UNITED STATES OF AMERICA
DEPARTMENT OF COMMERCE

NATIONAL TELECOMMUNICATIONS AND
INFORMATION ADMINISTRATION

COMMERCE SPECTRUM MANAGEMENT
ADVISORY COMMITTEE MEETING

WEDNESDAY
MAY 25, 2011

The meeting convened in Room 6059 of the U.S. Department of Commerce, Herbert C. Hoover Building, 1401 Constitution Avenue, N.W., Washington, D.C., at 9:00 a.m., Brian Fontes and Gregory Rosston, Co-Chairs, presiding.

PRESENT:

BRIAN FONTES, Co-Chair
GREGORY ROSSTON, Co-Chair
LARRY ALDER, Member
DAVID E. BORTH, Member
MICHAEL C. CALABRESE, Member
THOMAS S. DOMBROWSKY, Member
DAVID L. DONOVAN, Member*
MARGARET FELDMAN, Member*
HAROLD FURCHTGOTT-ROTH, Member
H. MARK GIBSON, Member
DALE N. HATFIELD, Member*
DOUG McGINNIS, Member
MARK A. McHENRY, Member
THE HONORABLE JANICE OBUCHOWSKI, Member
ROBERT PEPPER, Member*
CARL POVELITES, Member
RICHARD REASER, JR., Member*
CHARLES M. RUSH, Member
DANIEL DEAN STANCIL, Member*
TOM SUGRUE, Member
BRIAN TRAMONT, ESQ., Member
JENNIFER WARREN, Member

*(Participating via teleconference)
ALSO PRESENT:

BRUCE WASHINGTON, Designated Federal Official
KARL NEBBIA, Associate Administrator, NTIA, Office of Spectrum Management
LARRY STRICKLING, Assistant Secretary of Commerce for Communications and Information

C-O-N-T-E-N-T-S

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

(8:59 a.m.)

Mr. Strickling: Good morning. I think we'll get started close to on time.

Welcome to our new luxurious quarters. We've been, what, Bruce, I think through two or three different rooms to finally lock in on a room here. Hopefully, at future meetings we'll be back down in our usual quarters on the fourth floor.

Other changes that I'm sure you've noticed, in addition to the fact that we can't get the climate control set at a reasonable range, the Department of Commerce now no longer allows food in conference rooms, so those of you who are counting on your breakfast coffee and muffin, I apologize. We couldn't provide that to you today.

And the department has also stopped providing video streaming, so when we saw the $6,000 price tag of the GSA-approved contractor to do it, for this meeting, at least, we have chosen to forego that.

But, nonetheless, welcome to the new and approved Spectrum Advisory Committee. And I'm certainly pleased -- we have a terrific group of folks, both those of you who have served in the past

and agreed to continue on, as well as all the new folks that have come on board, and we'll go around and have everybody introduce themselves in a little bit.

But I want to introduce, first, somebody who I think you've all gotten to at least talk to on the phone, if not meet in person, and that's Bruce Washington.

Mr. Washington: Good morning.

Mr. Strickling: Bruce is our new Chief of Staff in the Office of Spectrum Management, and one of the perks for taking that position was to become the Designated Federal Official for this Committee.

Bruce has 25 years of service in the U.S. Army and Army Reserve. He previously was at the Department of Energy. He has a long background in spectrum assignment work, both in the Army and when he was in the Signal Corps and at the Department of Energy. So, he's a terrific addition to our Spectrum Management Team, and we welcome him here today, and all of you.

If you haven't gotten to know him, please make sure you take the time to chat with Bruce.

I also want to introduce our two new co-chairs, who are well-known to those of you who have been -- certainly been on the Committee and probably well-known to all of you in the industry, and that's Greg Rosston and Brian Fontes.

I guess -- do I have to call you both "Doctor" -- Rosston and Dr. Fontes?

But Brian, of course, is CEO at the National Emergency Number Association, but has a long background in spectrum work, a previous ambassador to the work.

Do we have to call you "Ambassador" and "Doctor"? Doctor Ambassador?

Dr. Fontes: "The Honorable."

Mr. Strickling: The Honorable.

(Laughter.)

And Greg, I think as everyone knows, is Deputy Director of the Stanford Institute for Economic Policy Research.

So, we think we've got a terrific team of co-chairs. They've got big shoes to fill with, you know, coming in behind Bryan Tramont and Dale Hatfield, both of whom have agreed to continue on on the Committee. But no second-guessing from you guys for the new chairs. But they'll -- I'm sure they'll

be glad to help out wherever needed.

Our focus for this term, this next two-year term of the Committee -- Karl will go into a much greater depth, but we did want to make a particular focus here to find a way to really line up the work of this group in support of our overall Search for the 500 MHz, pursuant to the President's Executive Memorandum of last year.

So, when we get into the projects and the subcommittees, you'll see that we have a very much a focus on how to support that effort, and what are the key issues in terms of industry and government, in terms of how we work together to find ways to reallocate this spectrum for commercial use.

So, in that regard, in adding members to the Committee, we focus very much on folks with technical expertise, folks who would understand particular industry issues as they relate to the -- some of the sharing issues that we're going to have as we work with particular bands.

So, I'm very, very happy with the team that we've assembled and, with no further ado, I guess I would like to turn it over to our co-chairs and proceed to the ceremonial introduction of new

members.

Dr. Fontes: Great. Thank you. Thank you very much, Larry. Great.

I think we both decided it's best just to go around the table first and just introduce ourselves and who we represent, so that we'll be able to put names and faces together.

And so --

Dr. Rosston: I'm Greg Rosston. I'm from Stanford, and I'm already introduced, so I'll turn it to Karl.

Mr. Nebbia: I'm Karl Nebbia. I'm the Associate Administrator of the Office of Spectrum Management here at NTIA.

Dr. Borth: I'm Dave Borth. I was formerly with Motorola for the past 30 years and I retired from there, and I'm currently an independent consultant in the technology area.

Ms. Feldman: Molly Feldman. I'm with Verizon Wireless. My team does mergers and acquisitions, including the spectrum acquisitions.

Mr. Povelites: Carl Povelites, AT&T, Assistant Vice President of public policy.

Mr. Rush: I'm Charlie Rush, independent consultant.

Ms. Obuchowski: Janice Obuchowski, FTI, formerly of NTIA.

Mr. Sugrue: I'm Tom Sugrue with T-Mobile, U.S., heading up the Government Relations Department. I worked with Janice in NTIA and Charlie Rush who was our chief scientist.

Mr. Gibson: I'm Mark Gibson, and I work for Comsearch.

Ms. Warren: Jennifer Warren with Lockheed Martin.

Mr. Reaser: Rick Reaser from Raytheon.

Mr. Tramont: Bryan Tramont, Wilkinson-Barker.

Dr. Mchenry: I'm Mark McHenry, with Shared Spectrum.

Dr. Furchtgott-Roth: Harold Furchtgott-Roth, with Furchtgott-Roth Economics.

Mr. Dombrowsky: Tom Dombrowsky with Wiley Rein.

Mr. Alder: Larry Alder with Google.

Mr. Mcginnis: Doug McGinnis, Exelon, a utility for power delivery to Philadelphia.

Dr. Fontes: Let's find out who is on the phone right now.

Mr. Donovan: David Donovan from MSTV and soon-to-be President of the New York State Broadcasters' Association.

Mr. Hatfield: Dale Hatfield, University of Colorado.

Mr. Stancil: Dan Stancil, North Carolina State University.

Dr. Fontes: Anyone else?

I'd also just like to, just so everybody knows who's in the room, it would be nice if we could just run around the periphery here and introduce ourselves so that we know who's here.

Ms. Creaser: I'm Michelle Creaser, Lockheed-Martin.

Mr. Marks: Jeff Marks, Alcatel-Lucent.

Dr. Fontes: I'm sorry, can you speak up? The court reporter can't hear you.

Ms. Creaser: Michelle Creaser, Lockheed-Martin.

Mr. Marks: Jeff Marks, Alcatel-Lucent.

Mr. Hirsch: Bob Hirsch, Alcatel-Lucent.

Ms. Rath: Charla Rath, Verizon.

Mr. Sharkey: Steve Sharkey, T-Mobile.

Ms. Allison: Audrey Allison, Boeing.

Ms. Gresham: Mary Gresham, MTO.

Mr. Scarpelli: Brian Scarpelli, TIA.

Mr. Gee: Wesley Gee, TIA.

Mr. Washington: Bruce Washington, NTIA.

Mr. Gattuso: Joe Gattuso, NTIA.

Mr. Drocella: Ed Drocella, NTIA.

Ms. Cohen: Rochelle Cohen, NTIA.

Mr. Cooney: Tim Cooney, Wilkinson Barker Knauer.

Mr. Gilmore: Craig Gilmore, Wilkinson Barker.

Mr. Forgety: Trey Forgety, National Emergency Number Association.

Dr. Fontes: Great. And the one thing that Rochelle asked me to remind everyone, when they speak, if they could say their name first so that folks who are calling in, and others will be able to know who's actually speaking.

All set for the grand total?

Mr. Pepper: Hello. This is Robert Pepper. I just joined on the -- on the line.

Dr. Fontes: Hi, Bob. Thanks for joining. Great.

So next, we'd like to just turn it over to Karl to go through the discussion of the work areas.

Mr. Nebbia: Okay. Based on the discussions that we had at the close of the last sequence on how we're -- our working methods and so on, as we were reviewing what areas we wanted to do work in, we were also looking at the methods that we were going to use for that work.

Certainly the primary area that we've got to work within the President's own initiative is this aspect of looking for 500 megahertz, so that is our number one topic, you might say.

Within that, however, in that same memo, there's discussion of sharing. There's also a recognition that meeting some of the President's goals might be through unlicensed, so we've included that also as ongoing work areas.

And then, lastly, we wanted to continue our efforts as has been discussed before, but has recently been brought out, I think, through the GAO report that we made available to everyone, that we're always looking for ways to improve the work we do or improve our processes, and we felt like that should continue to be one the points of focus.

Within that concept, each of those four working areas, however, we wanted to change the approach that we took to those areas, instead of just

saying, "Here's a general topic area, come back in six months with a long report," and that talks about the that talks about the topic in general, we felt it would be more useful to try to specify some specific questions and to set the time frames shorter, to set the expected outcome as being smaller, probably more focused on the specific recommendation for the question, as opposed to a lot of history and background and so on, but to try to answer the questions as specifically as possible.

So, within that, the kind of work process we would like to do, of course, we've set up working groups before. We would like to do that based around each of the subject areas that we have, but we would like to identify early in a particular window from meeting-to-meeting, maybe even at a specific meeting, the question or possibly couple questions that those groups will work on during the upcoming cycle, so that we will be agreed on specifically what the question is and what they'll work on.

We're not absolutely tied to the questions that you've been provided, so if you've got suggested changes to those questions that might make them more understandable, we're happy to

hear that.

Also, if there's other questions that you believe are essential to get into the discussion, we would certainly appreciate those suggestions also, but we do want the groups focused on specific questions and coming back to, "Based on this question, we believe NTIA should do this," and being very specific in the outcome recommendation.

If we write five pages or something on the recommendation to back that up, that's -- you know, that would be more, I think, appropriate to what we're trying to do, than trying to write an 80-page document which, I know all of you are busy and so on.

So, that's the general approach that we would like to take. Now, certainly the question comes up, "Well, when will the answers be due, Karl?" That's always a good question.

So, what we would, in essence, like to do, is if we assign a question at one meeting, that the general process will be, at the next meeting, we would like to be able to have a discussion at this meeting about where people are at that point, with the intended outcome on that question actually coming back from the working group at the next

meeting.

So, you have kind of a two-meeting window.

We wanted to have the discussion here because it seemed a little bit unfair to put the working groups in a place of only having the discussion at the end of their output and that, of course, only ended up being, "here's the debate that we couldn't resolve" type of discussion.

So, this gives a window in the center to actually have a discussion within this meeting forum. We're not just business processing here, but we think the discussions have been worthwhile in this group, but ultimately, like a two-meeting cycle that we would get the questions.

That allows us, at the mid-term meeting where the discussion is going on, to assign the next question, so we begin to form a little bit of a rotation and a process that's moving forward.

Now, there's one difference with respect to that, and that is specifically with our look at 1755 to 1850, all of you are probably aware that we are trying to reach a conclusion on that issue by the end of September, early October, so that, with respect to that area, I think the critical thing here is to look at the questions that we've outlined and to decide in

fairly short order what is actually realistic for you to provide feedback on, what the group can best provide feedback on.

Some of them, you know, the very technical question, you may say that's not our best thing -- to discuss how industry is going to deal with sharing or something like that. You may find that's the better question for you to deal with.

But, nonetheless, for it to have an impact on our decision in the end of September, we're really going to need your feedback at the next meeting, which will be sometime later in the summer, we think.

So, that one is kind of on a slightly different track but, once again, we don't expect you to answer all those questions in that time. We want you to focus on one or two that you think you can answer. You may feel like you can help with more than that in that time, and that would be great.

But we certainly need the response this summer so that we can factor it into our decision process.

So, any questions on kind of the general lay of the land here? We have also -- and we'll get into this as we get into the specific working

groups -- we have asked some people if they would be willing to co-chair the working group so each one -- our hope is that we would have at least two people working together, obviously, others participating.

So we have gone through that process. We are still working on a couple of, you know, concluding whether folks can actually fulfill that role or not, but that's the process we're taking in setting it up.

So, as we get into it today, we'll be talking about the groups -- and Michael, you're -- oh, you've got the seat up here.

So we'll be talking about the various groups, the work that they're doing, who wants to be on what committee, and moving that forward, so you come out of here raring and ready to go.

So, any questions on the approach?

Yes, sir.

Mr. Dombrowsky: Tom Dombrowsky. Just one quick question on the 1755 working group. If we're trying to get answers by September -- or by October, is there going to be continuing work with that group or is it sort of like, they do their quick burst and then the other groups are the ones where they continue to --

Mr. Nebbia: I think in all of these groups -- first of all, the group itself is dealing with the 500 megahertz effort. That we see as the critical first subject and/or questions related to that.

But, ultimately, you'll see even at the bottom of that list, some things that begin to wander into, okay, well, once we've kind of answered some stuff on this band, where do we go from there.

So, yes, we expect that group is going to continue. We're going to have other questions to answer as we look at other possibilities, and certainly, when all the issues get resolved on the Commission side and they come up with their 280 megahertz, our job will be a whole lot easier, but we'll see where that is. Right?

So, any other questions?

Mr. Tramont: Karl, do you envision a paper at the first meeting if we start today? And then is there a paper at the first meeting, then we discuss it, and then there's a final paper after that, or does the paper not come till the second discussion? Or, is it that formal yet?

Mr. Nebbia: Yes. I'm not sure we've laid that out. I don't have a problem with there not being paper at that point. Certainly, paper often

helps stimulate the discussion, but we don't have an expectation, for instance, of having a draft report, because if we narrow down the questions, we hope we don't have to go through, you know, a lot of that. We're focused on one two very direct questions, and the answers come back.

Now, we also, in doing that, once you understand, we don't have a problem with there being a minority viewpoint. So, if you come back and say, "This is where we are. This is what we recommend, but there is a significant" -- or however we want to state it, you know, contrary viewpoint -- I mean, I've been in spectrum management long enough to know that, for every viewpoint, there is a contrary viewpoint, and we can't expect that not to happen here.

And we certainly don't want it to basically bring the work to a screeching halt. So, we are willing to accept those kinds of things.

Dr. Fontes: I think, to help everybody out in the discussion, although there's not necessarily the need for a final response to the question next meeting, but if you were to bring something that hit some of the key issues in response to the question, so that it helps facilitate the discussion, I think that

would be very helpful, because I think that allows people to focus on it. It allows people to think about what the discussion items that are presented, and how they are going to be responding to those discussions.

Mr. Tramont: And you still envision subcommittee meetings between Committee meetings --

Dr. Fontes: Yes.

Mr. Tramont: -- so there's still like one or two meetings here between the conference calls we're having. Am I correct?

Mr. Nebbia: Correct. So, I think one thing that is critical, though, that, as we get to that kind of midterm meeting, where we're hoping to have some discussion, understand kind of where things are, that it will be important that we don't get into a thing of "that's kind of not a deadline," or "we don't have to be ready to have that discussion."

So, the working groups are going to have to work up to that first meeting so that we can have a meaningful discussion, and we will be looking toward the working group chairs to conduct that very meaningful discussion so they'll know what the status of things are and so on, but we just can't get in a

situation if we're going to take this route of finding that nobody's prepared to have a discussion at that first meeting. So, that's -- I think that's an important step forward.

Dr. Fontes: Yes, and I think one of the things that we've talked about prior to this meeting was the fact that, you know, if you keep in mind, you know, there's current policymakers, a number of former policymakers around the table here, and oftentimes, what's really important is: what is the question that is being asked? What's the answer?

Be succinct. And even though we've targeted, maybe five pages as kind of a target number, we know that's even more difficult to write than an 80-page document, if only because in 80 pages you can say everything you want to say about seven different times and seven different ways.

And also, I think it's important for policymakers to understand, okay, here's where consensus could be reached. But, nonetheless, there are a couple of others who have counterpositions or ideas here, and that, for those who are current policymakers or former policymakers, you know how valuable that is to know where the various questions or concerns are going to come from.

So, I think that ultimately we'll present an opportunity to provide NTIA, Department of Commerce, with really a set of questions, answers and NTIA should, and there should be manageable bite-sized chunks in the responses that are provided.

Mr. Nebbia: Okay. Any other questions, thoughts?

(No response.)

Mr. Nebbia: Okay. And from the reporter -- are you able to hear us at this point?

COURT REPORTER: Pretty well.

Mr. Nebbia: Okay. How about if the people speaking at the far end, are you getting that also?

COURT REPORTER: Yes.

Mr. Nebbia: Okay. So, we're going to transition now into the first subject area. We're going to see if we can't work a little bit of electronic wizardry, but we'll -- we'll see if we're actually capable of doing this in this modern age.

And I do have some extra copies of the briefing sheet here, if somebody needs them. So --

Dr. Fontes: Karl, for those that are on the line, they have a copy?

Mr. Nebbia: They do not have this.

We've provided this just at this meeting. So --

Dr. Fontes: Is there a way to send it by email?

Mr. Nebbia: We will -- I don't think at this point, but we can certainly make the briefing available after we close.

And, Bruce, can you come up and just hit the forward button here? We seem to actually have gotten it on the screen. So don't hit the "back" button. I'll be in real trouble.

Okay. So, this morning we wanted to start off our effort to look at the 500 megahertz. Obviously, on the first band that NTIA is discussing with the agencies, we're working within a group called the Policy and Plans Steering Group that meets through a personal spectrum working group approximately once a month.

The agencies have been all asked to do a number of things looking at their use of the spectrum. We then meet with the PPSG as a whole, probably every two to three months, and that will be the process by which we go about bringing in the agency inputs on possible relocation from this band, transitions, costs, that sort of thing, and hopefully with a conclusion, the end of September, beginning

of October so that we know what direction we're heading.

So, the 1755-1850 band is the first band that we're looking at. We did the fast-track bands last year, and part of that was in that group but, as you'll see, it's a fairly complex band and, therefore, it was put off to this time period, but we're moving forward quickly at this point.

So, 1755 to 1780 is the portion that industry has expressed most interest in. That leaves, of course, more to that band if, in fact, we're able to relocate. On the other hand, it may give us some flexibility in approaches in transitioning and that sort of thing, but --

So, I'm going to give you an overview this morning on how the government uses this spectrum. Some of it will be portraying through charts that are actually in a report that's available to all of you.

The website is on the last page of the document, and this report actually was written ten years ago. It still stands very much as how this band is used, with a few exceptions, and there are a few things, because the nationwide use we can't portray on maps, and therefore, won't be shown here.

But, Bruce, can we go to the next?

Mr. Washington: It would be the up arrow, right?

Mr. Nebbia: Yes. Yes. Okay. Some of you are going to have a little bit more trouble at this end of the table in the dark, because I know you can't read this, okay, but you do have it in front of you. I think it's sort of readable there.

And the issue here was, of course, wasn't supposed to be specifically readable, but this is a breakout of the various frequency assignments that we have by agency and by what we've called a type of application.

That has no -- no standing in ITU terminology in terms of radio service, necessarily. Some of them do match radio service titles. Others may not.

But also, one of the important things to keep in mind is, if we have a federal assignment, we can have one assignment that covers the entire country. It authorizes them to go anywhere and everywhere.

We can have one assignment that is strictly a point-to-point link. So, when you count numbers of assignments, it certainly doesn't give a

full and accurate view, but it is the tool that we have.

It's, in fact, the manner in which we charge agencies fees each year to support spectrum management as one assignment, one cost piece, and so on.

So, it's important, as you look at these numbers, to recognize that you can have -- in fact, here in the point-to-point list here, you'll see the greatest number of assignments is in that range. Point-to-point, microwave, in fact, is the easiest thing for us to deal with.

It looks like, because of the numbers, maybe it's the most difficult but, in fact, in reality, it's the easiest thing to deal with.

Okay. So, this is the general layout. Somewhere around 3,000 -- a little over 3,000 assignments in there. Interesting enough, since we did this back in 2001, that number is down almost a thousand, and the primary reason for that, I believe, is the fact that the assignments here for fixed point-to-point actually represent the greatest number of assignments.

And, as we moved out of the 1710 to 1755 band, we were able, as we moved those

systems out, if they had channels both in the lower band, 1710 to 1755, and this range, were able to move them all entirely out to another band.

So, in that case, the numbers, particularly in the fixed point-to-point, have dropped, because we were moving systems out under that other effort.

So, the fact that the numbers are going down may not be significant to the overall impact of the use since, once again, fixed point-to-point, they are probably the most controllable and has the least impact of anything.

Okay. So, Bruce, do you want to hit the next one.

Okay. So, we are going to talk a little bit about these first, and then I'll go into some that I've specifically got some charts for.

Once again, in this band, we have a mixture of systems, and I certainly would be interested in anybody that can point to a non-Federal band that mixes radio systems the way we do in this case.

Certainly, if you go in a band that is primarily cellular -- commercial cellular mobile, everybody in that band is essentially alike and may

use slightly different technology, but it's all cell systems and so on.

We generally don't mix, on the commercial side, things as widely as we do here.

But, first, we've got lots of fixed point-to-point still supporting, you know, the military, supporting FAA, you know, loading radar data down the line.

We've got many agencies in Interior and Agriculture and so on, in more remote areas often, ones with point-to-point links.

These fixed point-to-point links are obviously all moveable. There is already existing technology that they could move to. Their brothers below 1755 have already moved. So this is not what we see to be a critical or difficult case. We can move them and certainly, you know, wouldn't need a lot of time by the group here to consider, well, what will we do with them.

We've got bands identified, the technology's identified. It's strictly a matter of time of moving them.

And the critical point, mostly for moving fixed point-to-point systems is you get a contract with a provider for new equipment and then you've

got to get them out there on the mountains at the right time of year to make the change because, I know in the last go-round, we had a couple that missed deadlines and, you know, just like, you know, Seven Brides for Seven Brothers, in October, the snow started falling and they weren't going to get out of there, you know, until spring if they went up and tried to do it.

So, there are those issues, but that's a matter of timing and so on. It seems none of you saw that movie.

That's why I'm still married 37 years, because I watched --

(Laughter.)

Mr. Nebbia: The next issue, mobile video surveillance. One of the odd things about this is you will see this in the table not listed as "mobile." It's listed as "fixed," and it's listed as "fixed" because they are essentially transportable systems. They are not actually doing their surveillance -- you know, an FBI agent running down the street and the picture bopping all over as they're running.

It's not done like that. But, nonetheless, a mobile video surveillance, for the most part, are things like, you know, body-worn

devices, so they are very low-power, they are very small, there's technology that's only being built for these purposes, and it's not a common, you know, commercial practice and so on, but they are designed specifically for these folks.

The technology that they are using transmits somewhere -- I think it's like six to eight megahertz in the transmission of the video, so as they're doing a sting somewhere and they are transmitting what's going on and, you know, as a crime is coming down and they FBI agent is in harm's way in a hotel room somewhere with very bad people, they are transmitting over this six to eight megahertz range, but the receivers on the other ends of these devices, which are not new, are about 18 megahertz or so wide.

So, as you see in the spectrum that we've got, from 1755 up to 1850, you've got so many 18 megahertz-wide channels. I think it came out to five, and that sounds right. About five channels that go across that band.

So if, in any city, at one particular time, the Federal agencies have five operations going in this band, then essentially all the channels are taken up. It just takes five, and all the channels are eaten

up.

So, one of the challenges we faced here in the last move from 1710 to 1755 is, as companies wanted to move in, what they were presented with is that these channels extended all the way down to 1710, they wanted to use those channels and, until they got off them, they didn't want anybody in the hotel, you know, going down the hall with their cell phone and so on and that was an impossibility.

We actually tested the devices with industry and the agencies and all agreed we couldn't put them in the same place.

So, Bryan, do you have a question?

Mr. Tramont: So, Karl, were they formerly -- there were two additional channels in 1710 to 1755, and those have now been relocated up or what was -- were they completely in 1710 to 1755 or just --

Mr. Nebbia: No. The channels are extended down so those agencies have essentially -- because the technology was not ready, new technology was not ready, they've essentially just cut off --

Mr. Tramont: I see.

Mr. Nebbia: -- some of their available

channels and, certainly, if you get down to the field guys, they will argue that they had to not conduct certain operations for lack of available channels.

Mr. Tramont: And when they go digital, how wide is the receiver bandwidth?

Mr. Nebbia: They are still trying to decide what that impact will be. There's some, I think, that have argued that it depends how small the --

Participant: I think you're talking eight megahertz.

Mr. Tramont: Eight.

Mr. Nebbia: Okay. Somewhere significantly smaller but, you know, once again, it's a matter of, you know, being able to squeeze them down.

I think we can see significant improvements there as they complete that effort to go digital and, in fact, at least for some of the agencies that have requested, the money is there for them to complete this digital process.

The problem that they're having is that, for the guys out in the field, they've got to complete the whole effort. They have to get them transitioned over. They have to train them on new equipment.

And, as they're trying to design digital devices that can be worn on, you know -- I mean, obviously, not every FBI agent can go into bad places with a big boutonniere, you know. You can't do that.

(Laughter.)

Mr. Nebbia: So, anyway, so they're dealing with issues right now dealing with size issues, dealing with heat issues and so on. So, those things that they are working on.

And obviously, if it chews up battery. I think the first digital units that they built eat up battery really quickly.

Mr. Gibson: Yes. Mark Gibson, Comsearch. Since the data that you showed in the previous slide was from 2001, presumably that --

Mr. Nebbia: No, that data was not from 2001.

Mr. Gibson: Okay.

Mr. Nebbia: That was more recently, so the 3300 was far less than the 2001 data.

Mr. Gibson: Oh, I see what you're saying.

Mr. Nebbia: I'm sorry. The pictures I'll show you were 2001.

Mr. Gibson: I can't find mobile video

surveillance showing the data represented as fixed. There's a category of "mobile."

Mr. Nebbia: Yes.

Mr. Gibson: Is that it?

Mr. Nebbia: No. If you'll look under the fixed point-to-point line there, that's where they are.

Mr. Gibson: Oh.

Mr. Nebbia: And that's because in the GMF records, because they are transportable devices, they've been entered as fixed devices.

Mr. Gibson: Okay.

Mr. Nebbia: Okay. So that's complicated --

Mr. Gibson: One more question. Sorry.

Mr. Nebbia: Sure.

Mr. Gibson: About how many assignments does that comprise then?

Mr. Nebbia: I'd have to pull that back out. But, once again, from this standpoint, if we have six agencies doing it, if we have six agencies doing it, it might only be six assigned.

Mr. Gibson: Right. Right.

Mr. Nebbia: You know, it's not --

Mr. Gibson: It's not a question of the

number of assignments, it's the number of devices?

Mr. Nebbia: That's right. That's right.

Mr. Gibson: Okay.

Dr. McHenry: Are you going to provide more data on these systems than just this? To make any progress, we'd have to know a lot of details. This could be replaceable with another Cox unit.

From what you said, we can't make much progress. So, is the intent to provide data sheets on all these systems?

Mr. Nebbia: We are -- at this point we are not going to ask you to redirect the Government. The Government's got to do its work.

What we're asking you for is input from the commercial side as to what you think can be done. So, I don't think we're going to be asking you to redesign the things --

Dr. McHenry: No, but if you want to say the strict sharing approach with work, we need to know more details than just that.

Mr. Nebbia: That is a possibility. I guess one of the questions here that the group should be -- have to look at realistically, is that if we're talking about sharing in this band, if we're talking the kind of sharing that you -- your company

does and that we might consider, we are not going to resolve that by September.

So, we're really looking at this band as to whether we can, in general, reallocate it with some sharing requirements that, based on the systems kind of staying in place and so on, but part of the question of sharing that we've asked and that you'll see here is, we are interested from the commercial wireless industry whether they are interested in the kinds of sharing that you've advocated because, if they're not, then there's -- you know, we can't -- can't pursue that much.

But, in the time we have, we're looking at reallocating and the possibility of some sharing, once again, with commercial wireless with the guys who are still available.

Tom.

Mr. Sugrue: I would just -- Tom Sugrue. Well, what did the agencies do with the money from the trust fund from the last auction?

I thought they were investing in digital, I mean, I realize there was a process.

Mr. Nebbia: Right.

Mr. Sugrue: Ultimate process. But if all they did was just cut off channels, I think DOJ got

about $300 million and DHS got a hundred or so million dollars.

Mr. Nebbia: Yes, that money is being spent right now to work through this redesign effort but, in order to meet the goals of the companies, they had to get out.

Mr. Sugrue: Right.

Mr. Nebbia: Okay. And that's what they chose to do. So, they made that choice. It was certainly not something that they would have longed for, you know.

They would -- in fact, they still are agonizing over the lack of their ability to have a transition, but obviously the need was to get companies --

Mr. Sugrue: But we just understood that that money was going to pay for the transition or, at least, you know, get it underway.

Mr. Nebbia: That's right. That's right. And that is going on, yes.

Ms. Feldman: Molly Feldman. So, in that -- that group, is that like nationwide, an assignment nationwide for that slice of the spectrum or --

Mr. Nebbia: On the mobile surveillance

you will find that in many cases it is a nationwide assignment to use each of the channels in the whole band.

Okay. And as we get into this, some of you do spectrum-type stuff, are going to ask, "Well, Karl, how does all that stuff fit in the same band?"

And, anyway, we've now got a $20 billion contract out to try to figure out how -- how we are doing that.

It's the fact that the systems are not compatible but, due to the periodicity of use and so on, we were able, in many cases, to get away -- in some cases we are able to coordinate the frequencies, but -- Charlie, you've had your hand up for a while.

Mr. Rush: Yes. Charlie Rush. What are the distances over which these systems typically operate?

Mr. Nebbia: These -- these -- some of them are, you know, basically talking, in some cases, room-to-room. However, in other cases they are actually speaking to a unit that may be down the street somewhere.

So, it isn't just, you know, very, very short distance work. And that is also then combined

with other units that kind of relay the data from, you know, a van to, you know, another location, so on.

So, yes, I don't think we're talking about super-short distances, but we're, you know, --

Mr. Reaser: This is Rick Reaser. I want to focus on -- you said "the mark." Is that a little bit -- sort of disturbing. So your plan is to just sort of vacate and share until you can vacate without looking at whether we can just share for the long term, but your idea is to just get out of band totally eventually, or maybe have some incumbents that they can share without looking at whether we can really share, except for --

Mr. Nebbia: There will be some -- I mean, there's certainly going to be a possibility there's going to be sharing through a transition one way or the other, and there may be some of that sharing that remains permanent.

But what we can't do at this point is come up with sharing mechanisms that require a dynamic aspect to it. We just don't have time to reach a conclusion on that.

So, with the sharing that we're looking at as being a lasting -- as going on in here is sharing based on our traditional spectrum management

separation of frequency and time and distance and so on, not -- not adding in the dynamic component to it within the next few months.

We're just not going to get a resolution on that. So, we are going to be identifying the distances and that sort of thing, separation. We're just not asking you to do that.

Okay. We're asking you to provide us information from your background on what the commercial world is -- will be looking to do in there so that we can work those -- those issues, because we've got to have that -- we have to have that information.

So, any other questions?

Yes, sir.

Mr. Alder: This is Larry Alder. Just, when you say your traditional methods of sharing in frequency and time, what's the time constant on that? Is that like you do an allocation for two years and that's the -- the time constant, or is that something you're doing very -- very frequently?

Mr. Nebbia: Well, we are trying to determine for these various operations, in a general sense, how much they operate so that if industry comes in and we're able to determine that the

potential interference is into industry, that they can then look at that and say, "Well, I have an understanding that this happens about three percent of the time. I'm willing to live -- to get access to this greater band, I'm willing to live with some loss of signal for that three percent of the time."

And that -- so -- so, that's what we're, in effect, looking at, is to give people a sense of, well, how much time they may be impacted, what geography they may be impacted and that sort of thing.

But, in this case, we've got to resolve the mobile video surveillance. We have to resolve out-and-out, in a relocation form.

It may be a transition to a portion of the band, and then ultimately out, but we've already determined we can't allow sharing of commercial systems with these under the current system.

So, as we get into a process here, we'll have to recognize that about them. They -- they would have to move out in order for a place to be made for commercial wireless. They're just incompatible.

Mr. Reaser: Why can't we design it to be compatible? Like just give -- give a couple of the

channels to these guys and the commercial guys have it and do it by area.

Dr. McHenry: There's only a hundred radios in the whole inventory. I mean, it's --

Mr. Reaser: My gosh. I mean, to me, there should be a way to do that. You treat them just like another -- treat them like AT&T.

I mean, they just have their -- their seven towers or whatever they have. I mean, what -- what's wrong with that?

Mr. Nebbia: I think the -- trying to be realistic about what this committee can provide us in the time, I don't think that's realistic.

Okay. Next area. There are high resolution surveillance video links. These are generally, you know, pole cams, building cams and so on, point-to-point, once again, monitoring specific areas that are under investigation or security monitoring or whatever.

Once again, these -- there's technology probably available to do this elsewhere. These also, however, are nationwide, in their distribution.

Aeronautical telemetry is done, to a limited extent, in this band. Many of you are familiar with some of the other bands that they operate in,

particularly the working 35 and 1525 and 20 through 60 and 20 through 90.

However, as we talked with the telemetry people, what we find is, when they send out a device to be tested, for instance, they may, in fact, send out a predator drone with several missile systems or something loaded on board, they will send out a follower aircraft with that group and that all of those devices are sending back telemetry data at the same time.

They are monitoring the condition of the pilot. They are monitoring this situation in the plane, and why -- why is that absolutely critical? It's because that data is what gets used to determine the success or failure of the particular system that's being tested.

And, if a system fails without us knowing why it failed, that's not a good thing, to not be able to see or understand what's happening. When there's a pilot involved this can be a safety issue.

So, my understanding is that in some of the telemetry ranges, maybe not all of them, but some of them are, in fact, when they send out one of these missions they've got packages maybe in each

of these bands, all supporting that one test at one particular time, and then when that flight comes down from that test, the next flight is going up, maybe doing a similar thing.

So, they are really eating a significant amount of band width when they do that. They are gathering the data with a high-gain receiver antenna and, once again, that's how they pull the signal in from long distances.

You may not see those signals if you go out there with a spectrum analyzer, but they are looking for them. On the other hand if you walk between the airplane off at the horizon and their receiver and you're transmitting, they may lose their data.

Mark.

Mr. Gibson: Yes. Mark Gibson. Are these one-way telemetry exclusively or do they vary at all?

Mr. Nebbia: Most of them are telemetry-down. We understand that there is some interest in going the other direction, but nonetheless, these are systems that we -- you know, we need to look at it in terms of -- of moving them out.

Mr. Gibson: So, I guess what I'm

asking is: Any relocation from 1710 to 1755 to 1850, whatever the band is, could go into these other bands, possibly?

Mr. Nebbia: That's possible, except obviously you're reducing the total amount of band width available. Now, there are some -- there is some talk in the ITU processes right now, and others, about adding other telemetry bands at higher ranges.

Once again, you start having issues --

Mr. Gibson: Right.

Mr. Nebbia: -- regarding high-speed mobility. I mean, these guys have to be able to pick up this signal when the aircraft or the missile may be traveling at Mach-2, and then you really have some, you know, issues on doppler.

Okay. Next item here, remote land mobile robotics. This is done for bomb squads and other types of, you know, dangerous or hazardous material.

Once again, it's done in certain training locations. It's -- obviously DoD has to prepare itself to go overseas and do this, but also we have to be able to use them from time-to-time here in the U.S. when things are identified, and we can't determine exactly where they're going to be.

So, okay, the last -- UAV's, unmanned aerial vehicles and systems. This is certainly an expanding area of development within the Government. Probably, if there's any area the Federal agencies were to say, "We have an increased need for spectrum," this is it, that they want to do more and more things remotely.

And, in doing that, the critical thing is, it's not just DoD. Agencies want to monitor the border using these devices. They want to go into disaster areas, flying over, looking for -- you know, they've got some -- in some cases they may have infrared sensors on them for identifying bodies under rubble, any heat source and so on.

So, they're getting significant, you know, increases in use. There are also interests in other ranges, frequencies for these devices that are getting looked at through the WRC process, and in many cases, what we're talking about here are either control links to the vehicles or the video or whatever they're reporting down, coming back in that -- coming back in that direction.

So, these are ones that I don't have plotted on the following maps from those old reports, but these are certainly main areas that we are going

to have to deal with and so on.

Yes, sir.

Mr. Alder: Larry Alder again. Just so my understanding -- so these aeronautical telemetries, is that -- in the U.S. they are mainly used at these ranges, they are in a confined geography, or they are used nationwide?

Mr. Nebbia: Okay. Well, they're somewhere --

Ed, how many were the total amount of ranges or the telemetry sites that were reported in the GE Healthcare item?

I know, Jennifer, you may know. But, there was, what, 120, 160 -- yes. So, these are not just Government, but any -- any commercial entity that builds airplanes or missiles may, you know, they operate -- they all are coordinated through a group called AFTRCC, Aerospace Flight Test Radio Coordinating Council.

So they all coordinate the time sequencing of it. So -- but there's a large number of sites -- for instance, you'll find one, I think, that's out in like St. Louis because one of the major aircraft builders was in St. Louis.

Is that Boeing? It's Boeing. Okay. So,

they fly out of those, you know, variety of areas, and the most critical thing is, they are at high altitude. Often you want to do these tests off the coastline because if there's something that goes wrong, you don't want it to land in -- I don't know how they do it in St. Louis. There wasn't a coast --

Well, there is a pretty big coastline there now, I guess, but they fly them generally off the east coast, the west coast and the Gulf coast, but those signals then have to come back from very long distances.

Sometimes the airplane is so far out that it's right down at the horizon, looking out from the host site, and that signal comes back that long distance.

Because they are in aircraft or missiles and those things are tumbling, and whatever they are doing, you basically have a very nondirectional antenna in there putting back the signal.

They can't -- you know, obviously, they can't put a big dish and focus it back on home while the aircraft is going into free-fall. So, it's a challenging process.

And this is one of the difficulties in dealing with Federal use of spectrum or, in some

cases, once again, this is commercial use, but it's very closely-aligned with how the Feds do things also, is that you've got a lot of stuff done at altitude. You have a lot of stuff that's covert and has to be able to go anywhere, and -- so we've got some difficult challenges.

The challenge is finding places for them to go. We have a band here where there -- you know, they're all holding hands pretty well, but we have to find them a place where they can all go.

And, once again, if you're a commercial operator, do you want somebody with telemetry, you know, beaming into your band or -- or some of these video links -- I don't know if that's -- that's part of what we have to look at. But -- okay.

Bruce, we can move on.

Mr. Washington: Okay.

Mr. Nebbia: Okay. The next chart here is -- this is a thing called tactical radial relay. These are military systems. And, once again, you'll see, we've got little devices here. Army gets some red. Navy gets a ship, and Marine.

So, but anyway, you'll see them in places and stuff, like this is probably Fort Drum, way up here. A number of places outside of San Antonio

and so on for probably -- let's see. Air Force, but it's -- I guess they are probably Army units.

Lots in California. Plenty through the Midwest where -- this is where the military sets up a tactical, basically transportable radio, to talk out in the fields. Basically, they are setting up almost a point-to-point microwave network, or cell links between their units and they have to be able to train with that.

Now, one of the really critical things about training these days is that that training cannot be confined only to the major training ranges. We can't pack up, you know, the National Guard from Pennsylvania and say, "Well, this weekend you're going out to Nevada and you're going to train out there, and that's where you do all your training."

They've got to be able to train locally, and that's why you'll see things spread all over. But, one of the critical things here is, once again, this is a two-way radio. The other portion of it is down at 1300 megahertz, and I should say, in reality, the system generally can tune all the way from 1300, most of them or some of them, up to about 2600. Some of them actually end at 1850, so they don't have that choice.

You say, "Well, Karl, that's a whole lot of spectrum." Well, if you can pick out somewhere else in that range that you would like these guys to go, you know, we'd certainly be happy to look at that.

So, these systems actually do have a tuning range, tuning capability, so there's some flexibility there, but we -- but without redesigning the systems, we have to find some place within that range that they can actually -- you know, the existing design range --

Mr. Tramont: So, Karl, are the -- 1300 and 1390, paired with what right now --

Mr. Nebbia: Right now with 1755 to 1850.

Mr. Tramont: So they are just -- they have 90 megahertz --

Mr. Nebbia: Often they do --

Mr. Tramont: -- and that's the 90 that they use, is 1760 to 1850 now?

Mr. Nebbia: That, or I think they've got the whole band allowed to them, but they've told us they need 90 --

Mr. Tramont: So they can tune to 2600, but they're not using anything above --

Mr. Nebbia: That's right.

Mr. Tramont: -- 1850 today?

Mr. Nebbia: That's right.

Mr. Tramont: Okay.

Mr. Nebbia: And they don't do it because here they have a place that they --

Mr. Tramont: Sure.

Mr. Nebbia: -- can do it without having to go through a four-year rulemaking the next time they want to ask for a frequency. So, anyway --

Yes, sir.

Mr. Rush: Charlie Rush. I may be missing something here, Karl, but when I look at this map, it would seem to me that if these dots and the triangles have any meaning, that there's a lot of areas, if I were a cellular operator, I would think this is not going to present too much of a problem to me, because they are not really occurring in the places where I would think that there's a lot of -- a lot of potential for my market.

Mr. Nebbia: And if we can work that kind of situation -- I think this report has another picture of them with something like 70-mile circles around them. That, obviously, increases the issue, but there's quite a number of them in Southern

California, up toward -- you know, that's -- obviously, there's military bases there.

There's some around the New York area, interestingly enough. So -- but you're right. That may be a solution, and certainly if we can coordinate them in a way where they are able to continue to function, that may be a way to move forward.

But these are tactical military radio relays.

Yes, sir.

Mr. McGinnis: Doug McGinnis. Is there a concentration in the lower half of that spectrum, say, the 1755 to 1800 versus 1800 up to 1850, in terms of how those assignments have been done?

Mr. Nebbia: As far as I know, for these systems when they go out on a major operation at this point they are assigning frequencies across that band.

There are a couple systems in this discussion that, as we get deeper into it, we are finding they tend to be assigned to one side or the other. But in these, they -- you know, when they've got one of these major operations, and they're practicing, they try to use most of it.

But that may -- there may be advantages -- once again, there is tuning capability in there. If there's an ability to limit that total now, we'll certainly look at that.

Mr. McGinnis: And holistically, across all these assignments, is there -- is there any density? Is it pretty much across the spectrum?

Mr. Nebbia: It's pretty much across the board. Yes, it's not easy to sort to -- one of this same report does have them, back then in 2001, broken out in steps, so we can certainly do that again.

But I think, from our standpoint, we're looking for ideas and concepts like that that we can then apply against what does this data show us and can we take on --

Tom, please.

Mr. Sugrue: Tom Sugrue. We may have already covered this, Karl, but would you explain -- when you say "requires 90 megahertz," what does that mean? Why does it require 90, up to 90?

Mr. Nebbia: My understanding is that, in order to get all the channel requirements, we're talking all of the units in major operations, that's

what they -- that's what they need from us.

Mr. Sugrue: Okay. So, in a major operation they do, they need that much capacity and they need 90 megahertz --

Mr. Nebbia: That's right.

Now, the question, of course, then gets to be -- not all operations, not all training is of that size. Can you use less with smaller unit training?

And that, I think, certainly we can ask those questions and see if that offers the possibility of --

Rick.

Mr. Reaser: Rick Reaser. Are these digital or analogue systems?

Mr. Nebbia: You know, I just wanted to know -- they are digital.

Mr. Reaser: They are digital and are they the omnidirectional antenna or are they directional antenna?

Dr. Borth: Hello. Hello.

Mr. Nebbia: David, can you not hear us?

Dr. Borth: Yes, I can. I'm sorry. I apologize. I hit the wrong button.

Mr. Nebbia: Okay.

Mr. Reaser: Digital, directional. Okay.

Mr. Nebbia: Okay. Bruce, next slide, please.

Okay. The next one here, adding some further complication is that we do air combat training. This is -- Montana is all DoD. Out of a variety of areas you'll see, once again, Air Force. A lot of that here on the Gulf coast and then the far West. You've got some of it up in Alaska.

And then, a lot of Navy and Marine Corps training on the east coast here and some out in Nevada and so on. But, the challenge with these systems are, these are devices that are built into the aircraft, current modern-day military aircraft, to act as a communications mechanism and data mechanism for use during training in order to evaluate the performance, whether it's of the pilot or the aircraft, and so on.

They are linked to, in many cases they are linked to units on the ground that they are talking to that are responding, tracking what they're doing.

So, once again, you've got aircraft here that are doing their combat training at 30,000 feet, 40,000 feet, maybe higher, and transmitting these

signals down to these locations on the ground.

And then in some cases, there are links between -- they've got like buoy sites and so on, and then relay the links into a place on land and so on.

But certainly, the biggest challenge is these airborne operations, and what would we do with that kind of signal if we had to move it somewhere else? Who else would just love to have them come alongside them?

I should note that when we looked at these systems in 2001 or whenever we actually entered into the discussions and I think -- I know Steve Sharkey may have been part of those meetings -- that, in fact, when industry looked at these and the distance separations that they felt they required, they felt a band without those systems being moved was not useable because it creates big circular areas from altitude.

Yes.

Ms. Feldman: What band is this, as far as --

Mr. Nebbia: Okay. These are all in the same band, 1755 to 1850. All this stuff is overlaid on itself and, once again, we can argue about whether that's technically efficient or not but, again,

we would not combine these types of operations probably in the commercial world.

Yes, sir.

Mr. Reaser: Rick Reaser. Did they move part of this out of the lower band or not use that, because I thought this thing went down instead of being ten.

Mr. Nebbia: I think they probably just limited their operation to 1755 and up. I don't think it was -- in that case, of course, they just don't operate down there. It doesn't require pulling the equipment out of the airplane.

And, once again, one of the challenges here is, if you build this system into, for instance, a stealth aircraft, if you've got to go in and rip this box back out, you've got to be able to put something back in that fits with the aircraft and so on. You can't just create a little box that you attach to the side of the plane and still pull it out.

Okay. Next, Bruce.

Okay. This is a slightly different portrayal. This is a precision-guided munitions, which are dropped, I assume, in each of these locations with -- once again, these are being dropped from aircraft.

And in this picture we attempted to show the potential impact of the signals from those aircraft and the kind of line-of-sight distances that they would experience.

So, next time you're driving down 95 I'd say away from these places. But, they are still going on. They were also in -- below 1755 with the instruction that they were to expend them and to move themselves out of that range.

My understanding is that each of these devices actually has a frequency set in it, so we are looking at the question of whether they can all be set toward the upper end, and that would help us along in that process.

Okay. This is satellite control links, operated by a number of agencies, but I colored them in just so you could tell the dish locations apart from just the city. The cities are there just to give you a sense of perspective, so don't worry about those dots, but where we've colored in areas, they're all the way from up in the northern east coast.

Lots going on in here in D.C., Cape Canaveral and so on. And, once again, part of the situation we have here is that, certainly with nongeosatellites, we've got them coming over

regularly, having to be communicated to and tracked.

And even with geosatellites we've got different locations and each of these systems has to be able to talk to them. So, we've got to have these units as far east as we can get them to pick up satellites coming over, and as far west as we can get them to, once again, continue talking to them.

These particular control links, of course, give instructions to the satellites as to what they are to do, but one of the most critical aspects is, from time to time, they have to crank up the power of these transmissions in order to get a satellite back into its proper function.

Because of that, they can't count on beam-to-beam contact with a dish on the satellite. They basically have to be speaking through an omni-type antenna port to re-command that satellite to stop rolling or to stop whatever it's, you know, doing.

So, you'll see, there are some sites in Alaska. We did not actually move Alaska. That's -- we just needed to put it there for the sake of the map.

They continue in Hawaii, and then I didn't color in, so I missed the one in Guam. So,

they're -- the U.S. continues to do this.

Yes, Charlie.

Mr. Rush: Charlie Rush. Karl, could you tell me if there's any update to the Government's use of the USB uplink as potential replacement for the, you know, SATOPS in the simplest band here at 17?

Mr. Nebbia: That's a very good question. People don't know. There is also an uplink band at 2025 to 2110. That band, worldwide is recognized as a satellite uplink band.

However, in the U.S., not too long ago we did allocate that for broadcast auxiliaries, essentially electronic news-gathering. And in that band right now, the Department of Commerce, weather folks and NASA do operate uplinks in there.

And as they portrayed it, they -- they operate basically on a secondary arrangement with the ENG community. That suits them fine because the nature of their communications requirements, I think, from their standpoint, did not have maybe the sense of immediacy or urgency and that they were able to work with that.

Back in -- as we were reallocating the 1755 -- or 1710 to 1755, DoD reached an agreement

as part of that allocation, that they would be able to use the 2025 to 2110 and to create a coordinating mechanism with the ENG community.

Once again, they would be there essentially on the same basis as NASA and NOAA, but that they would come up with an MOU or an MOA with that industry group.

They have done that, my understanding is, but essentially what it says is DoD's willing to work with them on the same basis as NASA and NOAA, except when there's an emergency, they reserve the right to turn on their system if they've got to do it, and they will -- you know, they will do that.

Now, with that arrangement having been made as DoD moved up there, my understanding is that they have not moved up there, and there are no systems currently in the process on the DoD side that have that band included in.

So, they've taken that as a marker potentially for the future, but have not actually, you know, moved forward.

So -- yes, ma'am.

Ms. Warren: Jennifer Warren.

Mr. Nebbia: Jennifer Warren.

Ms. Warren: I was just curious how old the summary of satellite systems is, and I notice that this is listed as "planned," and then there's AAHF, and I'm assuming that uses those, too.

Mr. Nebbia: Right. We -- like I said, we're in this process of developing the up-to-date information from DoD and others and how to portray that.

What I've done here is, I've just -- we've taken this directly out of that ten-year-old report.

Ms. Warren: Oh, okay.

Mr. Nebbia: These are cut directly from that report just to give an easy, immediate, you know, resource, since we're still doing that other work.

So, yes, some of these satellites are going to have changed in that time period, some of them may have expired or other new ones come in. So -- but they run only from 1761 up to 1842. So, anybody that can use that 6 megahertz at the bottom.

Here we go. Okay. The last one, Bruce. All right. Okay.

And this is the report that was written -

- this is a couple-hundred-page report that delineates what we've been doing in this band.

It doesn't have anything, really, in there on the UAS, UAT side. That's all fairly new. Everything else in there is much the same as it was back then with, in fact, some increased use due to the fact that people moved out of the 1710 and 1755 band.

So, that's my explanation of what's in there. The questions that we've laid out for this working group, I think are -- did I write this?

Dr. Rosston: For those of you on the phone, we will provide the slides.

Mr. Nebbia: So we do have a series of questions that we've written out here that are the kinds of things that we were hoping, from an industry perspective, you might be able to tell us to help us through this process.

Yes, sir.

Mr. Povelites: Carl Povelites. Based on Doug's comment earlier and the presentation, as well as the questions here, it seems like -- would there be a benefit to looking at this in chunks -- for lack of a better term, like from 1755 to 1800 and then from 1800 to 1850, or 1755 to 1780, and looking at it

from that perspective, both on how the current devices out there can be retuned, whether they are retunable or not, whether they need the 90 megahertz, that type of thing so that we can maybe drill down, because there may be some sharing opportunities on a higher -- at the higher frequencies, but maybe not so much on the lower frequencies or have there been --

Mr. Nebbia: I think from -- certainly, from our perspective, we are looking, I think, more the input that we need is from the industry perspective of what might be workable and useful to them.

For instance, if, in fact, you see a staged approach, whether it's 30 megahertz, another 30, another 30, so on, as being a viable approach of getting it out there, then we can put that into the package of us looking at the Government, specific Government, you know, data and so on, to see whether we can work that.

But, if that's not something that industry would find valuable or useful then, you know, we'd just as soon not go down that path.

Also, questions like -- some of these systems, like -- let's take the satellite systems, for

instance. In that particular cage, each of those locations that you see on that map is going to have channels throughout the spectrum range that's indicated there, 1761 to 18 -- whatever it was, 40, 50.

They have channels at every one of those sites throughout that range to talk to different satellites. The satellites, themselves, for this purpose, have one channel. That satellite has a 20- to 25-year lifespan, and there's several, numerous, probably, being loaded on the production line right now.

So, when we start talking about the satellite operations, it's inevitable that they are going to be there for some time. We may be able to transition them to another band, but we have to look at that, I think, realistically.

So I think from -- once again, from our standpoint there's questions from the industry perspective that would be really important. Does that -- does their presence make the band a problem, make it not useable?

On the other hand, if there's no use in New York City, if there's no use in New York City, and that's the city you really -- you know, you're

desperate to get into, is that -- is that an opening?

There are going to be, for instance, the potential for separation exclusion areas around each of those sites that would make all the rest of the territory useable if that would be amenable.

The other issue is, at least in a band where we have hand-sets, potentially, and 1755 to 1780, is that sort, the hand-sets would be transmitting in that band.

The potential for the interference from those systems is more likely to be into the bay stations than it is into the satellite systems.

So, in that particular case, if you're willing to live with that in this current environment of multiband hand-sets, where maybe, on the new channels you've got, in that one area, for that period of time, you lose some -- some access.

To me, that's what we're trying to hear back from industry because, certainly, if we go to a conference all we're going to hear is, "We need the whole band. We need it all the time, and we need to, you know, transition out of there."

Well, that -- with the satellite systems, we can't make that happen overnight. With some of the airborne systems, air transition is probably going

to be a much longer period of time, not like fixed microwave.

Yes, sir.

Mr. Tramont: Brian Tramont. Some of the questions that you drafted suggested if 1780 to 1850 can be -- is that -- is that to communicate that 1755 to 80 is a problem, or that --

Mr. Nebbia: No, I think we're just --

Mr. Tramont: -- or are you defining something that starts at 1755 to 1780? I wasn't sure what you were --

Mr. Nebbia: We're trying -- I think we're only trying to make the distinction there that, right now, industry has talked about 1755 to 1780 as a hand-set transmit band.

That's the one that is of most interest to people, and once you -- once we've made that decision, or when we make that decision, or if we make that decision -- I hope all those got recorded in the possibility -- so, if we make that decision, I'll stand -- I'll probably stand on that one.

Then, in fact, that will leave the rest of the spectrum, then, if we move forward for asking, "Well, okay, what do we do with that?" And the choice industry has most often said is, "We'd like

more FDD spectrum," but when you've got a chunk there, then you have to ask yourself, "Well, you can't get enough separation," or "You end up having to leave a piece in between for the utility folks to, you know, pick up," that sort of thing.

You know, that's -- we have to -- but right now it's very clear that industry would like to use hand-set transmit -- mobile transmit in that range. So we -- we've just made that distinction. We assume that is the beginning point but, once again, if we're going to continue with an FDD layout, then we've got to look for a matching band somewhere with whatever it is we come up with.

If people are really looking at TDD, then 1750 or 1780 to 1850, maybe that's -- maybe that's a choice.

Tom.

Mr. Sugrue: Yes. Tom Sugrue. I think, focusing on 1755 to 1780 is probably a right priority for the reasons you stated. And, of course, we don't know this part of that because it's 25 megahertz sitting over at the FCC on the shelf --

Mr. Nebbia: Yes.

Mr. Sugrue: -- that's -- could be paired with that immediately.

Mr. Nebbia: Right.

Mr. Sugrue: And a nice result of your exercise would be to identify that segment.

Under the present law, the FCC could move, then, to auction it off in 18 months, and go through the process of the -- that's provided in the 2004 Act.

On the questions --

Mr. Nebbia: Just on that point, just before we move on, can I -- the reason we're looking more broadly, we understand that specific --

Mr. Sugrue: Right.

Mr. Nebbia: -- interest and need, and that certainly will get a lot of focus.

But the reason we're looking more broadly is that these agencies need a long-term direction.

Mr. Sugrue: Yes.

Mr. Nebbia: We -- you know, to continually -- we're going to take another 15 until you're in the corner here. I mean, that doesn't -- that doesn't suit their need.

The law enforcement agencies are still groaning under the last change although, you know, obviously they've moved out of that range. So, that

becomes the big challenge and why we're looking at the whole.

We really like -- even if -- even if 1755 to 1780 were the first part that got released, we still want to look at a longer-term effort for what we -- you know, what we do.

Mr. Sugrue: Yes, I'm fine with that. I just -- on another point, on the questions, Karl, you tee up a lot of questions as to what the industry could live with and is it still valuable, given these types of uses, which I think are important questions and appropriate for this group.

But don't you think we could also provide input on relocation options for the Government systems, sharing options for the Government systems?

It sounds more like you just want us to say, "What can we live with and we'll work out the other side of the equation."

Mr. Nebbia: I think the challenge there, certainly, if you have knowledge and viewpoint on other bands that you think they can -- this can logically move to, we would certainly -- you know, I would certainly appreciate that, that information and how -- you know, how they can share in other

environments. I think that would be really helpful.

We're just looking for the group that we have, the knowledge base that we have, just trying to understand, you know, as best we could, what is industry's input to us.

We're getting Government input, you know, through another, you know, basis, but we'd like to, you know, have as much as you can give.

But, if you can affect, I think, lower down on the list, toward the end, we talk about things like, you know, how might we use 1780's and the 50 but that -- that, once again, is still linked to this band.

I think ultimately we would like to know if there are other bands that you think really become -- so we can add that to the list if you want to do that, if you feel like that would be a place where you can provide, you know, input. We were happy to hear that --

Mr. Sugrue: Yes, but it sounds like -- I'm sorry. Go ahead.

Mr. Strickling: Well, I just want to say, though, that it's not off-limits, but if the question is, if this group can't provide us the help on the questions that are within your ED competence, it

doesn't -- in other words, it doesn't help us to divert and take up questions that are already being addressed by the Federal agencies.

Not that we don't welcome your input on that, but we really need your help on the first set of issues. So, if the question is, that this group can take on all of that in the time frame available to it, great, no problem.

But again, we are currently on record as saying, we're going to make a recommendation on this band by the end of September --

Mr. Nebbia: Right.

Mr. Strickling: -- so it really comes down to how this group can organize itself and address the questions that are within its unique competence within that time frame. If you can do more, great.

Mr. Sugrue: Sure. I guess -- I agree with that and I agree with the priority, as I said I -- and in the short time period given, all things considered.

I just -- it was presented a little bit like, "Take the present systems as a given and then, well, can you live with it?"

My piece, I want to say, well, with the

knowledge we have about technology and this, we think one option would be to do something to X or Y --

Mr. Nebbia: Yes.

Mr. Sugrue: -- with the present systems, which then makes the second question -- or the first question easier to answer. That's all.

Mr. Nebbia: And I think, with respect to the present systems, once again, they are realities that we have to work around.

Mr. Sugrue: Yes.

Mr. Nebbia: Some of them are going to have transition periods, and that transition is going to apply whether we reallocate in stages or even, as we found with the 1710 band, I mean, agencies actually thought when they said they had three years to get out, that they had three years to get out, and that that's the approach.

That's how they saw the process operating, that for three years, they weren't going to hear from anybody, and then they would be out by then and they wouldn't have to talk to you.

But, in fact, the first day you started calling saying: "Are you out yet?" or "Can we get this close to you?" and that sort of thing. So -- so I

think that's part of how it went.

Mr. Sugrue: Okay. But, I mean, this -- from what I hear about the past but -- what the FCC and NTIA said was that the opportunities to share direct band is --

Mr. Nebbia: Yes.

Mr. Sugrue: -- and the bids were made on the expectations of that.

Mr. Strickling: Right.

Mr. Nebbia: But then, I'm just saying that that's -- that expectation, that reality --

Mr. Sugrue: Then the agency says, "You can't share."

Mr. Nebbia: -- that reality is there has to be some mechanism of sharing on the way, even as we're transitioning out the market.

Mr. Gibson: Yes. I just wanted to ask about Tom's point because the Act contemplated sharing. In fact, there was a coordination process and all that within there that worked fairly well and, you know, something I think would be worth thinking about is lessons learned from 1710 to 1755 which may overlay this but, you know, there's a lot of stuff -- I think all of us that are in those trenches could bring to the table in terms of how that process could

work better.

Mr. Calabrese: Yes. Michael Calabrese. It seems also another dimension that we should consider. And, again, you know, in the spirit of Tom, where we're saying -- not diverting from these sort of immediate questions you want answered, but I think, you know, hearing you I think, is we begin to just -- we'll find, and particularly looking at the larger band, you know, 17 all the way up to 1850, you know, what you're saying is, there's lots of things that aren't going to get moved, you know, relocated completely for a long -- quite a long, long time.

And so, I think another dimension of this, we should keep in mind is that so many of these systems that you grant and we just scream out for a database solution for using something along the lines of the TV bands database, you know, that industry is developing now to govern access to the TV white-space channels.

And, you know -- granted, it may be a more secure, less transparent version of that, perhaps it's NTIA that's doing inputs, but I think we need to consider -- you know, consider that, at least to some degree, again, without diverting the time it takes to answer your specific questions because, if

we find that things can't be moved, we'd also be thinking about what other business models can be accommodated on some of the spectrum, even if it's only the upper half of it.

Mr. Nebbia: Okay. Rick, please.

Mr. Reaser: Yes. Rick Reaser. Yes, just to follow on, I think we need to meet the deadline, but I think these other issues -- because you don't want to have this -- we're in the middle of this whole 1710 to 1755 move, and then we're going to move again.

So, I think, after you do the September deadline you need -- if you look at the long-term part of this and somebody's got ideas about other kinds of potential sharing options, what happens in the long term for all this stuff.

Just getting out is a wonderful thing. It's going to take forever, but maybe we need to -- maybe as a follow-on to this, as we answer this, we can look at some of the things he talked about because you've got to have this database.

You have to know where all these things really are. I think your -- that 1710 to 7155, what was -- there were things there that we didn't know they were there, and things that weren't there

that -- you know, it's both directions in terms of what happened.

So, that needs to happen regardless. That could be a recommendation later, with some ideas about how to do that.

Mr. Nebbia: We can certainly look at that.

Jennifer.

Ms. Warren: Jennifer Warren. I also thought it might be helpful, since we have new folks, you know, and there's a lot of continuity, but there's a lot of new folks with new ideas.

It would be really helpful if, even though it's on the website, if there can just be a list provided of all the reports that have already been done taking about, you know, whether it's lessons learned from the prior transition, whether it's databased, so that we're focused.

You know, we focus our energy on the new topics and the things that you all really want advice on and maybe build from the stuff in the past, but that we don't have to recreate a lot of --

Mr. Nebbia: Right.

Ms. Warren: -- the work that's already been done.

Mr. Nebbia: Right.

Ms. Warren: That would be helpful. Thank you.

Mr. Nebbia: Okay. Last questions here. I wanted to mention, as we get started with this group that we ask Carl Povelites and --

Mr. Strickling: Gary.

Mr. Nebbia: -- Gary --

Mr. Strickling: Epstein.

Mr. Nebbia: -- Epstein. Sorry.

Gary Epstein to co-chair this and we're still interested in who would like to sign up.

So, even as we're here today, we are going to pass around a sign-up sheet, if you want to put your name next to that, that would help us.

But, what we would like to do is, within the next week, if you would like to add your name to it, if you could send that to Bruce Washington, and he will get you added to the list in addition to whatever we get here, but if you'll like to sign up here we'll pass these around for each of the groups.

We are going to then set up, you know, working group listserv type activities. Is Bruce still here or did he leave?

(Off-record comment.)

Mr. Nebbia: Okay. Oh, there he is.

So, we'll be setting up working group list serve type --

Mr. Washington: Yes.

Mr. Nebbia: -- mechanism with the names that we have, and so on.

So, in the last few minutes that we have, are there other specific questions that you think we should add on here, or questions out of this group that you think, at this point, you're most capable of responding to.

And then, actually, once we get the working group formed we'll be asking them to finalize that within the first, you know, couple of weeks, just to make sure we've got it nailed down.

But, we're happy to take any -- any thoughts or views on the questions that we have here right now.

Charlie.

Mr. Rush: Thank you, Karl. Charles Rush.

I don't have a question -- or I don't have a suggestion, but a question in particular to be added to this list, but I do have a question for you with regard to the actual spectrum occupancy in the

1755 to 1850 band.

Have there been any measurements that NTIA has conducted, let's say the RSMS around the country to see exactly what -- how the standard is being used, because it would seem to me that there's certain parts of the country where there's probably not going to be that much activity.

And I would think that that might be information that would be interesting to the commercial side.

Mr. Nebbia: At this point there's been no recent measurements in this range, and I think part of the -- there have been measurements taken, in fact, by T-Mobile.

But, once again, the challenge in measuring in a band where you've got very sporadic uses or uses that are done at altitude where, to pick up the signal, you need to have a highly-directional antenna that's actually tracking the aircraft.

We've not seen many people, you know, produce results that really reflect that type of operation. We certainly, you know, don't want them out there finding FBI agents on the street, you know, that kind of thing.

So, normally, if we go up to one of

those vans, they -- they tell us to go away very quickly. So -- but, so, no, there are no current measurements other than what T-Mobile did and --

Dr. McHenry: We have measurements. We'll provide them. We have -- Dennis has them in Chicago. We have them from Washington, D.C. and Chicago.

And if we don't see it, the chance of them jamming us is very low. So, even though there is that question about: If you didn't see them, does it mean anything? We don't see them, they probably won't jam a cell system.

Mr. Nebbia: Right.

Dr. McHenry: But on the intents --

Mr. Nebbia: And we fully agree fully agree with that. In the case of the telemetry downlinks, though, the more likely problem is that the cell system gets in between the big dish and the airplane. It's not the other way around.

But for most of these other cases like the satellite uplinks, we do think that the interferences into the cell system. And, once again, that's a question for industry: Can they live with that?

Because, on that basis you may be able

to make large portions of the country. In fact, as we discussed the 3500 band before, the issue of our exclusions earns there, we're protecting the cell systems that would move in.

So, -- okay. Any other thoughts on the questions?

Janice, you had your hand up.

Ms. Obuchowski: Janice Obuchowski.

Karl, sometime in this process, and I'm not sure specifically, only this -- this question. I've -- I would welcome a brief from the FCC in the opposite direction.

You raised, Charlie, you know, I guess the Uniform Satellite Band and, you know, it's been a long time coming. That was supposed to be the classic example of the ability to share and work together and, you know, it turns out that radio broadcasters in there and -- you know it's been a bit of a case study in the difficulty where some of these Federal users, where they're asked to relocate into another band.

A lot of the success of this is that it depends on the two-way street aspect of some of the alternative scenarios we can come up with. And I would just like to hear some input from the FCC as it

looks at some of the issues that we're deliberating on.

Mr. Nebbia: Any other questions?

Mr. Alder: I just have a small point regarding the question. It seems to me the presumption of symmetrically-paired -- this is Larry Alder, by the way -- symmetrically-paired in this world of data may not be a hard assumption.

You might be able to pair 25 megahertz of AWS-3 with 20 megahertz of -- you know, so it seems like this hard, magic number -- I mean, you've got to pretty much assume that. I don't know if that's a going in a good assumption or not.

Mr. Nebbia: Yes. I think, certainly, that has been what we've been presented with. Most people will say it's not a hard assumption. So, if there is some flexibility there I think people are -- you know we've --

Mr. Alder: I don't know if I can answer that, but just it's something to look at that.

Mr. Nebbia: -- but, yes.

Mr. Alder: Okay.

Mr. Nebbia: It's just what we're going into.

Mr. Povelites: Carl Povelites. I think on

the downlink, that's probably that, and the uplinks, I mean, asymmetrical pairing may be beneficial, but it depends on which direction you're going.

Mr. Alder: Yes, so this is the uplink band.

Mr. Povelites: Yes.

Mr. Alder: The presumption is the uplink so the idea is, maybe you can deal with -- you could have a 25 down and a 20 -- you know, there might be some flexibility there.

Mr. Nebbia: I think you will -- certainly, in my conversations with industry people, they always emphasize the fact that, while that was the original vision, people are going to be downloading video and all this kind of -- more and more people are sending pictures and their own video directly from their handsets.

So, they feel like that's greatly increased the need, even in the other direction. So, I don't know, it's not that clear.

Okay. We -- we've now come to the end of the first area, and it's time for our -- what did I schedule? -- 10-minute break. So, if you need to be escorted down the hall or -- Mike knows where the bathrooms are.

So, please -- do they? Yes. We just went through that --

Ms. Obuchowski: So, Karl, I have a critical question. Is the rule here so Draconian that we cannot pass the hat and buy our own doughnut?

Mr. Nebbia: The problem is they don't want the food in the room. It's not -- it's not like they've got a monopoly on doughnuts down in the cafeteria and are trying to force us to buy them down there.

They've just -- they've just had lots of issues with food being left and spilled and whatever, so -- anyway, we'll -- I'm sure Larry's going to take this to the highest -- so he'll get permission for our next meeting from the Secretary.

(Whereupon, the above-entitled matter went off the record at 10:32 a.m. and resumed at 10:45 a.m.)

Dr. Fontes: Okay. I think we're ready to start. I apologize for the voice, by the way. I've been fighting this cold for about the last week, and so it just kind of comes and goes, so -- but I have it today.

I want to thank Karl for his presentation this morning. I think that his presentation, clearly,

probably raises more questions than answers.

But it's clearly important to recognize what's there and, more importantly, what is there in terms of longevity in terms of technology and the use of that technology in these bands and what this ultimately means for all of us with respect to any of the commercial interests, particularly in the 1755 to 1780 band.

So, we're going to be coming back to this in a bit, but what I'd like to do in this next go-around is take a look at these various groups that we have here and go through the questions that we initially proposed for those groups and to see if there is some need to refine these questions or to prioritize them so that we're dealing with the first one, two or three, and we all agree that these are the first one, two or three that should be addressed in these various groups.

And so, if you don't mind taking a look at the series of questions that have been presented, and we're going to, for the sake of this -- broadening the discussion of it, we're going to move away from the presentation that Karl has presented and take a look at the overall 1755 to 1850 band for a moment, and just go to these other issues, such as spectrum

sharing, unlicensed and management, and to those questions and then we'll come back and focus on the long series of questions relating specifically to the 1755 to 1850.

Bryan.

Mr. Sugrue: Just so -- we just want signing up for groups -- are you limited to one group or multiple or --

Dr. Fontes: Tom?

Mr. Sugrue: -- two or --

Dr. Fontes: If there are individuals who feel they have the resources, abilities and interest in signing up for more than one group, go for it.

Mr. Sugrue: I'm not saying I'm doing that. I just wanted to know.

Dr. Fontes: I don't think you should feel compelled to only participate in one group. Just like we're moving away from this command-and-control spectrum, we're moving away from the --

Mr. Sugrue: Yes. Right.

Dr. Fontes: -- we're moving --

Mr. Sugrue: You'll have to bid on it.

Dr. Fontes: And some of these, for an example, you know, and just listening to Karl's presentation and taking a look at the spectrum

management improvements, I mean, there's -- there's a series of questions that go to the immediate issues that Karl has raised, on the spectrum side of the question, you know, just looking specifically at the band and the usage, but it also raises a series of questions that may involve looking at spectrum management in the long-term perspective.

And so, you know, these are the opportunities, I think, that we have in each of these groups to take a look at very specific questions and try to identify the priorities of those questions initially.

And, again, we could all work in a variety of different groups. I don't think anybody would restrict your willingness to participate in only one group.

So, we've got you down for four, Tom.

Mr. Nebbia: And I should note, up front, in this particular group, we've asked a couple individuals, and they've not given me a final statement yet on their availability, so if there is someone who would like to jump in as one of the working group chairs, I would -- we'd love to, you know, get somebody.

This is the spectrum sharing, is the next

one. So, we are looking for others who would like to actually run that group. We've got -- we've had some contact, but I just don't want to overreach on where we've concluded on that.

Okay. Yes. So any -- did I see a hand go up?

Mr. Alder: We've talked.

Mr. Nebbia: Okay. And you're -- okay. So, Larry and I have talked so I just want to make sure I got a firm conclusion there. We've got one other still outstanding so, Mark --

So you're happy to do it?

Dr. McHenry: Yes.

Mr. Nebbia: Okay. Great.

(Off-record comment.)

Mr. Nebbia: Here I was trying to be Mr. Nice Guy and folks -- okay. So, Larry and Mark would take on this group.

So, if I could, real quickly -- please be thinking, if there's other questions you think are appropriate. I just want to describe very briefly why we've put these in here.

We've allotted about 15 minutes for each of these segments, so we don't have as much time. But certainly, on the spectrum sharing side

we've heard a lot from the unlicensed community about sharing spectrum, lots of techniques out there, to possibly do that.

We are hearing, you know, about unlicensed and white spaces and that sort of thing. When we're searching for more spectrum, there's going to be a significant, you know, question coming up ahead, particularly with some of the radar bands that we have, and that is whether the commercial cellular world is, in fact, willing to get into these types of technical spectrum sharing mechanisms to adapt them to their handsets and so on.

So, we've laid out different -- different approaches, but I think our question here is ultimately what kinds of sharing is that community willing to consider in the days ahead as spectrum gets to be less and less, particularly below three gigahertz or below four gigahertz. We've only got so much there. So, that's why we ask that question.

Also, the test bed concept is getting a lot of visibility on the Hill, here and around the country. We have defined our test bed at NTIA where we are testing new cognitive technologies in the 406 to 420 megahertz band, so basically we're testing specific types of devices that have been put

up by industry against known Government operations for mobile trunk radio essentially.

There's another band that the Commission has included that's public safety on the Federal, non-Federal side, but that test bed is walking through the same process that we use the five gigahertz for WiFi.

We establish what were systems that we're testing, what capabilities we want. We provide the specific characteristics of the system. We develop recognized and agreed test plans.

We test the devices inside of themselves so we understand exactly how they are responding to what they're sensing, those types of things which requires a lot of commitment and involvement between the testers and the equipment providers.

We have agreements on what the results are going to mean as we interpret them so we don't come out with a situation where we've done all the tests, and then everybody disagrees on what they mean. We don't want to be there.

But, in doing that, we've had to have a very limited test package, and it's taking us a long time to walk through those processes.

So, as we start talking about test beds we need to understand, is that what people are referring to or are they referring to something different? We've got a lab area out in Idaho, I think, run by -- who is that? Bruce, do you remember from --

Mr. Washington: Energy.

Mr. Nebbia: Is it run by Energy? I don't know whether --

Mr. Washington: It's Energy division --

Mr. Nebbia: Okay. But it's a large facility out there, a space where they are offering the opportunity for people to come in and talk -- or test equipment.

Is that what we mean? We're just meaning a location for people to go test. Other times people have referred to it, "Well, give us a piece of spectrum that we can go test anywhere."

That, obviously, creates a different environment, and can we come up with ten or 20 megahertz of spectrum that's available everywhere for everybody to just to test in.

And of course, when you use that principle, the people that do the testing, once they've shown they can do it, of course, want to stay there.

They don't want to go somewhere else after they've shown that they can do it there.

So, I think it would certainly be helpful, as we're having this dialogue about test beds, if we understood what people thought that should be -- and so on.

So, then there's also been a lot of discussion on the concept of accepting interference levels and so on. We've, you know, traditionally defined some things by, "You can't cause harmful interference," that's not defined specifically, so it gets hard when you can't define it, to know it when you see it, but some of us know it when we see it, and you're just not seeing it right. So that's the -- you know that's the --

But, there's particular folks out there that I know that are proponents of this idea that, when we bring more systems in the same area, they're going to have to learn how to accept interference from one another, we're going to have to build them more capable of accepting interference, and that sort of thing.

Then, certainly setting up the sharing arrangements, one of the challenges we have right now at five gigahertz, we've had -- we've had a few

significant ones, interference situations where we have WiFi sharing with Government radar systems.

But one of the challenges ahead of is, is the FAA is developing -- is updating the radars that they have on the band and they want to, in the future, implement different characteristics than the industry used to develop the WiFi requirement.

So, their understanding from the outset was that they could continue to evolve. They're the primary user. How do we -- how do we deal with that?

And then last, once again, whether there's near or midterm sharing approaches, do you think are really valuable. Once, you know, we get into these -- the more technically-oriented sharing concepts, they start sounding like something that's going to take a little while to develop and prove, but are there other things that we think work -- you know, would work more in the short term.

So, any other questions or thoughts?

Yes, ma'am.

Ms. Obuchowski: Janice Obuchowski. A lot of this work has, I think, been articulated in past rounds here, but I would suggest we at least raise there's a possible question that -- the question

of enforcement as it relates to sharing.

Everything -- a lot of things can be done with both money and good manners, but in some of my experiences with sharing, people use interference as a competitive tool unless they're confident that the Government does want to make sure that companies abide by the spectrum commitments they've made to.

So, that's one issue. I think it's got to be contended with, or sharing will not be what it ought to be. And, you know, frankly, there's the question of expense.

You know, Dr. McHenry's come up with some great technology that will enable sharing. Somebody needs to pay for it.

And you get into these sharing scenarios, is it the -- you know, is it all parties in a band that need to abide by certain protocols, is it the new entrants into a band that has to abide by protocols already in place by the incumbents?

I mean, those are -- that's where the rubber meets the road in my estimation with sharing.

Dr. Fontes: I think you're right. I think you're right on point. I mean, there has historically been an issue, particularly where interference does

occur, how enforcement is done in terms of remedying the interference.

Ms. Obuchowski: I see people -- and too bad -- I mean, too bad I've been around so long but, you know, you see people say, "I'm going to interfere. Make my day." And four years later maybe the FCC will stop its rulemaking.

You know, that's just not a climate that's going to engender a more progressive approach to sharing.

Mr. Nebbia: Okay. Other thoughts before we move on to the next subject?

Yes.

Mr. Alder: Yes. This is Larry Alder. My thought -- and I talked to a little bit about this, Karl -- is I'd like to see us come up with some question that's a little more specific.

I fear that spectrum sharing has an abstract concept we batted around before. I'd like to just to see us talk about some specific places that we could do sharing, whether it's a specific -- preferably some specific bands that we could put questions on the table to deal with.

Otherwise, I fear that it's just kind of a theoretical work and -- maybe that's our first task, is

to -- what is -- to define the question.

I think it's Einstein that said, "If I've got to solve a problem in ten days, I spend nine days formulating the question."

Mr. Nebbia: Yes. I think one of the challenges there is, as you're -- as we -- I agree with you that the sharing environment right now, you've got to know who's on both sides and how they're going to make that sharing work.

I think one of the challenges is, is that there are some of these overriding questions that we've -- some of those that we've laid out here -- and Janice has asked about enforcement -- that many people are asking, saying, "Before I get into a discussion about my band, can you tell me how you're going to -- you know, how are we going to deal with enforcement," because they tend not to want to get into that discussion if they don't feel more confident than we are today about how well people are going to be able to enforce the outcomes.

But certainly, ultimately, if we can look at -- specific bands can be suggested and we can look at that. That's -- you know, that would be one approach, but these are questions based on efforts that we've made at sharing or looking at the test bed

that we keep coming back to.

There's a lot of dialogue going on in this. Ultimately, if there's specific bands that we can pull out and then discuss as an example, maybe that even helps us to understand these issues better.

Dr. Rosston: I think Larry's point is -- exactly right, is that sort of if you start with a framework, maybe in this idea of the rotating meetings before we -- next will be, let's identify a specific band to show how the principles and the suggestions work, and then you can have -- and then that will also help flesh out the general ideas into a very specific implementation.

Mr. Alder: I agree. If we do that kind of rolling thing, maybe we can start off with some of these general questions that are on the table --

Mr. Nebbia: Right. Right.

Mr. Alder: -- and then get to some specific examples.

Mr. Nebbia: Sure. Jennifer, please.

Ms. Warren: Jennifer Warren. When you started this, to ask -- kind of to ask for feedback on the prioritization of some of the questions that you were asking in different --

Mr. Nebbia: Yes.

Ms. Warren: -- in different areas, and the one -- aside from agreeing with Janice on the enforcement one, I do think the one that you highlighted about how do we ensure we're not breathing in place technology of anybody that's looking to share, whether it's the Federal user, variety of commercial users, how do we make sure that we can continue technology innovation on all sides and still have a sharing environment?

I think that's -- that's important to at least address up front and, if we can't figure -- if we can't, then we need to talk about that as pro's and con's, and I don't mean in our old day, our former CSMAC pro's and con's.

I mean, you know, what are the -- what are the pluses and minuses? That's all.

Dr. Fontes: I think it's -- correct me if I'm wrong, but I think that goes to what Janice was saying in terms of how do we accommodate the new entrant into the band that you are now sharing that band with, and does that have any impact on, in essence, freezing technology? Is that correct?

Ms. Warren: Yes. I mean, I think Janice was more focused on the enforcement side. I'm more focused on just allowing technology

innovation on all sides to continue to move forward.

Dr. Fontes: Yes.

Ms. Warren: Right.

Dr. Fontes: But I think, on Larry's question, I think Juan Carlos -- or, excuse me, Carl Povelites -- I am sorry. I've known Carl for a long time as Juan Carlos, just to distinguish him, although Larry's in the room.

So, Carl Povelites. Excuse me, I'm sorry. I'm a little bit embarrassed.

Mr. Nebbia: That's okay, Larry.

Dr. Fontes: But that's how I distinguish Carl from a variety of other people.

But one of the things that Karl mentioned earlier was to take a look at some of the specific chunks, if you will.

To your point, I think you're right with respect to identifying specific bands that we may want to take a look at with the issue of sharing.

For an example, in the 1755 to 1780 you may want to try to look at, you know, are we going to mitigate or try to reduce sharing in that band, so as to have a pure block, if you will, and then take a look at the feasibility of sharing other blocks throughout this band.

Mr. Nebbia: So, let me ask the question: Can we start off with Question D, then, in this group? That's the one on how do we grade sharing arrangements that still allow for evolution.

I mean, we'll have time to work through these and prioritize others as we go along, and the group can come back with some recommendations as to what they want to follow on with.

But, just to get us off the ground there, does that work?

Mr. Alder: Just to -- again, this is Larry. So the process can be a single question or not?

Mr. Nebbia: I don't -- once again, I am looking for the clearest way to get answers within a short period of time, so if people feel like they can do more than one, great, but I'd rather -- one --

Mr. Alder: No, one single question --

(Laughter.)

Mr. Nebbia: That's two of you.

Participant: Yes. Each one take a question.

Mr. Nebbia: Really.

Mark, and then we've got to move onto the next --

Dr. McHenry: Well, how do we recommend? I mean, we all could say yes, we want to do D. We agree that's true, so now what do you -- what would be helpful?

We agreed to, on B but, yes, we want to make technology evolve.

Mr. Nebbia: How do we, Mark.

Dr. McHenry: So you want a list of the "how's"?

Mr. Nebbia: I want some recommendations or a recommendation from you how to make that possible. But right now I've got a situation. We've got a great sharing things, had some hiccups in it at five gigahertz.

The sensing works. We're able to make that work, but FAA wants to change their radars and, of course, industry then says, "Well, our radar" -- or "Our devices are sensing the kind of radars you have now."

So, how -- I mean, that's a critical issue that we -- that we resolve. Okay. Thank you.

Mr. Alder: Are you good with that being the question, Mark?

Dr. McHenry: Well, you said that the answer should be, "NTI should do X," which is not

the same as the answer should be, "Here's a technical approach." So, I guess we use "a technical approach from A to Z."

Mr. Reaser: The following procedure will make --

Mr. Nebbia: So, NTI should take this approach in dealing with this issue.

Dr. McHenry: Okay.

Mr. Reaser: And "Here's our recommendation on how you do that"? Right?

Mr. Nebbia: Exactly.

Dr. McHenry: Lots of ideas how to do that.

Mr. Nebbia: Okay. Next subject is "Unlicensed." We've had -- a good bit of work has gone in in this area before, but we've identified a few areas that did not get answered in the last aspect.

We've got enforcement called out here, particularly because enforcement for unlicensed can be a different issue than general enforcement, in that you don't know who the people are or where they are, so that's got it's own -- it's own issues.

We're also seeing, certainly in -- as devices get out more in the hands of the public, there are more software-based abilities of the users to

change their devices and that sort of thing.

So, when we talk about enforcement, we've got several, you know, specific areas related to that.

The question of dedicated bands pops up every once in a while. It came up in the FCC's agency broadband plan, and it suggested a hundred megahertz or something should be set aside.

We've never done that in the U.S. We've had other bands that we've called "unlicensed," but they've actually had license services in them also.

But, if we were to do that, of course, the two critical questions is, you know, first of all: "Do they need that?" and "Which bands would we suggest?" But then, ultimately, "If we're going to have to move people, how do we pay for that from an unlicensed community?"

And I know a number of years ago there was a request that came for NTIA to do a study on that. There was a lot of discussion on it. A lot of the solutions sounded like taxation, and they didn't get much further interest.

So -- but, anyway, then the last area that's come up recently, as we've got various pieces

of legislation that do ask about unlicensed operations is: How we inventory those, what type of information would be useful to the community to know about them?

Certainly, when DoD cranked up its trunk mobile radio systems in 380 to 400, it was not public knowledge, at least to them, that the garage door industry had settled down there years ago in that band, and ultimately there were interference issues related to that.

I mean, there's no database of unlicensed use and, once again, in the hands of individuals, I'm not sure how you track them exactly but, you know, what would be useful.

The bills that are currently on the table do have something related to that and, you know, it would be good to have some, you know, input on what you think about that.

Any other thoughts or questions on the unlicensed side? We have asked, in this case, Michael Calabrese to continue with his leadership effort, and Janice also to follow up with this.

So, any --

Mr. Hatfield: Hello. This is Dale.

Mr. Nebbia: Dale.

Mr. Hatfield: I don't mean to interrupt, but we have a possibility about receiver standards, per se, and of course, that's part of the legislation as well, but you know, in a lot of these cases the problem is that it's in a wide-open -- wide-open receivers, and we don't seem to be explicitly looking at that issue.

And perhaps it's too general, given the specifics of what you're asking us to do there, but I thought just maybe if you would want to comment on that.

Certainly, and gathering information or inventory out there, one of the things you would need to know is how open the front end is, for example.

Mr. Nebbia: Well, I think from our standpoint, receiver standards weren't necessarily specific to these topics. I mean, receiver standards, of course, could be an issue for unlicensed, but it's also an issue for licensed systems.

I think there has been some discussion of that in the past in the group here, so it just did not come up as the, you know, a primary point of focus as we put together these four groups.

I mean, it links to a number of things

here, but I think at this point we did not see that as being one of the, you know, immediately solvable items, and this group -- beyond the information that you've provided and feedback you've provided in the past.

I realize that receiver standards aren't a problem, except with GPS right now. So, Mike, then Mark.

Mr. Gibson: Yes. Mark Gibson. One thing that occurs to me, though, with respect to unlicensed, and Michael touched on it earlier, is uses, you know, and use of database -- databased enabled radios since, you know, that's what white space is all about.

And I would really like to see another business case for that. So if -- it may be worthwhile talking about that.

You have enforcement-dedicated bands in inventory, you know, databases enable coexistence, and so there are sooner or later, will be some lessons learned that can circle back into this, so it might be worth a discussion.

Mr. Nebbia: Well, I think in this case, certainly the database concept is listed under the spectrum sharing aspect --

Mr. Gibson: Right.

Mr. Nebbia: -- because, once again, it can pertain to either of the groups. So, I think we prefer --

Mr. Gibson: Okay.

Mr. Nebbia: -- that concept get discussed there. We're trying to discuss things here that are peculiar to unlicensed.

Mr. Gibson: Right.

Mr. Nebbia: You know, and so --

Yes, sir.

Mr. Calabrese: Yes. Michael Calabrese. There are also variations on unlicensed that may be, you know, suitable for -- or particularly suitable for Federal, you know, sharing.

So, for example, light licensing such as we did, you know, in the 3650 to 3700 band originally was an unlicensed proceeding, and then they called it light licensing but, you know, you have variations on registration, for example, so that people -- you know, if you need to find people or so on.

So, anyway, I think -- I don't know if that would fit into one of the existing questions, perhaps, but I think that may be worth considering,

is there some variations on the unlicensed theme that could be more useful in certain situations.

Mr. Nebbia: Larry.

Mr. Alder: My question was -- Larry Alder. My question was really for you, Karl. If you're talking about having unlicensed operation in a band that's used by NTIA, what's the most pressing question -- and you get that you said, "We can't do that because we don't understand this."

And I look at this question list and I'm not sure I -- something's jumping out at me.

Mr. Nebbia: Right. Well, certainly, any of the first three items -- or the items under A, we are facing right now. We've got these questions in front of us. We've got cases where the military is operating a band that they're allocated to operate in, licensed to operate in, but people are getting interference and going to -- you know, getting support through newspapers or political people to help them argue for why unlicensed should be protected.

That's an issue. And I think we would certainly like to be able to hear from a group that has interest in the commercial community as to what stand or position do you think the Government

should take.

I mean, in the end, that pertains to all licensed users ultimately to have to deal with it, but the Government faces particular, you know, public issues with getting into --

So, that's certainly active right now. There are cases where we do have interference from unlicensed and the Government guys really don't want to go to people's homes and say, you know, stop doing what you're doing. That's probably less of a -- you know, a case that we have.

We, in the five gigahertz area -- and we've had some people tweaking software issues and that's certainly, you know, valid. And then you get to the point where, if there is a problem of unlicensed, just chasing it all down is an issue.

So, I think that leads the questions like, well, what do we create? Missions rules or whatever that provide a greater guarantee that there's not going to be interference and that sort of thing.

So, any of those four are right in front of us. Those who are asking right now, and the ones that we may be directed to do the inventory here shortly, we're going to know how people think we should approach inventory unlicensed. I mean,

that's going to be on our plate.

The dedicated bands question, I'm not sure, from our standpoint, where nothing is right on the table right now, so I guess I would prefer those toward the top as a starting point and maybe, as we look at those, we can get on this inventory thing when that -- you know, when that comes out.

So, as far as I'm concerned, any of those four under A you want to take out would be great for me.

Okay. Next subject, Spectrum Management Improvements. We did distribute the recent GAO report -- sorry.

Dr. Fontes: Were there any more questions, then, that folks wanted to address with respect to unlicensed?

(No response.)

Mr. Nebbia: Okay. On the spectrum management improvements side -- and let me send that sheet around as we -- thank you.

Once again, there's been a report from GAO. Some of the questions here are linked specifically to that, but for instance, in the first case, we are working to improve our automation capability.

And one of the issues that comes up

there is, we want to move toward a situation where we can use our automation capability for most of the coordination processes that we have, is that you need a whole lot more date in them than we currently have in them to do that coordination.

It has to be current. It has to be correct, but you have to have different points of data as a beginning point, and at least in some of the discussions we've had, that -- the kinds of data that you would need may vary service-by-service.

The question comes up whether the Commission would have to do rulemakings to update all the bands that they are involved in, but, you know, how we do that, I think is very important: What data do we really need? How do we transition to that over the long run?

Mr. Tramont: So, Karl, on that one, that's a -- that's a commercial as well as noncommercial question?

Mr. Nebbia: I think it applies, really, on both sides. I think the impact is on -- because, once again, if we want to run a compatibility analysis in a shared band and we don't have the data on the Commission side, that's -- that's an issue.

Mr. Tramont: And is that assessment

of what NTIA thinks it needs from additional FCC licensees, is that something that you've already identified, or is that a work?

Mr. Nebbia: We've put together a -- what we call a data dictionary for our future FSMS system. But, once again, that -- that is set up to allow locations for all the data you might need across all the various types of operations.

We've not gotten down to specifics with -- with the Commission said, "In this band, this is exactly what we need," and so on.

There's some spectrum management packages out there tailored for specific bands that do require certain data --

Mr. Tramont: Right.

Mr. Nebbia: -- and we've started implementing some of them, and it does require us to get a lot more data from the agencies than we've ever gotten before.

Rick.

Mr. Reaser: Let me make a comment about that. Just as an example, and I think that we -- we've just captured absolutely a lot -- that's one thing that we do in my shop.

An FCC license for like a ATT-63 bar

control radar fits on one page. The same document that it turned in on EL-CID is almost a hundred pages, and it's still not adequate to describe probably what you need.

There's data there you don't need to do sharing analysis and there's a lot of data that you don't -- that you -- you know, it's just -- it's both directions.

And so, at some point you probably ought to figure out what you really need. I can't do a compatibility analysis by looking at an FCC license. I know the location, power, mission designator, and that's about it.

So, then, and the stuff I get on an EL-CID, there's stuff there that's also missing and a lot of stuff, I don't -- what the hell's that in there for.

So, anyway, just -- just as a point, if you really want to do user databases to actually do technical sharing analysis, you have some people sit down and think about this.

We can no longer build radios that have a data source, a modulator, a power-out for an antenna. We don't -- we haven't built one of those at Raytheon for a long time.

We have a computer, direct digital

modulation to a TR module that's phase-shifted. That's how we do it. We don't use any of those things, and that's -- but that's how we kind of regulate things. We regulate things on models of radios that were built in the twenties.

Dr. Fontes: In terms of -- Bryan, you raised an important question there. I mean, and certainly you did as well, in terms of ensuring that if you're going to migrate to a database system, that we have the appropriate data required for that system to make that system useable --

Mr. Nebbia: Right.

Dr. Fontes: -- and manageable, and to allow it to be upgraded and modified over time.

Mr. Tramont: And GAO didn't -- obviously, we're concerned that the database, the new databases under development is not adequately funded or it's going to take some time to get there.

I didn't get as much of sense of the details of what was in it or not in it in future systems. That will just be something we'll have to figure out, and it -- it's starting to break apart the work kind of a little bit, that maybe we start there, but maybe we can talk more about that after we --

Mr. Nebbia: Sure. Sure.

Okay. We also found issues in our most recent processes in this fast-track analysis, for instance, where, based on our history of not wanting to require licensing of certain types of devices.

That simplifies our processes. It decreases the amount of people and resources that we have to use. There are certain uses that we don't license, and we don't record, and we found, looking two particular bands, 1675 to 1710, the vast majority of users in that band receiving the weather data are not licensed. They're not registered. They're not -- the information on who they are and where there are is not known.

And, from a standpoint of, in the past, did we need to know that, the reality is we didn't need to know that. We were happy for anybody that wanted to go out there and use that weather data. They use it for alarm systems. They use it for local broadcast. They use it for all kinds of things.

But, when it came time to look at the band it made it a challenge because we didn't know who those folks were or where they were or what they had invested and that sort of thing.

Similarly, in the 4.2 gigahertz band, that's 200 megahertz allocated worldwide for radio

altimeters. Well, we -- because of that, the whole world has agreed to that. We've never licensed them. Just let them operate in there.

We gave them 200 megahertz to work in and they do their best to do that. But when it came time, okay, we want to look at this band, we didn't have any data. We didn't have any information on that.

So, once again, historically, that worked. Does it work now? What changes, you know, should we look at?

Verification of data is one of the items that's clearly come up on the GAO report. What does that require? How would we go about that? That might be anything from, you know, the field office person signing the frequency assignment request and putting their name on it, to somebody actually having to go out there with a spectrum analyzer and monitor whether they're operating or not.

Certainly, with 350,000 or something total records on the government side and many more on the FCC side, you know, it would certainly be a great undertaking to look at a significant number of those records, monitor or check and make sure they were there.

And, of course, on the government side, being assured that the day you were out looking for them they were actually operating. You know, they may not be operating that day and the fact that you didn't see them doesn't -- doesn't mean that they don't ever use that channel.

So, data accuracy is a big thing. One of the reasons why -- at this point I probably should mention, Mark Gibson from Comsearch is one of the people we've asked to do this, and Bryan Tramont -- is we would like to know from the commercial community what help can you provide us. Bryan just couldn't stay out of the --

But, you know, what can you do in helping us in terms of how to make this work. Obviously, if you have a commercial business, your job is spectrum coordination and you draw money in from each person who wants access to that band.

Maybe that's how you fund it and make it work and there's -- you do go out -- maybe you do go out and verify exactly what they're doing.

From our standpoint, with reduced resources and so on, you know, what approaches could we really use to make sure that this data was good.

And then, we've got the federal and national strategic planning as the last subject. There's been some conversation on here on that in the past, but I think we need some more clarity on exactly what people thing should be in that.

So, once again, are there other questions or comments that you'd like to make on the questions that we've got set out here. And then the last thing, which of these questions do you think the group would like to take on first?

Mr. Tramont: This is Bryan Tramont. The GAO report talks about examining the five-year Senate Review Process.

Mr. Nebbia: Right.

Mr. Tramont: Do you think that is subsumed in the --

Mr. Nebbia: The data -- I consider that as part of the data accuracy --

Mr. Tramont: Okay.

Mr. Nebbia: -- component. Yes. So, in fact, if you want to call that out specifically, that's -- that works, too.

Mr. Tramont: Okay.

Mr. Nebbia: Okay. So, any thoughts -- is that -- I mean, right now, obviously, we -- we

certainly want to respond with respect to the questions that are coming on these issues, so if that's the first one you think is worth taking on, I'm happy to -- to go that route.

So, does that sound good, the data verification question?

Yes, Jennifer.

Ms. Warren: Jennifer Warren. I'd like to put up there, though, kind of on a parallel level with that, the right data to support the compatibility analysis.

I think that's pretty fundamental so, you know, either in parallel or somehow. I'll look to the two chairs to figure that out, but I would put that on the parallel.

Mr. Nebbia: But certainly in the cycle that we're going to be in, there's no problem with it if we start on this one question. Then we'll start on that at -- even at the next meeting, and get that process --

Mr. Dombrowsky: Yes. Tom Dombrowsky. I just wanted to add in there, I see the need for verification of data, but I don't really see a fundamental point that should be built in there which is a burden factor.

I mean, if you look at the FCC side and the NTIA side, you have folks -- it's a big burden to, one, provide it the first time, but then, two, to actually maintain the data, so I think that's just something that should fundamentally at least be discussed in terms of figuring out and getting all this data, and you're going to get an awful lot of push-back from an awful lot of folks if you want to get enough data to do a compatibility analysis.

Mr. Nebbia: Right.

Mr. Dombrowsky: I mean, we had those fights for 20 years with the FCC and folks never want to provide data if they can avoid providing data.

And, frankly, once you provide the data, making sure that data is actually accurate the next day is a big problem.

Ms. Warren: I think, from my perspective it kind of goes back a little bit to what Rick said, is when you're doing the initial collection, first let's make sure you're collecting all the data that you should be collecting and not collecting what you don't need, and then the burden should be reduced because you're not doing multiple data calls, which I agree, it is a huge burden.

And I think if there is a flaw in that you can't rely on the data the next day, we've got a huge problem going forward.

Mr. Nebbia: Yes.

Ms. Warren: So, we need to address that.

Mr. Nebbia: Well, I mean, certainly, when we transitioned out of 1710-1755, there were some links in there that we found that the agencies claimed that they needed to move. They received money for it and then they turned the money back in because they found the systems were no longer there.

But, as we look at those cases where that comes up, I think most of those cases in that particular situation were some specific fixed point-to-point links.

And if I have a thousand fixed point-to-point links around the country in different places and I can pull 10 or 15 of them out, it doesn't change the overall picture in terms of can we reallocate out of the band. It doesn't change the major policy viewpoint.

It may change -- you know, there may be a problem, somebody tried to coordinate a

frequency in that location, but from the decisions that we're being asked to make in terms of turning over spectrum, whether I know where every one of those links is doesn't seem to impact that decision level.

But, so, I think that's part of what we need to keep in mind.

Yes, sir.

Dr. Furchtgott-Roth: Harold Furchtgott-Roth. I just want to echo what Tom was saying, and this comes up at the FCC all the time on band requests, and it's a very sensitive issue, and it's not just on point-to-point microwave.

It could be on -- it could be on a commercial mobile radio service that, today, there's no service, but it's being built out in the next two or three years, and there's just enormous commercial sensitivity about turning over information that is very commercially-sensitive to competitors and the like.

That isn't to say that collecting information isn't important, and there needs to be -- to be done to create a national database, but I think Tom's point about sensitivity to what things industries actually really want to hand to hand over, is very firm.

Mr. Nebbia: Sure. Yes, there was a -- another hand.

Mr. Reaser: I was just was going to say one thing about this data accuracy thing is -- is that what we found and sometimes we coordinate with FCC licensees, the people just renewing these licenses, and they're not even using them.

And so you get in the position that you're blocking and putting something in from something that doesn't exist just because the guy paid us sixty bucks.

And so you ask yourself, you know, there's another -- I think there's another dimension. If you're going to share a spectrum, share a spectrum. Don't just lock it up with a $60 fee.

I mean -- and that goes on the federal side, too, but I -- I went through some coordination activities. We actually had Comsearch help us with this. We called the guy. Didn't exit.

Mr. Nebbia: Janice, do you have --

Ms. Obuchowski: No, I haven't talked to Rick. There's obviously a federal corollary to Harold's point, including classified systems. I mean, the FBI or whoever is using some of these flower -- flower video -- they probably don't want the

parameters made too public and the location data.

So, you know, I think it's just a tough call. And then, these are all good questions. I -- on Topic 4, just a bit of a soapbox point, GAO did a really fine report here, but the idea of a long-range federal plan, when there's no federal budget is just one of those utopian concepts.

I mean, we can solve so many of these problems with, you now, upgraded technology, upgraded databases, you know, the federal government, people involved in this would love that if they believed it was going to happen. But, it's utopian in this climate.

Mr. Nebbia: Other comments before we move on?

(No response.)

Mr. Nebbia: Okay. So, in this particular case, can -- which of these subjects do we want to try to talk about first?

We have one suggestion, data verification. We've got Jennifer's suggestion that figuring out how we do the data, what data we need --

Mr. Tramont: I thought we had settled on that.

Mr. Nebbia: On that one?

Mr. Tramont: Yes. No, on that dual approach.

Mr. Nebbia: Yes.

Mr. Tramont: On C and B being that -- C being the lead horse and then B being a fast-follower or simultaneous.

Mr. Nebbia: Okay.

Mr. Tramont: Sorry. A. Sorry. A.

Mr. Nebbia: A and C.

Mr. Tramont: Sorry.

Mr. Nebbia: Okay. So, from a -- I guess, an administrative standpoint, what we are, then, asking is we've got the lists that have been turned in so far.

We've got 13 names on the 500 megahertz, the same on spectrum sharing. About seven on the unlicensed side right now, and we're only five on the management improvements.

(Simultaneous speaking.)

Mr. Nebbia: We'll put Dale down for all of them. But, so, what we would like you to do, within the next week, if you have an interest in putting your name on the list, you're on the phone today and couldn't be here, please send an email to

Bruce Washington and tell him which of the lists you would like to be on.

We will, then, get those lists turned around and out to you so that if there's any tweaking of the question, any specification of the question, we would like to get that resolved probably within the two-week period after that.

So, one week to get everybody's names in and the lists out, and then two weeks after that, just in case the -- within the working group they want to tweak the question a little bit, that's fine. We'll work with that. And please provide, you know, that tweaking from the working group chairs back to Bruce and to me and the co-chairs here so that we can -- if we have any hiccups with that we can work with that.

Dr. McHenry: How will we know we're on the list? Are you going to send out a list to everyone that says this is what we captured, we should run with it?

Mr. Nebbia: We'll come up with some intelligent way of handling that.

Mark, I see you on one, two, three, four.

Dr. McHenry: I couldn't resist.

Mr. Nebbia: So -- okay. So, your name will find its way on four of those lists and --

Dr. Fontes: I think everybody should have the list for each of the groups so you know who's working on each of the groups.

Mr. Nebbia: Okay.

Dr. Fontes: And also, you know, the posting of when your calls are going to be made or something of this nature so that folks have an idea when these calls are taking place.

But I think, as Karl indicated, is the specific question, and so that everybody knows what specific question or questions that are first on the list to be addressed.

Mr. Nebbia: Okay. Okay. We are now at the 11:30 point, so we are on the next agenda item.

Dr. Fontes: Yes. Right. Okay. I'm in charge again. This the opportunity, apparently, at each of these meetings to have those who are here represent -- and just from the public, to provide any comments that they may have.

And so, we'll open it up. Could you state your name, please for the group.

Mr. Snider: Do you want me to speak

into the mic or is that not necessary?

Dr. Fontes: You have to be louder than that.

Mr. Snider: I just don't want to stand up and shout.

Dr. Fontes: Just, we have a reporter here.

Mr. Snider: Okay. So, it's Jim Snider and I have two relevant websites, spectrumbs.info, and opengovernmentbs.info.

So, over the last 18 months I have been periodically reporting to this committee on the transparency of this committee. I believe it is fair to say that the records of CSMAC's last public meeting held on January 11th, 2011 have been the best that I've seen during that period of time.

Notably, the webcast and minutes are there and the transcript, while full of many errors, including the spelling of my name, is nevertheless, readable.

However, that's still a very low bar, as evidenced by the congressional Bill to improve the transparency of federal advisory committees introduced last March.

More to the point, I want you to dispute

a statement made by the CSMAC chair and moderator at the end of CSMAC's last public meeting held on January 11th, 2011.

In reply to me, the chair stated, "We continue to try to make good on the promises of the Administration to make sure this process is more transparent and will continue to do so, and I know that everyone at NTIA is committed to that principle."

I want to absolutely disagree with that last sentence, and I know that everyone at NTIA is committed to that principle. That statement is either wishful thinking or BS, and I frankly believe it is the latter.

Since you will undoubtedly find it hard to take my assertions seriously, I have created a website, opengovernmentbs.info, where I am documenting NTIA's track record of fake transparency and illegal violation of federal transparency laws.

The website is similarly in draft form, and I intend to make many editions between now and the NTIA's next meeting, but I think NTIA's pattern of willful violation of the spirit and letter of it's own claims in the law is already quite clear for

anybody who looks at that website.

In pointing my finger at Larry Strickling and his general counsel, I don't want to suggest that their behavior is not rationale, given the incentives they confront.

However, there's a lot of rational behavior, including blatant violations of unenforced and unenforceable laws that harm the public.

I hope that, as Congress explores ways to strengthen FACA, the Federal Advisory Committee Act and government transparency, it will seek to create incentives to prevent the continuance of the type of behavior I have document.

So, no, not everyone at NTIA is committed to adhering, either to the principles or laws of transparency. I would welcome a frank and public discussion about the issues I have raised.

Now, for such an agenda, I was just starting with the elimination of webcasting starting with this meeting. I'm told that eliminating webcasting is supposed to save -- correct me if I'm wrong -- $6,000 a year.

If that is, indeed the cost, then I think, Larry Strickling ought to be nominated for the Golden Fleece Award.

I cannot attend all of CSMAC's meetings in person, especially the summer meeting in Boulder, Colorado. Unfortunately, audiocasts are no substitute, given their reliance on visual prompts, the difficulty in identifying speakers and the track record of poor audio quality at the Boulder meeting.

I should also note that last summer I was unable even to access the webcast, as I was trying to access the BEV from an iPhone which didn't support the webcasting standard you used to webcast the meeting.

But NTIA's willful violation of the FOIA laws and the other issues I've raised on opengovernmentbs.info are much more important from a public interest perspective.

The underlying issue of plagiarism and perjury on a CSMAC application, which has been one of the subjects of my FOIA request has also still not been addressed.

Thank you. If you have any questions, I'd be happy to try to address them.

Dr. Fontes: Thank you for your comments.

Are there other public comments?

Please state your name.

Mr. KILBOURNE: Yes. Brett Kilbourne, DTC. That's my back up to the beginning a little bit. I can kind of foresee that we're going to have different answers from different stakeholders, both around the table here and also from the federal government in terms of what they are willing to live with.

How do you intend to resolve those potential conflicts? Is it going to be a compromise? Are you going to basically come up with the lowest common denominator? Or are people just going to be allowed to say "No"?

Dr. Fontes: Well, certainly on the -- if you are referring to the first issue, we are going to take whatever input that we get. We've said before that we're willing to accept minority views.

We've got a fairly short deadline to consider that information, so we're going to consider it to the best of our ability in making these difficulty choices.

As you saw from the briefing that I gave, we are already dealing with a fairly complex environment on the federal side and we've got some major questions to answer in terms of whether we have places for those agencies to move to, what

bands they can move to, how long that will take, and what the general costs will be, and then we'll be, you know, certainly working on specific outcomes as we get a sense of that general direction.

So, I think the feedback that we've asked for in these questions will give us a good idea of what our, you know, options are and things that we can work with. That's certainly our goal and seeking the answers to them.

So, I'm not -- and if the committee can come out with a very specific "Yes, we recommend that NTIA do this," as the answer, and it be a singular answer, that's as clear as we can get.

If there are multiple viewpoints, then we'll take what we can. But -- and work with that. It will certainly -- in any way it will increase our knowledge base that we use to make our decisions.

Dr. Fontes: Does that answer your question?

Mr. Kilbourne: For any potential issue. It looks like you've already got it covered.

Dr. Fontes: Great. Are there any other public comments?

Mr. Strickling: I'm going to speak.

Dr. Fontes: Okay.

Mr. Strickling: I'm going to respond to you, Jim, today, once and for all, and I'm not going to raise it again.

I sat here for two years listening to you raise these totally spurious allegations about us and they've gone without response from me, but I am going to speak to them today, and then I'm not -- I'm not intending to get into a debate with you, and I'm not intending to raise this again.

But, we're going to put this on the record just so that people understand where you're coming from.

Mr. Snider: I would appreciate it if you would respond also to the specific track record of more than 50 FOIA requests that I've placed on the website, and many others through your staff.

Mr. Strickling: Will you let me --

Mr. Snider: Sure.

Mr. Strickling: -- make my remarks?

Mr. Snider: Sure. Go ahead.

Mr. Strickling: I'm not getting into a debate with you.

Mr. Snider: Okay.

Mr. Strickling: You mentioned plagiarism, and all of this comes back to a vendetta

you have over a certain individual regarding your claim of plagiarism.

You have never received or obtained a legal finding to this effect and, to my knowledge, you've never even sought one.

Instead, you came to us and said, it's NTIA's responsibility to expel a member of this committee based on your allegation of plagiarism this person conducted.

This we chose not to do. We refused to do so and, instead, you have gone on the attack against this agency, raising all sorts of spurious, libelous allegations about us.

You've made demand for documents you are not entitled to. You know you're not entitled to them and, when we don't give them to you, you say we are hiding the truth.

You claim you're entitled to know, for example, who has applied for CSMAC and who wasn't selected, but you've never even done the basic legal research to determine that you are not entitled to that information.

Instead, you have asked us to provide this legal research for you, which we have declined to do, and your response is, well, no law must exist,

because you're not equipped or capable of doing the basic research to learn about the privacy law in this country that protects that information.

Instead, you use terms like, corruption, negligence, mismanagement. And today I just heard you say, legal violations, willful violations, blatant violations.

And the fact of the matter is you have no shred of evidence to support any of those allegations. So, while you are entitled, as a member of the public, to attend these meetings, and we welcome your attendance at future meetings, I would urge you to stop wasting everyone's time with these baseless allegations.

We do not run CSMAC for your convenience or for your benefit. We are doing it to provide advice to the Assistant Secretary, to myself, so that we can move forward on these important spectrum questions.

And, frankly, you're wasting our time.

Mr. Snider: Since there was some --

Mr. Strickling: I am not going to --

Mr. Snider: I'm sorry. There was just some flat-out incorrect information there.

Dr. Fontes: This is -- the public

comment period is over.

Mr. Snider: That was just absolutely fraudulent information. He completely distorted the nature of my request. You can't let that continue on the public record.

Dr. Fontes: Jim, thank you for your comments.

Mr. Snider: Okay. But let me be clear --

Dr. Fontes: You have made a statement --

Mr. Snider: -- the allegations --

Dr. Fontes: -- Larry has made a statement.

Mr. Snider: -- in his statement here about what I have requested are not reflected in the public record. What he said is just simply incorrect.

Mr. Nebbia: We're moving on. Please.

Dr. Fontes: We're going to -- it's -- we're going to move on to a --

Mr. Snider: It's embarrassingly incorrect, because --

Dr. Fontes: -- those who are here for the agenda, we'd like to go ahead and schedule our next meeting and the goals for that next meeting to -

- so that we can achieve those goals, and also to address any of the logistics associated with the next meeting.

And for NTIA, I know that the next meeting is scheduled to wait till the discussion takes place. The next meeting is scheduled in July.

Mr. Washington: July 27th.

Dr. Fontes: I should have turned it over to you, actually.

Mr. Washington: I'm sorry. Thank you very much. I appreciate that. I know it's been a long day.

We're looking at July 27th in Boulder, Colorado. It will be my first trip out there, too. We're still trying to ascertain which is best for the group, considering that the other things going out there like the ISART.

So, I would urge the morning or the afternoon, so if the group has a preference they'd like to persuade Karl or Larry, they are certainly welcome to put them on the spot.

If not, I will ask you guys to -- if you plan on coming or attending, please start to make arrangements. I will be putting something out in short order. As you know, this was a monumental

task in and of itself, so the duplicity of doing both of them was pretty complex, so we're planning and moving forward.

Yes, sir.

Mr. Reaser: Yes. Just the 127th. So, I'd move for the afternoon, but to adjourn before happy hour.

Mr. Nebbia: Let me just make it clear why we're looking at different aspects.

One of the things is, of course, people have to travel there and so, for some, traveling during the morning might work. Others have suggested, well, after we have the meeting, since people are there, that's a perfect time to hold a working group session, and we want to have that possibility.

And then the other suggestion that came up, well, wouldn't it be great at least for the 500 megahertz group to be able to actually have that last working session, even right before the meeting so they can finalize whatever input they're going to have, since they have such a short deadline.

So, you know, that's what we're looking for feedback on. Obviously, we can do morning or afternoon in Boulder. It doesn't matter to them but, once again, I think we would try to link some working

group time onto the meeting time, whether it fits before or after, and so we'd love feedback.

Dr. Fontes: Let's go over some of the things that are -- that we have decided upon today. We've got the four working groups. We've got the co-chair that's identified for those working groups.

We've gone over a series of questions that have been presented ahead of time. We ask that you look at these in terms of priorities. We've gone through some of the priorities of these questions.

There may still need to be some tweaking of those questions. We need to get on the website, the four groups, the co-chairs, the membership of the groups, the questions that are raised at the groups so that we can go ahead and start moving forward.

We encourage the co-chairs to begin their calls and convening the working group and this is -- I assume much of this is going to be done via conference calls, and to move forward so that, at our meeting, we will at least have -- our next meeting, we will at least have some of the talking points, if you will, addressing some of those questions.

And, then, the following meeting after

that we will go ahead and have the final response to the questions. Anything else for the group?

Mr. Nebbia: Okay. Everybody -- Bruce, everybody have their information to you that you need and anything outstanding there or --

Mr. Washington: No. I think I have everyone's business card or, if you have signed in, I think we are in good order.

Mr. Nebbia: And any information on -- there's got to be an ethics brief at some point, but that's going to be at some point in the future, is that correct?

Mr. Washington: Yes. That's right. Correct.

Mr. Nebbia: Okay. So, nothing else that we're missing from everybody while we've got them here?

Mr. Washington: No. I think we are in good order.

Mr. Nebbia: Okay.

Dr. Fontes: Great. Meeting is adjourned.

Mr. Nebbia: Meeting is adjourned.

(Whereupon, at 11:47 a.m. the meeting was adjourned.)