FEDERAL COMMUNICATIONS COMMISSION

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PUBLIC SAFETY NATIONAL COORDINATION COMMITTEE

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INTEROPERABILITY SUBCOMMITTEE

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THURSDAY
JANUARY 31, 2002

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The Interoperability Subcommittee met in the Commission Meeting Room, Federal Communications Commission, 445 12th Street, S.W., Washington, D.C. at 9:00 a.m., John Powell, Subcommittee Chair, presiding.

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9:12 a.m.

MR. WILHELM: As you can see from the handout and from the screen, we have a slight change in schedule today, to accommodate a Commission staff meeting that is going to run about half-hour or 45 minutes.

Also, I have handed out to the Subcommittee Chairs and Subchairs a memo on the future work of the NCC. It contains some fill-in spaces for recommendations that the Subcommittee Chairs may have. I would welcome anybody else who has an interest in that to take a look at the memo and fill it in, and give it to your appropriate Subcommittee Chairs.

With that, I will turn the meeting over to John Powell and the Interoperability Subcommittee.

CHAIRMAN POWELL: Good morning. Hopefully, everyone got a copy of the documents. If not, they are together on the back table, and they are all stapled together in one package rather than being looseleaf.

I also distributed them electronically.

1 So any of you that have Internet access should have
2 the documents.
3 I will just make one note that Document
4 82A, which is the minutes of the last meeting, I re-
5 sent after looking at the first line and noting that I
6 had not corrected the date to November 15th. So this
7 one is correct. The first one that went out on the
8 server had an incorrect date. There should be a
9 second version out following that one.
10 You can take a look at the agenda and
11 we'll adopt that and then move forward. Motion to
12 adopt the agenda? You can second it.
13 MR. EIERMAN: Second.
14 CHAIRMAN POWELL: Okay, if there's no
15 dissent, we'll move ahead.
16 The membership roster, as always, is kept
17 by Bob Schlieman, if anyone needs to be added to it.
18 I don't think that's the case today since I recognize
19 most of the faces here, but you're welcome to be
20 added, if you would like to be added.
21 The minutes of the New York City meeting
22 are attached. If you would take a quick read of

1 those, make sure there's no blatant errors that need
2 to be corrected.
3 (Pause.)
4 Are there any corrections or additions?
5 (No response.)
6 Again, if I could have a motion to approve
7 the minutes, then we'll move forward.
8 Dave Eierman.
9 MR. EIERMAN: So moved.
10 CHAIRMAN POWELL: Second here, Ernie?
11 MR. HOFMEISTER: Second.
12 CHAIRMAN POWELL: There is an updated
13 document list I have sent out on the list server.
14 It's Revision N. I did not bring copies of that. It
15 is up to about six pages now, so that we didn't chop
16 down a bunch more trees, but it should be available
17 electronically.
18 Bob caught an error. We're trying to
19 resolve an error in the document list here real quick.
20 Okay, Bob was pointing out that there are two items
21 that need to be distributed electronically from the
22 last meeting, 83 and 84. I will send those out.

In looking at the Working Group activities, the main, I think, issue at this point -- and, Dave, we did distribute your document at the last meeting. If there's any input for data interoperability standards from the document that we distributed last time, we indicated it would come up again at this meeting. It went out for people to review at the last meeting.

You're on.

MR. BUCHANAN: I think where we are at with this operating modes and the addressing is I put out a document that proposes the method of handling it, but we need to find an agency or organization that can act as the "master holder of the addresses." It's got to be administered from a central location for both the IP addressing and just the whole scheme of doing it, as it says in the paper here.

By the way, I have some extras if anybody wants to look at it. So I don't know where we're at or who we could convince to do that.

PSWN has looked at it some. Richard, I think I gave it to you guys to take a look at. Have

1 you got anywhere or made any analysis or decided if
2 I'm all wet or?
3 MR. WILHELM: Would you turn on your
4 microphone to speak, please?
5 MR. BUCHANAN: We need you at the
6 microphone.
7 MR. ALLEN: No, as far as I know, there's
8 no decision made on what to do with it. Did you give
9 it to Don Ashley or?
10 MR. BUCHANAN: To Pickeral.
11 MR. ALLEN: Pickeral? No, he didn't -- as
12 far as I know, there's been no decision made on what
13 to do with that yet, but I'll check on it when we go
14 back.
15 MR. BUCHANAN: That would be good. I
16 think our best bet is something along your lines to
17 PSWN to handle it because we need a central
18 organization to administer it, and then we could get
19 into the details of how to roll it out nationwide.
20 MR. ALLEN: Okay. We'll run this by Rick
21 Murphy and Bob Lee.
22 MR. BUCHANAN: Okay. Well, I am not sure

1 what else to say on that. I think that is the
2 direction we need to push, is just finding someone to
3 really get into it.
4 CHAIRMAN POWELL: And, logically, that
5 would be someone at the federal level.
6 MR. BUCHANAN: Federal level, right.
7 CHAIRMAN POWELL: Or perhaps an
8 organization that might be willing take it on.
9 MR. BUCHANAN: I have not heard anything
10 as far as any more updates on the wide-band data
11 standards. I don't know if there's anyone here from
12 the TIA that can update us or not.
13 MR. SCHLIEMAN: I think they're planning
14 on making a report tomorrow.
15 MR. IFFNER: Al Iffner from Motorola.
16 I know Wayne Leland is coming in, but his
17 plane is arriving about 10 o'clock. So he was
18 planning on doing that update I think in the
19 technology session.
20 MR. BUCHANAN: Okay, good.
21 Glen?
22 MR. NASH: Glen Nash, Chairman of the

1 Technology Subcommittee.

2 To date, the only thing we've really
3 defined for data interoperability is text messaging,
4 which would appear to not require a tremendous amount
5 of bandwidths. One of the questions that has come up
6 is, for a data interoperability technical standard,
7 should we be looking at 50 kilohertz-wide channels or
8 the 150 kilohertz-wide channels? So I guess I would
9 look for your Committee to give us some guidance as to
10 what is the requirement for throughput on the wide-
11 band data channels?

12 MR. BUCHANAN: I thought we had done that
13 in our earlier documents on what our needs were, which
14 included video and more than just text messaging. I
15 would have to go back and pull out the documents. I
16 don't have them here.

17 MR. NASH: The only thing I was aware of
18 was we said we had a text messaging requirement. We
19 hadn't defined what video was or anything else.

20 MR. BUCHANAN: Well, we defined, in this
21 Subcommittee we defined all the needs, but we did not
22 define how much bandwidth or speed. I think we were

1 looking more to do that in the Technical, but I have
2 to dig out the documents again.
3 MR. NASH: Again, the question is about
4 interoperability and not day-to-day operations.
5 MR. BUCHANAN: Right, and that's what it
6 was.
7 CHAIRMAN POWELL: I actually have that as
8 an agenda item for further work to be done that we'll
9 discuss here very shortly.
10 Anything else?
11 (No response.)
12 If you'll look at Document 85A, which is
13 in the package -- it should be the back page or next
14 to the back page; it is the back page -- several
15 people have approached me and asked about the need,
16 now that the Commission has identified a number of
17 nationwide interoperability channels in other bands
18 of, I guess for lack of a better term, bifurcating our
19 process here and approaching the Commission perhaps
20 with a different docket to address interoperability on
21 all of the channels on all of the bands in a similar
22 fashion, so that we are applying the same rules in

1 every band for interoperability.

2 In particular, I actually left one off the

3 list to be brought back up again: the standardized

4 channel designations operations procedures, such as

5 use of the Incident Command System and also the

6 Priority Access Scheme that we proposed. I did not

7 include with this letter the -- what is it, Bob, about

8 six pages that you put together? -- that actually

9 lists out all of the channels, but that is attached in

10 the document on the email that went out. There's a

11 complete list of channels.

12 I guess I miscounted it. It's actually

13 only four UHF pairs rather than eight. When I counted

14 them, I counted the base and the mobile site. So we

15 are looking at a number of channels beyond the 32

16 pairs that we have in this band: 3 low-band, 17 high-

17 band, 4 UHF, and the 5 800 or 821 pairs.

18 The other thing that we're looking at is,

19 with the Nextel Band Reallocation Proposal sitting on

20 the front burner right now, one of the big things that

21 I've heard across the country with people going, for

22 example, to the recommended standard nomenclatures,

1 "Well, we're going to have to go back, go out and
2 touch every radio and we've got 10,000 radios on our
3 system."
4 With this proposal coming, if the radios
5 all end up having to be reprogrammed anyway, this is
6 an appropriate time to try to beat that train up and
7 out the gate, and get the nomenclatures standardized,
8 before those changes would take place. So I'm open
9 for discussion.
10 Yes, Michael, go ahead.
11 MR. WILHELM: Your memo recommends that
12 you institute a rulemaking to implement these changes.
13 CHAIRMAN POWELL: That's one possibility,
14 because we're addressing all the bands.
15 MR. WILHELM: Well, I would suggest that
16 the role of the NCC is more attuned to making
17 recommendations to the Commission, and the Commission
18 then evaluates those recommendations, and on the basis
19 of evaluation, decides whether or not to issue a
20 Notice of Proposed Rulemaking. I'm not sure the
21 Commission would be receptive to a Notice of Proposed
22 Rulemaking from the NCC, but certainly it would be

1 receptive to their recommendation that would lead to a
2 Notice of Proposed Rulemaking.
3 CHAIRMAN POWELL: Yes, we had a discussion
4 yesterday in our other group that was looking at the
5 possibility of promoting that, depending upon what
6 happens here.
7 MR. WILHELM: Certainly it could come from
8 another organization.
9 CHAIRMAN POWELL: That's right. That's
10 only one possibility. I guess the big question is how
11 much flexibility there is in the NCC charter to
12 address the big picture.
13 MR. WILHELM: There is in the charter some
14 statement --
15 CHAIRMAN POWELL: Yes.
16 David?
17 MR. EIERMAN: David Eierman, Motorola.
18 I know the NTIA has identified something
19 like 40 frequencies or channels that can potentially
20 be shared by state and local and federal for
21 interoperability, plus I believe they have some
22 internal I/O channels. Would this naming convention,

1 or whatever, would you want that to extend to them
2 also?
3 CHAIRMAN POWELL: Actually, if we look at
4 federal spectrum, there are a bunch of channels that
5 are commonly used by the fire service -- federal,
6 state, and local -- for forest fire-type operations
7 across the country, and I would think that would be
8 logical to include those, if they're available for
9 that use. I think that is a pretty standard and
10 recognized set. I see people over here on the federal
11 side shaking their head yes.
12 Do we have anybody from NTIA with us yet
13 today? No familiar faces.
14 We did talk a little bit about that at
15 another meeting yesterday, and there certainly are not
16 only those channels, but there's some other ones I
17 understand, Dick, that were out of some of the federal
18 law enforcement agencies that were at least talked
19 about at one point for the possibility of sharing?
20 Strictly for interoperability applications.
21 MR. ALLEN: Dick Allen, Booz-Allen, PSWN
22 Support.

I'm not aware of any other than those that David talked about that we designated for law enforcement interoperability and incident response. Dave's right, we designated 40 frequencies for interoperability with state and local, but that's the only ones I'm aware of.

CHAIRMAN POWELL: And those are primarily in the 160 band, is that right?

MR. ALLEN: Well, no, they're 162, and they're 406 also.

CHAIRMAN POWELL: The 406 band also.

MR. ALLEN: Except that most of our equipment can't get there in the 400 band.

CHAIRMAN POWELL: Right. So it sounds like there's some interest in pursuing this, at least to identifying the channels. It would be nice to get them into a laundry list that we could then look at some nomenclature for, and I would suggest probably along the lines that we've done already with the designator that would first indicate the band it's in and then some type of use beyond that.

If people are agreeable to looking at

1 that, we'll go ahead and figure out which subcommittee
2 would be appropriate to do that. I think, with
3 Carlton stepping down, we may have to find someone
4 else to take that Subcommittee. That's probably where
5 it should fall. I'll see if I can find someone else
6 to volunteer to work on that.
7 Any further comments on that item?
8 (No response.)
9 We went through this agenda. I hope
10 you're ready to go, Glen.
11 The last item is Document 86, which is
12 outstanding items, which we talked about a little bit
13 already. There are a number of issues surrounding the
14 wide-band interoperability channels we need to
15 address. I know we have talked about some of the
16 applications. I don't know, Dave, how much in detail
17 we got, such as point-to-point versus mobile-relay-
18 type applications.
19 MR. BUCHANAN: Yes, we addressed all that.
20 What we need to do is pull those documents out, dust
21 them off, and look at them again. I think what's
22 happening is that on some of this it has been so long

since we did it that we're forgetting what we did and what we didn't do. I know some of the issues have already been addressed that Glen was asking about.

MR. NASH: Again, Glen Nash.

One of the concerns that we have is, I would remind everyone that the way the FCC rules are crafted is that every radio offered for sale must be capable of operating on the interoperability channels in the modes described. So to the extent that we require a great number of different modes of operation, we complicate what radios that are sold for general use must be able to do.

Or do we look for -- if the requirement for interoperability is very simple text messaging, then we don't add a whole lot of complexity to what someone might be buying in a radio. If we require that it be capable of doing video and other applications, now we start requiring that radio to be very complicated, when the end-user may not want to have that degree of complication for his main system. So we need to find that definition because we are setting, with that definition, the bottom baseline of

performance for that radio.

MR. BUCHANAN: Well, I think some of it was just -- I'm not sure why it complicates -- it complicates the radio, you're right, if we have all the different modes, but I haven't seen anything out of TIA, if their wide-band standard is going to be similar to the narrow-band 102 series, in that there was point-to-point and mobile-relay and all that. So from that standpoint, no, we haven't addressed it yet, but we haven't seen a standard to address. So I'm not sure how we're going to do it.

If it's just a matter of video versus text messaging, it's all data; it's just the amount that you put through the throughput that you're talking about. So that relates to the bandwidth and how much throughput we end up with, which again we need to see some standards to even address that, I think.

Go ahead.

MR. SPEIDEL: Dave, Bob Speidel with M/A-COM.

I just really wanted to say, because I had talked with Ernie earlier, you know, when we were

thinking about the things that the Committee needs to do.

First of all, I agree, I think, 100 percent with Glen. When we talked about voice interoperability, what we only wanted was, and basically what we have provided in the rules, is talk-around capability. Now the question is, are we looking at something different? Are we going to have data around or it is something other than -- you know, if we use the Project 34 Statement of Requirements, I'm not convinced, and I think what Glen is also saying is, are all the things that are in the Project 34 Statement of Requirements -- video, et cetera, et cetera, et cetera -- do we intend for that to be in the interoperability spectrum or are we talking about what we want to have people be doing in the general use spectrum?

That's one of the things I think that this Committee or the Technology Committee or Implementation, we really need to define what it is that we want an interoperability spectrum to do on the data side. I think we all know on the voice side.

1 MR. BUCHANAN: We did that. There is a
2 document, the needs for interoperability. I just
3 don't have it with me.
4 MR. SPEIDEL: I guess what Glen is saying
5 is he seems to think there might be a disconnect
6 because he was talking about the only thing -- and I
7 remember him standing up probably last spring saying
8 the only thing we've really identified on an
9 interoperability basis was the text messaging.
10 And the other thing, too, I was going to
11 point out about, you know, we've all looked at the
12 technology layer, so to speak, the over-the-air stuff.
13 And Glen, once again, I think last spring at the
14 April meeting, stood up and said, you know, we really
15 need to look at the application layer and this data
16 kind of thing, because the over-the-air stuff is
17 standardized, so to speak, but if one application is
18 talking Chinese and the other one is talking Polish,
19 it doesn't do us a heck of a lot of good what's going
20 over the air. I think that is another area that we
21 really need to do.
22 Basically, one of the things I am thinking

1 about is interoperability is not solely a technology
2 problem. It's really a management problem. I think
3 the Subcommittee or the NCC in general really needs to
4 provide some guidance, whether it is through the rules
5 or whether we provide it in guidance, I'm not exactly
6 sure, and we probably need to talk about that, but how
7 we intend this spectrum is supposed to do.
8 I think we need to do that on a national
9 basis, as opposed to set down in the State Executive
10 Interoperability Committees or the RPC, if the FCIC is
11 not going to manage the spectrum. You know we need to
12 give them some guidance because, otherwise, California
13 could decide to do one thing, say, from an application
14 layer; New York could decide to do another thing, and
15 God forbid we have another incident like we had on
16 September 11th, but it happens to be in Chicago and we
17 have people from New York and California showing up,
18 and we might have people speaking three different
19 languages.
20 So I was really thinking that that was one
21 of my suggestions I think of where the Committee needs
22 to go. I think we need to iron or really nail down

1 what Glen is talking about: What are the functions in
2 the interoperability spectrum that we're looking at?
3 MR. BUCHANAN: Okay, what we have done so
4 far, and I agree with what you say, we did a users'
5 needs from this Committee for the wide-band data,
6 which was separate from the narrow-band, and it
7 included more than text messaging.
8 As to your point as to the management of
9 it, I agree, and that was, to some extent, this low-
10 speed data operating modes and addressing that we've
11 been trying to get going. I think it's going to be
12 the same issue. It is probably going to need to be IP
13 standards that we can do addressing and common naming
14 nationwide, or you're right, it's not going to work.
15 If we could get the low-speed going, we could just
16 fold that right into the wide-band, high-speed data
17 also for the addressing.
18 But I think what we need to do, and maybe
19 I can get with Bob Schlieman and we can get a printout
20 of what we've already done, and maybe review that a
21 little later or something, after we can get some
22 copies made up, so we can refresh our memory.

1 At that point, yes, then it is probably
2 appropriate to say this addresses everything or, no,
3 we didn't really address everything, and then we could
4 work on it. But I hate to just go off starting over
5 again, because we did some of the work already.
6 MR. SCHLIEMAN: Just a point that Steve
7 Beferman had made this comment a couple of years ago,
8 it seems like now. We have been concerned with the
9 technical standards, and his point was that we need to
10 standardize applications. That is something that
11 really we need to come to grips with.
12 MR. BUCHANAN: Yes, we do, but I don't
13 think you can standardize the applications until you
14 standardize the addressing and all that. I'm not sure
15 that this Committee can standardize applications for
16 fire and law enforcement. I think that needs to come
17 out of those communities once they have a framework to
18 do it in; maybe we can, but --
19 MR. SCHLIEMAN: You can't have
20 interoperability if people are sending video, for
21 instance, with different scanning characteristics and
22 all that stuff. You have to have some schemes.

1 MR. BUCHANAN: No, absolutely, you're
2 right, it has to be -- go ahead.
3 MR. O'HARA: Sean O'Hara, Syracuse
4 Research Corporation.
5 I agree with Bob and Bob, and I think
6 there might need to be some more definition on the
7 application side, because I have a feeling that, given
8 the achievable throughput rates we're going to see on
9 these type of channels, that the source compression
10 that's used is probably going to be more in the
11 applications or the peripheral device than in the
12 actual radio itself. If you're using different source
13 compression, it doesn't matter if your technology is
14 standardized if your applications aren't.
15 MR. HOFMEISTER: Ernie Hofmeister, M/A-COM
16 Wireless.
17 Just to follow up on that same point, I
18 guess, I think it was at the May NCC meeting in St.
19 Louis where there was some discussion, I think Bob
20 Schlieman and I had some discussion about the
21 applications, trying to work out those. At that time
22 I think there was some indication that we try to

solicit PSWN or Booz, Allen, Hamilton to sort of do a survey of applications, bring some recommendations as to what might be a set of applications to be considered, and then select a subset for a standard. That was primarily with regard to the narrow-band interoperability.

I think we still need to do that. I don't know if anything has happened. I missed the November meeting. But I think that is a worthwhile activity, and consistent with what the discussion is here.

A comment now in terms of wide-band: Wayne will report, and I think you know from the last report, that the wide-band data standard consists of a series of levels in the protocol. There is a physical layer, which we'll talk about.

There's two proposals now which probably will be selected down to one, but then there are about four or five layers up above that which the Subcommittee is working on, and working to bring harmony into that, so that there is one set. But that will come forward as a full set of standards, including the physical layer all the way up through

1 almost to the application layer.

2 I guess the question is, once that's

3 accepted, then going back to type acceptance for the

4 radio, does a radio have to demonstration, then, that

5 all those layers in the protocol are there, and what

6 is the application that one might pick to do a type

7 acceptance, say for the FCC?

8 This radio, especially wide-band radios,

9 you certainly could say, it will be a software-defined

10 radio. There is a physical layer in it, but there's

11 many, many software conditions. So it sort of falls

12 under the software radio considerations as well.

13 MR. BUCHANAN: Yes, that is a good point,

14 and I guess that's what I'm having trouble with.

15 Having not seen the standards, I'm not sure where the

16 standard leaves off and we need to go forward. So it

17 would be really good to get some of those ideas, and

18 then when you talk about source coding, yes, that is a

19 good point, I think.

20 From that standpoint, I think that's

21 probably where we're most lacking, but I haven't been

22 involved in the data standard, putting it together, so

I am at a little bit of a disadvantage on trying to figure out or know what probably some of you guys that have sat in on it already know about it.

MR. HOFMEISTER: I have to make one more followup. I guess the wide-band data, certainly that's coming, and that work certainly can wait, but I think there is legitimate work that could be done right now in the narrow-band data interoperability work to try to define some of those applications, because we claim that that set of standards is defined, I think.

MR. BUCHANAN: Again, I will go back to, until we can do a common addressing nationwide, how can you even get started on the applications? I mean, if it's just simple email or text messaging, there's not a whole lot beyond, once you figure out and decide that you're going to use IP protocol and IP addressing, and you have a standardized naming, then it is pretty easy to implement just the off-the-shelf email programs.

MR. SCHLIEMAN: I think we had collectively arrived at consensus on there being text

1 messaging as the basic message format for the narrow-
2 band channels, that we weren't into specific
3 applications like filling out database fields and all
4 that kind of stuff. But that's an interesting topic
5 that, again, if PSWN would like to grapple with that.
6 MR. ALLEN: Dick Allen.
7 Just looking at the minutes or notes,
8 internal notes, from the St. Louis meetings, Ernie's
9 right, John Patlick asked Rick Murphy if PSWN would
10 perform the research, and Rick agreed that we would,
11 but I don't know the status or if that research has
12 been started.
13 Dave, you were supposed to provide us all
14 the information you had on this, the background
15 information you had on that. I don't know if that's
16 been done or not.
17 MR. BUCHANAN: Yes, I've done that.
18 MR. ALLEN: Okay. I will research this.
19 The clients are all down in Charleston right now, but
20 I'll get word out to you next week, John, on where we
21 are on this.
22 CHAIRMAN POWELL: Okay, the other

1 document, to Ernie's point about Statement of
2 Requirements, it might be quite appropriate, with the
3 final SOR for Project Mesa finishing up tomorrow, or
4 supposed to be in tomorrow, for taking that and using
5 that as a base document to look at a bunch of --
6 because we're going to have similar applications
7 coming out of those.
8 MR. ALLEN: Okay, we'll look at that.
9 CHAIRMAN POWELL: Other comments?
10 (No response.)
11 So we have those number of issues
12 surrounding the wide-band standard and this
13 Subcommittee's input on that.
14 Additionally, and we had some discussion
15 yesterday at the NPSTC meeting around some more
16 refinement on the Incident Command System. One of the
17 things that we have yet to do there is to identify
18 standardized terminology for the non-fire and EMS
19 users. The documents that we have so far are very
20 complete for fire and EMS, but we need to look at
21 terminology, especially for law enforcement, as the
22 other big user of the interoperability spectrum on a

1 day-to-day basis.

2 IACP has indicated their support for

3 moving ahead to do that. So I am going to see perhaps

4 if we can get together with Harlin and try to get

5 something going for the law enforcement side of the

6 house on standardizing, getting some standardized

7 nomenclature in place.

8 Dave, your sheriff has got a pretty good

9 system, if I recall, right?

10 MR. BUCHANAN: Well, they did a paper

11 which I gave to somebody, and it's since gotten lost

12 someplace along the line, but, yes, they --

13 CHAIRMAN POWELL: That went to Dave

14 Pickeral.

15 MR. BUCHANAN: Did it?

16 CHAIRMAN POWELL: Yes.

17 MR. BUCHANAN: Okay. It was an ICS

18 basically adapted toward law enforcement.

19 CHAIRMAN POWELL: Dick, maybe if we could

20 get -- I don't think David gave that back to me, so he

21 may still have that San Bernardino County Sheriff's

22 Department paper. If we could find that and maybe get

1 it to Harlin, we'll use that as a start for the law
2 enforcement terminology.
3 Then there's a number of other users that
4 we could also look at: highway maintenance, public
5 works, general government. It may be that we need a
6 fairly small set of standardized nomenclature for
7 those other uses.
8 We will try to build off of the current
9 fire scope terminology as much as we can for the law
10 enforcement side also.
11 Mike, were these passed out?
12 MR. WILHELM: They were passed out to the
13 Subcommittee Chairs.
14 CHAIRMAN POWELL: Okay.
15 MR. WILHELM: There are additional copies
16 up here, not enough for everyone, but if you could
17 share, I will pass those out.
18 The purpose of this document, for those
19 who haven't read it, is to define the work that
20 remains for the NCC to do before the end of its term
21 in February of 2003. This information is valuable for
22 a number of purposes, not the least of which is that

it will allow the Steering Committee to decide how many meetings we are going to have, the topics of those meetings, and where they will be.

So, to the extent that any of you can contribute to this, you would have to write rather small on this form, but if you want to use an additional sheet of paper, that's fine.

But looking at the charges to the NCC contained in the charter, the status of the work to date, can we come up with information on what work remains to be done and whether it needs to be on the short-term or, as with the wide-band data standard, over the long-term?

MR. SCHLIEMAN: Michael, in terms of the first remark, I was wondering if the FCC has a timetable for response to all of the recon petitions that were presented, was it two years ago?

MR. WILHELM: Yes, it has a timetable.

MR. SCHLIEMAN: And it is?

MR. WILHELM: I don't know.

MR. SCHLIEMAN: Oh, okay.

(Laughter.)

1 MR. WILHELM: Infinity.

2 (Laughter.)

3 CHAIRMAN POWELL: If we look at these
4 particular items, it looks like there's four items
5 that are listed here, along with some comments, the
6 status and comments.

7 One of them we just talked about, which
8 was the use of ICS.

9 The second one is looking at what remains
10 to be done in the area of technical standards for full
11 interoperability and network integration, the question
12 there being, we have done nothing with regards to
13 network integration or redundancy and reliability;
14 where are we going to go with that?

15 The third one is standards, in particular
16 with regards to AES versus DES, the discussion we had
17 at the last meeting in New York City.

18 The third issue -- actually, it looks like
19 we have two No. 3's here, Michael. The second No. 3,
20 3A, we are anticipating the Steering Committee taking
21 action on the Implementation Subcommittee's final
22 regional planning documents tomorrow.

1 I guess kind of along the lines of that,
2 we've got, put together by NPSTC is a guidebook that
3 we will present a draft of to Michael to start the
4 review process on that, assuming that the Steering
5 Committee adopts that tomorrow, since this is all
6 based on the documents from the Implementation
7 Subcommittee.
8 I think that is probably one of the main
9 items, then, Michael, is to get that out to 37
10 regions, I believe, that are identified, maybe more
11 now. That was from the last meeting we had 37.
12 MR. WILHELM: But you are right, a number
13 of the committees have been formed, and the sooner we
14 can get the document to them, the better.
15 CHAIRMAN POWELL: Right.
16 Then Item No. 4, this appears to be kind
17 of a general item with regards to other
18 recommendations for technology, telecommunications,
19 and other public policy matters that might help
20 expedite planning and deployment of a nationwide
21 system.
22 MR. WILHELM: And that would appear to be

where your memo fits in, John, on the expansion of interoperability beyond 700 megahertz.

CHAIRMAN POWELL: Right. It's a logical place to put it.

Sean, are you changing places?

(Laughter.)

MR. O'HARA: John O'Hara, Syracuse Research Corporation.

The scope of 5 almost seems to be expandable to include recommendations on the expedition of the DTV transition within this country and clearing hurdles, international hurdles, that have to do with band-clearing. I was wondering what your reaction is to that, like, I mean, does that really include -- is the NCC tasked with providing recommendation on those issues also? Anything to accelerate the development of this national interoperability reliable public safety network?

MR. WILHELM: Well, I think the FCC knows what the NCC's position is on the TV stations, but, to answer your question specifically, the issues you recited would seem to come within this Charge No. 4.

1 CHAIRMAN POWELL: When we talk about
2 international, we've got to remember that Mexico is in
3 there, too.
4 MR. BUCHANAN: Oh, yes, we won't forget
5 Mexico.
6 MR. O'HARA: No further comment on that at
7 this point.
8 CHAIRMAN POWELL: Any comments on this
9 document, now that people have had a chance to look at
10 it?
11 (No response.)
12 We probably should renumber those.
13 MR. WILHELM: John, if possible, could we
14 come to some agreement on answers to the questions in
15 the "Remarks" column and the Subcommittee's views on
16 what additional work is necessary or desirable under
17 each of those charges, and then present that to the
18 Steering Committee tomorrow? As it stands, we don't
19 have sufficient information to take it to the Steering
20 Committee.
21 CHAIRMAN POWELL: Okay. Well, if we look
22 under "Remarks" on the first page, the actual ICS

1 document was presented to the Steering Committee at
2 the last meeting. However, it does not include, as I
3 just mentioned, the nomenclature, standardized
4 nomenclature, for other than fire and EMS, and we need
5 to expand that glossary.
6 Although looking under Charge 1 for the
7 last question there with regards to priorities, the
8 draft plan that's being circulated certainly includes
9 the priorities as they were recommended by the
10 Committee, to be recommended to the -- that the
11 regional planning process establish those in each
12 region.
13 MR. WILHELM: Now do you have a document
14 that can be considered by the Steering Committee on
15 that?
16 CHAIRMAN POWELL: Yes, that was given to
17 them at the last meeting.
18 MR. WILHELM: All right.
19 CHAIRMAN POWELL: And there's a cover
20 letter that I sent to you electronically.
21 MR. WILHELM: Okay, do you happen to have
22 the document number?

1 CHAIRMAN POWELL: It's down toward the
2 bottom of the list there, if you have that. I'll tell
3 you what it is. It's 83.
4 MR. WILHELM: Okay, thank you.
5 CHAIRMAN POWELL: It's 83A, and what's the
6 reference document that's attached?
7 MR. WILHELM: IO-58E, as in "echo."
8 CHAIRMAN POWELL: Eighty-three was the
9 cover letter for 58. Fifty-eight is the PSWN ICS
10 document.
11 Actually, Michael, that issue could
12 perhaps fall here, too, because we're talking about
13 interoperability in other frequency bands here also.
14 So I think, looking at that, some standardization
15 there is to another task that we could take, if we
16 wanted to put that right, since it does talk about
17 that specifically. It would be to examine not only
18 the other FCC bands, but also NTIA spectrum, where
19 they have identified interoperability channels, the 40
20 channels, and put them all into the pool and work with
21 them to standardize the nomenclature for them and look
22 at the other issues that we talked about.

1 Anyone else have anything for No. 1?

2 MR. SCHLIEMAN: Well, it seems to me that

3 some of the issues that we have in recon pending still

4 apply in that area.

5 CHAIRMAN POWELL: That's true.

6 MR. SCHLIEMAN: At the risk of beating a

7 dead horse, if that's the correct term, a lot of the

8 recommendations have not presently been recognized by

9 the Commission so far. I'm not sure how we go about

10 educating them on what public safety needs other than

11 what we submit in these reports. But certainly the

12 interoperability issues have loomed large of late, and

13 they maybe should take another look at these things.

14 Standardization of terminology, for

15 instance, is very important. It causes great

16 confusion if it's not standardized.

17 MR. WILHELM: I don't think the Commission

18 disagrees with that. The question is, who should

19 mandate the standardization?

20 MR. SCHLIEMAN: In that regard, a lot of

21 the guidelines, if you will, that were imposed on the

22 NPSPAC process were simply embodied in the report, and

1 the Report and Order that accepted and carried on the
2 recommendations of NPSPAC, rather than being codified
3 in rules, they were just referenced in the Report and
4 Order as the way things should be. I guess that's --
5 MR. WILHELM: That's well-taken.
6 CHAIRMAN POWELL: Dave?
7 MR. EIERMAN: David Eierman, Motorola.
8 Could somebody remind what the items are
9 that are still out there in petition for
10 reconsideration, a real quick, short summary of what's
11 still out there?
12 MR. SCHLIEMAN: We thought you were going
13 to do that.
14 (Laughter.)
15 CHAIRMAN POWELL: Well, the one I know of,
16 because I wrote it, is the priority access issue and
17 the standardized nomenclature. So those are two that
18 are mandated. The database is another one, the
19 mandates use of the database.
20 MR. EIERMAN: The reason I ask is,
21 whatever happened to shifted I/O, near-band I/O
22 channel when we get over six and a quarter? Is that

in a petition somewhere?

CHAIRMAN POWELL: I believe it is, isn't it? Did we get it in there?

MR. WILHELM: Dave, could you elaborate on what you're talking about?

MR. EIERMAN: Well, we had a lot of discussion about a year ago, or nine months ago, about when the band plan got revised. Originally, it had been like a 25 kilohertz channel, and when the band plan got revised, in some places there was, I believe, a status -- the I/O channel became just a 12.5 kilohertz-wide channel itself. What had originally been set out as sort of I/O spectrum previously in some places got assigned, I believe, as a state channel.

There had been discussion about we wanted to move over the I/O channel to create a 6.25 guard band on each side, such that the I/O channels could go anywhere; they wouldn't have to be coordinated against the general use or the state channels. I know I gave a presentation on it and supplied a bunch of information that Bernie Olson had done on an

interference analysis.

MR. WILHELM: Right, I recall that now. Thank you.

CHAIRMAN POWELL: And I'm sure that was a recommendation that we moved forward to the Steering Committee. I don't remember -- we have a couple of Steering Committee people here, or at least one. Two more.

MR. HOFMEISTER: Ernie Hofmeister, M/A-COM.

Yes, I thought I remembered that we dealt with that at the Steering Committee and recommended that, effectively, that 6.25 kilohertz shift of the I/O channels go forward.

CHAIRMAN POWELL: I thought that happened, too, Ernie.

MR. SPEIDEL: Bob Speidel with M/A-COM.

I agree with Ernie, but something is bothering me in my mind that that idea of shifting it to 6.25 might have been rejected in the Report and Order -- Memorandum, Opinion and Order, excuse me.

It was confusing, Dave, because there were

so many things going on, things going in from the NCC, and, you know, the second, third, and fourth Memorandum, Opinions and Orders. I'm not sure, but maybe that shift was rejected in that last Order. I'm not positive, but we could check that.

CHAIRMAN POWELL: Any more discussion on --

MR. WILHELM: John, I don't know exactly where it fits, but you mentioned the precoordination database, or whatever it is called these days, and the Commission specifically asked the NCC to keep it informed on the status of that database and when it might be fully operational and tested.

CHAIRMAN POWELL: Marilyn is here. We had an update on that at yesterday's NPSTC meeting. So, Marilyn, if you would for the record --

MS. WARD: Right, we had an update on the database. We've been able to gather together 27 of the different regional planning groups. We've funded 27 of them. We've begun some beta work on it. We've been testing it and making a couple of changes. We're waiting now on a packing plan. We have a contract in

1 process with the NYSTEC group. The NYSTEC group is
2 going to provide us with a packing plan, and we hope
3 to be up and running very quickly. As soon as those
4 contracts are signed, by the summer or so, we expect
5 it to be operational.
6 MR. WILHELM: Thank you. That would seem
7 to be a continuing action item under one of these
8 charges here.
9 CHAIRMAN POWELL: Yes, we will have to
10 figure out where it fits in. I think the actual
11 package itself is ready to go, and where we stand
12 right now is getting the initial load of the
13 frequencies from the prepacking run that you're doing.
14 I don't know who -- is it NYSTEC or is Syracuse --
15 Syracuse Research is doing?
16 They're going to do the whole country.
17 They're going to do in all regions, and it will be up
18 to the region to decide whether they want to use that
19 or not. But our belief is that, if they do use that,
20 we're going to get some real efficiencies across the
21 regions because it is a much more complex algorithm
22 than we have ever used before to do that. We're all

1 kind of waiting with bated breath to see the results.
2 I don't know where, Michael, that would
3 best --
4 MR. WILHELM: Well, I had put it in the
5 "Remarks" column on Charge No. 4, simply because
6 that's something that is a catch-all.
7 CHAIRMAN POWELL: The original 4 or the --
8 MR. WILHELM: Let's call it 3A and 3B, and
9 not embarrass me further, John.
10 CHAIRMAN POWELL: Okay, 3A and 3B. So
11 you're putting it under 3B? Or did you put it under
12 4?
13 MR. WILHELM: I had put it under 4, but
14 the Subcommittee is free to put it any place they
15 wish. And there's no implication in that remark.
16 (Laughter.)
17 CHAIRMAN POWELL: Yes, I almost think it
18 might go better under 3B because we're talking
19 specifically about the recommendations. It says, "on
20 an advisory basis." Certainly at this point they're
21 not required to use it, but we're hoping that they all
22 do.

1 MR. SCHLIEMAN: The reference to network
2 integration, for instance, in Item 2, Michael, could
3 you expand on that? It sounds sort of wireline-ish.
4 MR. WILHELM: I really can't tell you more
5 than what is stated there. I wasn't around when this
6 was written. So I can't tell you what the intent was.
7 MR. BUCHANAN: Are we on 2 now?
8 CHAIRMAN POWELL: Yes, do you have
9 something for 2?
10 MR. BUCHANAN: I think under No. 2 is
11 where we should put all this, well, the low-speed
12 addressing, the standard applications, both low-speed
13 and high-speed, or wide-band and the wide-band
14 addressing also.
15 CHAIRMAN POWELL: Okay, do you have that
16 down, Michael?
17 MR. WILHELM: Yes, thank you.
18 CHAIRMAN POWELL: Under 3A there is
19 specific information requested as to the status of
20 AES. Dick, do you have a copy of that over there you
21 can look at and see what the questions are? Can you
22 provide us any update on that or answer any of those

1 questions?

2 MR. WILHELM: He's saying no.

3 CHAIRMAN POWELL: I guess, Michael,

4 hopefully, maybe for the Technology meeting or later

5 on we'll have some of the other representatives from

6 the other side show up that can answer those

7 questions. Unless Harlin wants to try?

8 MR. WILHELM: The question, Chief, was the

9 current status of AES, whether it's approved by a

10 standard by Commerce?

11 CHIEF McEWEN: I don't know the answer to

12 that, but I know --

13 MR. WILHELM: Could you use the

14 microphone, please, Chief?

15 CHIEF McEWEN: Sure. Chief McEwen, IACP.

16 I do not know the answer to that, but I

17 know that it's moving forward toward that. I don't

18 know that it's actually happened yet. We might be

19 able to find out, if you need to know that today. I

20 could call probably.

21 What is the reason? I mean, obviously, it

22 is going to happen. It's just a matter of time.

1 MR. WILHELM: Well, a twofold reason.
2 One, the Commission would need to amend its rule to
3 include it, and that is usually a somewhat lengthy
4 process. Second, the manufacturers, I believe, need
5 some direction in that area.
6 CHIEF McEWEN: I thought that we had
7 discussions with TIA and others about it, and that the
8 indication was that they were well-informed and were
9 planning the eventual transition. That was my
10 understanding, John.
11 CHAIRMAN POWELL: From the last meeting,
12 that's where we left it.
13 CHIEF McEWEN: Yes. So I did not know
14 that it was going to be a continuing problem.
15 CHAIRMAN POWELL: Glen may want to comment
16 on that. That was his Subcommittee that addressed it.
17 MR. NASH: Again, and this is getting into
18 a question that I had still for your Subcommittee, but
19 my understanding is that the TIA document for AES is
20 ready to go out to ballot, if not out to ballot
21 already, you know, to become an ANSI standard that we
22 could reference.

1 But in looking through the notes from your
2 meeting in New York, I'm left still with a question of
3 what the requirement is for encryption. Again, I
4 would point out that we have made encryption a
5 standard option, an optional standard, however you
6 want to term it. I will leave it to the Commission to
7 figure out how they're going to craft that into a
8 rule. But my understanding of the requirement was
9 that encryption is not required to be in every radio.
10 CHAIRMAN POWELL: Correct.
11 MR. NASH: However, if you are going to
12 use encryption on the interoperability standards, then
13 you must do it in a standardized format.
14 CHAIRMAN POWELL: Correct. If you're
15 going to use it on the interoperability channels, you
16 have to use the standardized, approved --
17 MR. NASH: Okay. Then from the notes on
18 your meeting in New York, I see that the
19 recommendation is that the AES, backward compatible to
20 DES and triple DES, which then tells me that we must
21 have all three standards as the encryption standard on
22 the interoperability channels, because there is no

existing equipment at 700.

MR. BUCHANAN: So what are we being backward-compatible to?

CHAIRMAN POWELL: Go ahead.

MR. SCHLIEMAN: In reference to the TIA standard, the standard addresses that problem by having three annexes in it: one for DES, one for triple DES, or --

MR. NASH: Bob, my question goes back to, when the manufacturers build a 700-megahertz radio that will be encryption-capable on the interoperability channels, are they going to have to build that radio such that it includes AES, DES, and triple DES in order to operate, in order to legally sell that radio?

MR. SCHLIEMAN: As a Project 25 radio.

MR. NASH: No, it's not a Project -- this is the standard for operation on the interoperability channels in the 700 megahertz band, as required under the FCC rules.

MR. SCHLIEMAN: Encryption is optional, as I recall the way the FCC rules are. If you use

encryption, you will follow the standard.

MR. NASH: Which standard?

MR. SCHLIEMAN: The last I recall was, we were going to recommend AES using the TIA standard, which says a Project 25 radio will have dual mode of encryption, so that it can do a DES as a backward-compatibility if it has AES in it.

CHAIRMAN POWELL: Right, and I think that's where the Steering Committee left it after the discussion.

MR. SCHLIEMAN: So that solves the problem of end-to-end encryption with embedded base that may or may not be in the 700 band --

MR. NASH: Okay, so every 700 megahertz radio that will use encryption on the interoperability channels must be equipped with an AES, a DES, and a triple DES encryption module?

MR. SCHLIEMAN: The capability is to --

MR. NASH: If it's going to be capable, it's got to have the module in it.

MR. SCHLIEMAN: The capability is to have two modes because triple DES can do DES by using a

1 three-key set that is identical. So it's really only
2 two algorithms, and you're talking algorithms.
3 CHIEF McEWEN: I think you've just
4 answered your own question. In other words, that is,
5 Bob, my understanding was that in the discussions with
6 industry people they clearly understood that that was
7 what was going to be required. If you are going to
8 use encryption, you must have both of those capable in
9 the radio. If you're not going to use encryption,
10 it's a moot question.
11 I mean, the point is that perhaps fire and
12 EMS people, they have no interest in paying for that
13 extra baggage, so to speak. If they're going to be
14 operating in a highly confidential, interoperable
15 exercise with law enforcement, they may be required to
16 have some units to be able to do that. That's going
17 to be a local option and a matter for purchasing
18 decisions.
19 But I think for your purposes, I go back,
20 Michael, I mean I think we answered this question two
21 or three times. I don't know why we're revisiting it.
22 What Bob said is just the way I understood it.

1 MR. WILHELM: Well, we answered the
2 question to the extent that the Steering Committee put
3 the manufacturers on notice that we would probably be
4 addressing AES.
5 CHIEF McEWEN: Okay.
6 MR. WILHELM: From an FCC standpoint, we
7 could, they have on the rolls, I believe, the Project
8 25 encryption standard.
9 CHIEF McEWEN: Right.
10 MR. WILHELM: We are looking forward to an
11 ANSI-approved standard, so we can put it in the rules.
12 That's the reason for this request on the status of
13 AES.
14 CHIEF McEWEN: You're prepared, in other
15 words -- I mean, that was what I thought. I mean I
16 thought that the recommendation was clear. We were
17 merely waiting for the ANSI standard to be finalized.
18 MR. WILHELM: Yes.
19 CHIEF McEWEN: And once that's done, there
20 shouldn't be any question about what ought to happen.
21 MR. WILHELM: Well, there's the formality
22 of the Steering Committee making the recommendation

1 and passing to the Commission.

2 CHIEF McEWEN: Right. I'm almost sure,

3 Michael, that we did that and said that that was our

4 recommendation pending the actual finalizing of the

5 standard.

6 MR. WILHELM: I could look at the minutes,

7 Chief, but the letter that went out I believe

8 referenced only the recommendation to the

9 manufacturers.

10 CHIEF McEWEN: Okay.

11 MR. WILHELM: But that's a fine point.

12 CHIEF McEWEN: Okay.

13 MR. WILHELM: One more important point for

14 me, being somewhat dense on the subject, is why the

15 FCC can't simply specify that all radios that use

16 encryption use AES. Where is the need for the

17 backward-compatibility?

18 CHIEF McEWEN: Well, it's very clear. In

19 700 there is no need because there isn't any

20 equipment. So all the new equipment will obviously

21 have -- that would be the forward-thinking. The

22 problem is that, if you buy a 700 system, I mean we

are using now various patching methods to tie different bands together to be able to talk. If you're going to talk in an encrypted mode with people in older systems, in 800 and 150 and 450, that are using triple DES or DES, you have no interoperability that's encrypted without that.

CHAIRMAN POWELL: You come out of encryption--

MR. WILHELM: Yes, I understand. Otherwise, you would have to de-encrypt and re-encrypt.

CHAIRMAN POWELL: Right. So that's primarily needed, for lack of a better term, cross-band operations to maintain end-to-end encryption on the circuit.

Thank you.

Bob?

MR. SPEIDEL: Yes, Bob Speidel from A/M-COM.

I think, Michael, you pointed out the right thing, and I'm going to agree with Glen once again, surprisingly enough.

1 (Laughter.)

2 If AES is what is required on the
3 interoperability channels and everybody's going to be
4 at AES, why do we need to have backward-compatibility
5 on the interoperability channels? I think the Chief
6 is absolutely correct; you know, we may be wanting to
7 patch into an 800 system or into a 400 system, but
8 that's not going to be done on the interoperability
9 channel.

10 MR. BUCHANAN: Oh, sure, it would be.
11 Absolutely. I wouldn't assume that.

12 CHAIRMAN POWELL: If it is interoperable,
13 an event that qualifies for interoperability, that's
14 the logical place it's going to be.

15 MR. SPEIDEL: Okay. Well, I think Michael
16 pointed out the same thing, do we really know -- then
17 you've got to say you've got to have all kinds of
18 encryption or you're only going to have one, one or
19 the other.

20 MR. SCHLIEMAN: Well, it's only two
21 algorithms, the AES and either DES or triple DES,
22 because triple DES can do DES. So it's two algorithms

1 with the encryption module.

2 CHIEF McEWEN: What Bob is saying, he just

3 leads to the further discussion of this, and that is

4 that, in my view, in most cases the interoperable

5 channels will be used, maybe not in every case. In

6 other words, there are other options and there are

7 other ways to patch technical channels and operational

8 channels.

9 I mean it's a local matter really. I

10 mean, if the local police chief wants to tie one of

11 his operational channels to an 800 operational channel

12 and encrypt, that's another option. I mean those are

13 local decisions using your licensed channels.

14 But when you're talking in the true sense

15 of interoperability, I mean it would make sense to use

16 the 700 interoperable channels because it doesn't

17 disrupt your normal operations. So it seems to be

18 logical to me that that would be often the case.

19 CHAIRMAN POWELL: Further comments?

20 (No response.)

21 I see Wayne has walked into the room. We

22 were looking for an update earlier, and actually that

needs to go on this Document 2 for where we stand with the wide-band standards. Are you in a position to give us an update on that? Can you just give us verbal right now and we can --

MR. NASH: Point of order here: Is that not a Technology Subcommittee issue as to what the standard is on wide-band? Why is that an issue for the Interoperability Committee?

CHAIRMAN POWELL: Because we want to know where we stand. I'm not saying that it's -- just give us a brief update and then do the presentation in your Committee.

MR. NASH: So, Michael, let's cancel the Technology Subcommittee meeting, please.

(Laughter.)

MR. WILHELM: I don't want to be the parliamentarian of this organization, but I think Glen has a valid point. All of the previous work on the wide-band standard has been done under the auspices of the Technology Subcommittee.

MR. LELAND: Okay, I'll make a one-sentence report. This is Wayne Leland from TIA.

1 We are still on schedule, and things are
2 proceeding, and I will go into a detailed report this
3 afternoon in the Technology Subcommittee. It will
4 only be about 10 minutes.
5 CHAIRMAN POWELL: And it is important to
6 us because Dave has held up with doing some of his
7 work until we know where we stand on that. That's why
8 it's important to this Subcommittee. We just talked
9 about that a little while ago.
10 Item 3B, yes, we talked about that
11 already.
12 MR. EIERMAN: Dave Eierman, Motorola.
13 I would assume that Item 3B would fall
14 under the Implementation Committee.
15 CHAIRMAN POWELL: And, Michael, under Item
16 4 we talked about putting that one document I
17 mentioned earlier on interoperability; I think that
18 actually would better go under where we were talking
19 about Item 2 rather than Item 4.
20 MR. WILHELM: Correct, and the items I
21 have under No. 4 are international issues and DTV
22 band-clearing. I would ask whether there are any

1 other issues somebody feels should be addressed under
2 Charge 4.
3 (No response.)
4 CHAIRMAN POWELL: None come to mind for
5 me. Anyone in the audience?
6 (No response.)
7 It doesn't look like it.
8 MR. WILHELM: Thank you.
9 CHAIRMAN POWELL: And I think we have
10 covered what was on my list or in the various pieces.
11 New business? Anyone have other items
12 they would like to bring up?
13 (No response.)
14 If not, I think we can adjourn and turn it
15 over to the Technology Subcommittee. What time did
16 you have originally scheduled on that?
17 MR. WILHELM: We left the schedule fairly
18 flexible in view of the need for the Commission
19 meeting room this afternoon. I would suggest a 10-
20 minute break before we take up again, if that's
21 acceptable.
22 CHAIRMAN POWELL: We will adjourn this

1 meeting then at 10:30, and at 10:40 turn it over to
2 Glen.
3 (Whereupon, the Subcommittee proceedings
4 were concluded at 10:31 a.m.)
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