referred to a spectrum innovation fund concept that was raised here earlier. And I think our current construct is not that. It's not oriented toward stimulating new research.

MS. OBUCHOWSKI: Well, I'd like to just put on the table as a possible topic

going forward getting some input on possible ways to fund some of this forward-looking. And some of it's radical innovation. Some of it is simply hard number crunching, but it's costly. And some of that -- you see that in what's going to have to happen now in the 5 GHz band. We know the direction that the government wants to go in with unlicensed, but we don't know how far it can go. And a lot of testing's going to have to happen, and I don't think any of that's funded.

So, anyway, I'd like to put that on the table. And there are a probably a variety of scenarios. And I know that was one that was raised, is spectrum innovation fund. There may be others.

MR. NEBBIA: Well, I hear by March 1st everything's going to be resolved on the budget, so we may not have to come back to this.

(Laughter.)

CO-CHAIR ROSSTON: Okay. I'm not

used to getting back on schedule in this direction, but I think we got back on schedule.

MR. NEBBIA: Yes, sir. I knew we had more to talk about than we had time for.

CO-CHAIR ROSSTON: As Pepper talks about the FCC commissioners being like a gas, they fill to expand the time that is available to them, we seem to have done that as well.

Anyway, the opportunity for public comment -- or, first, anyone else from the Committee want to say anything?

MR. SNIDER: Hello.

CO-CHAIR ROSSTON: Yes.

MR. SNIDER: Jim Snider.

CO-CHAIR ROSSTON: Jim, just a second.

Is there anyone on the Committee who would like to make a final comment before we go to the public comment?

(No audible response.)

OPPORTUNITY FOR PUBLIC COMMENT

CO-CHAIR ROSSTON: Okay. Jim, if you have a short and pertinent-to-our-discussion-of-today that would be great.

MR. SNIDER: Yes. Well, one is on the second Working Group Report. I didn't see it online and I was wondering what was approved today, as I understand, what is the plan for making it available?

CO-CHAIR ROSSTON: It is online, and it's on the CSMAC website. I know because I pulled it down yesterday. So I think you can find it online.

MR. NEBBIA: It was presented as a meeting document for the last meeting, Jim.

MR. SNIDER: Yes, I don't see it on this meeting website. That's what I'm -- is it on the current website? I'm looking for today's meeting and I see the final report for Working Group 1, I see a Status Report for Working Group 3, but I don't see the final approved report for Working Group 2. So you're saying it's somewhere else?

MR. NEBBIA: It was presented at last month's meeting, so that's where it's located.

MR. SNIDER: Okay, fine.

CO-CHAIR ROSSTON: It was presented at the last month's meeting.

MR. SNIDER: And then I have another question. Larry made the comment that he would welcome comments to improve the process. And I think a more welcoming environment for members of the public, a little less intimidation, I think the public participation speaks for itself, but that's my recommendation. You can laugh at, ridicule it, whatever you want, but if you do want public participation, it's harmful if you ridicule it and there's also a culture of intimidation and also on occasion not following the spirit and the letter of the FOIA and the FACA laws, which is a problem if you do want to encourage meaningful public participation.

CO-CHAIR ROSSTON: So, Jim, --

MR. SNIDER: Those are my comments.

CO-CHAIR ROSSTON: Thank you very much. I do want to say that these working groups seem to have had incredible public participation. And we welcome that public participation and want to do that. And we think it's an important piece of this.

Okay. Is there other public comments?

Yes, we have someone in the room. Yes. You want to come over closer so we can all hear you. That would be great. Thank you.

MR. NEBBIA: And please give your --

CO-CHAIR ROSSTON: Identify yourself as well.

MR. SIMMEN: I'm Robert Simmen. I have a three-minute statement that may apply to the discussion of trusted agent.

CO-CHAIR ROSSTON: Okay.

MR. SIMMEN: It's a prepared statement and I have hard copy for the Committee.

CO-CHAIR ROSSTON: Okay.

MR. SIMMEN: I'm Robert Simmen, president of I3 Corporation, a small business defense contractor and former regional director of the Association of Old Crows, AOC.

I've been authorized by the AOC's national leadership, led by retired Lieutenant General Robert Elder, to represent the AOC at today's meeting of the CSMAC. The AOC is a 501(c) not-for-profit organization that has over 11,000 members here in the United States, plus thousands more worldwide. We are the industrial designers, manufacturers, and military users of electronic warfare systems. We believe in maintaining a national defense with a special focus on control and exploitation of the electromagnetic spectrum. And we have conducted several studies in the

past utilizing classified information that has provided general distribution to both government and industry.

Our message here today for the CSMAC is threefold as follows:

Firstly, once a band of frequencies in the RF spectrum, such as the 1755-1850 is reallocated, rarely if ever will our warfighters be given those frequencies back for training, testing, and so forth. The irreversible nature of the proposed reallocation needs to be kept in mind.

Secondly, sharing of this frequency band with commercial private enterprise, while not impossible, will require some sort of command and control process, and monitoring and notification capabilities that will require resource investments by both the government users and private commercial firms. We understand that close to $100 million has been appropriated for DISA to enhance the capabilities that could in part, but not all,

be part of a potential solution. For example, Spectrum Twenty-One Online and Spectrum Technology Tested Initiative, or STTI. This would enable working sharing of the 1755 to 1850 MHz band.

We in the AOC take spectrum management seriously because of its integral nature to effective electronic warfare and would be happy to facilitate linking to the CSMAC working groups with experts in this area from industry, government, and academia, with classified clearance availability, who could help make sharing of the 1755 to 1850 band a workable reality. We understand that due to the recent discussion to change to using real-world data, the timeline for Working Group 3's final report has been extended and so this may be an opportune time to add more intellectual horsepower to the problem set.

Third, my final comment is that we in the AOC represent a vast storehouse of intellectual capital in the field of

electronic warfare and, more broadly, electromagnetic spectrum concerns with members drawn worldwide from the military, government, industry, and academia. We hope that NTIA's CSMAC will leverage this intellectual capital in future CSMAC deliberations and working group efforts.

I would be happy to provide appropriate contact information with our national headquarters in Washington, if requested. Thank you very much.

CO-CHAIR ROSSTON: Thank you very much.

MR. NEBBIA: One quick question.

CO-CHAIR ROSSTON: Yes, we have a question.

MR. NEBBIA: Have any of your people actually been involved in the working groups to this point? I mean they're certainly open to them.

MR. SIMMEN: Not to my personal knowledge. I would have to refer you to our

headquarters staff, who suggested that I attend this meeting.

DR. BORTH: Just along those lines, there's probably some members of the Committee that have actually been to this particular area. Many years ago I worked for a company out in this area called -- and Company, which was very much in this arena, and I work in that arena. So there is some basis for this probably, although it may not be, you know, number one on somebody's r,sum,, but it is there.

CO-CHAIR FONTES: Great.

MS. OBUCHOWSKI: Well, I'd like to thank you, sir, for that comment. It's always hard to sort of draw -- you know, we shouldn't be drawing lines between spectrum management, in some ways, and electronic warfare. They're different sets of disciplines that are very interrelated. And it does sometimes interest me, and you guys have heard me say this before, sometimes people take these shots at

DoD about being discreet with its data, whereas we know there's a nationwide problem with cyber theft and it's on the front pages. Well, you know some of these issues are somewhat aligned. And the same people that might be strategically coming after our networks also appreciate that the wireless networks are very good ways to bring this country to its knees. And I do appreciate the Old Crows because they've been at the vanguard of sort of highlighting that issue.

MR. SIMMEN: Thank you.

CO-CHAIR ROSSTON: Thank you very much. Are there any other public comments?

MR. REASER: This is Rick. I just wanted to say I will be -- I'm the Working Group 3 liaison, or one of them. I would love to have the AOC come and talk at our next meeting. If that could be arranged, I think that would be very welcome.

CO-CHAIR ROSSTON: So Karl has the contact --

MR. NEBBIA: So we'll get you guys in touch with each other.

CO-CHAIR ROSSTON: Yes, Karl has the contact information. So I think we can do that.

Thank you very much.

MR. SIMMEN: Thank you.

CO-CHAIR ROSSTON: Okay. Unless there is anything else, I think we can stand adjourned. Thank you.

CO-CHAIR FONTES: Thank you, everyone.

(Whereupon, the above-entitled matter went off the record at 11:59 a.m.)

C E R T I F I C A T E

This is to certify that the foregoing transcript

In the matter of: Commerce Spectrum Management Advisory Committee Meeting

Before: US DOC

Date: 02-21-13

Place: Stanford, CA

was duly recorded and accurately transcribed under my direction; further, that said transcript is a true and accurate record of the proceedings.

Neal R Gross

Court Reporter