
**IEEE P802.11
Wireless LANs**

Tentative Minutes of the IEEE P802.11

**Wireless Personal Area Network Study Group
Plenary Meeting
Orlando, FL USA
11-13 January 1999**

Monday, 11 January 1999

1.0 Opening Meeting called to order by Dick Braley, Chairman at 10:45, Agenda of the 802.11 WPAN SG is in doc.:IEEE P802.11 11-99/7r1. Ian Gifford, WPAN SG Secretary is present and ready to take the notes.

1.1 Objectives of this meeting

1.1.1 Review Letter Ballot 16 Comments -99/18; resolve WPAN PAR -98/162r7 & Five Criteria -98/161r4 and next steps: submission to ExCom and recirculation LB to WG

1.1.2 WPAN Leadership Discussion

1.1.3 Liaison Updates

1.2 Roll Call: People in the room were invited to introduce themselves by name and company. There were 24 people (names at the end of these minutes) in the room at the start of the session.

1.3 Approval of the agenda

MOTION: to approve the Agenda as edited by the SG -99/7r1, Moved by Dick Braley, Seconded by Ian Gifford.

No discussion on the motion.

Motion on the floor to vote.

Motion passes: By unanimous consent

1.4 Approval of the minutes of previous meetings

1.4.1 The review and approve the minutes from the Albuquerque, NM USA Meeting - 98/356r2

MOTION: to Albuquerque, NM minutes as edited during the Orlando, FL session -98/356r3, Moved by Dick Braley, Seconded by Ian Gifford.

No discussion on the motion.

Motion on the floor to vote.

Motion passes: By unanimous consent

1.5 Reports

1.5.1 Bob Heile, GTE provided a short summary of the WG Letter Ballot 16 comments .

1.6 SG adjourned at 12:30 for lunch.

1.7 SG resumed at 13:35

1.8 Reports (continued)

1.8.1 Review document “Comments received on WPAN’s PAR and 5 Criteria in Letter Ballot 16” –99/18:

1.8.1.1 Comment 1: [Abramowitz, Jeff] Jeff was present and provided clarification to his comments. The SG agreed to the comments. Action: Add, from the WPAN Document Archive, specificity to the PAR –98/161r4 paragraph “1.1. Broad Market Potential, a) Broad sets of applicability” such that the WPAN applications are clearly differentiated from WLAN applications.

1.8.1.2 Comment 2: [Abramowitz, Jeff] Add to the 5C –98/162r7 1.3 “Bluetooth is not a standard and it is currently proprietary and not available for public scrutiny. Allen Heberling suggested we add {the fact that Bluetooth’s datarate and lack of Listen Before Talk or packet collision mediation.}

1.8.1.3 Comment 3: [Shoemake, Matthew B.]

MOTION: to declined Comment 3 as written –99/18, Moved by Jeff Abramowitz, Seconded by Tom Siep.

No discussion on the motion.

Motion on the floor to vote.

Motion passes: By unanimous consent

1.8.1.4 Comment 4: [Heegard, Chris] Bob Heile the whole purpose of SG is to manage the issue of 2.4GHz coexistence vs. leaving to a special interest group to decide how to operate. Tim Blaney suggests that WPAN SG craft a submission that provides a Vision Statement or Rationalization for existence.

MOTION: to partially accept Comment 3; we reject “...terminate the WPAN study group.” –99/18, Moved by Tom Siep, Seconded by Tim Blaney.

No discussion on the motion.

Motion on the floor to vote.

Motion passes: By unanimous consent

1.8.1.5 Comment 5: [Sanwalka, Anil K.] Tom Siep agrees but the first resolution is not possible and the second is unlikely. Rich Paine agrees and suggest that the word should be “coexistence” not “interoperable”. Allen Heberling said

that the fact the 802.11 DS and FH SS PHY Layer are not interoperable seems to be a contradiction in terms of WG Comments. Bruce Kraemer said the SG is considering that the current 802.11 MAC could be modification to satisfy the PAN requirements. Tom Siep suggests we modify the first resolution be modified to state “The WPAN PHY has a goal to be interoperable with at least one of the 802.11 PHYs, and...”

1.8.1.6 Comment 6: [Tuch, Bruce] Bob Heile said the SG is considering that the current 802.11 MAC could be modification to satisfy the PAN requirements. Bruce Tuch said that adding his resolutions will counter “ad hoc standards”. Action: Add the language “Add goal of becoming interoperability and coexistence requirement to existing IEEE802.11 standard to the PAR.”

1.8.1.7 Comment 7: [Petrick, Al] Correct typo from “futher” to “further”. Action: The edit was made to –98/161r4 Five Criteria document.

1.8.1.8 Comment 8: [Ennis, Greg] Action: Add “goal” language.

MOTION: to partially accept Comment 3 “...add goal...” –99/18, Moved by Tom Siep, Seconded by Bruce Kraemer.

No discussion on the motion.
Motion on the floor to vote.
Motion passes: By unanimous consent

1.8.1.9 Comment 9: [Diepstraten, Wim]

MOTION: to partially accept Comment 9 but “...add goal...” –99/18, Moved by Tom Siep, Seconded by Bruce Kraemer.

No discussion on the motion.
Motion on the floor to vote.
Motion passes: By unanimous consent

1.8.1.10 Comment 10: [Tsoulogiannis, Tom] Bruce Kraemer likes the resolution offered by TT we need to capture some of these. Adding them to

MOTION: to accept Comment 10 but “...add goal...” –99/18, Moved by Tom Siep, Seconded by Bruce Kraemer.

Tim Blaney adds a friendly amendment to form an ad hoc group to agree to this language. The group agreed to this approach.
Motion on the floor to vote.
Motion passes: By unanimous consent

1.8.1.11 Comment 11: [Chayat, Naftali]

MOTION: to accept Comment 11 –99/18, Moved by Dick Braley, Seconded by Bruce Kraemer.

No discussion on the motion.
Motion on the floor to vote.
Motion passes: By unanimous consent

- 1.8.1.12 Comment 12; [Bagby, Dave] Bob Heile (1) See revised PAR per Comment 1, (2) The other groups are not standards but rather specifications with no Accrediting body i.e., ANSI, etc., (3) Jeff A. we disagree with the opinion that companies (4) . The minutes are available.

MOTION: to reject Comment 12 –99/18, Moved by Dick Braley, Seconded by Pat Kinney.

No discussion on the motion.

Motion on the floor to vote.

Motion passes: By unanimous consent

- 1.8.1.13 Comment 13: [O'Hara, Bob] Bob Heile (1) we will bring Bob's attention to the SG "goal" language as a resolution (2) same as prior (3) (4) add TT and BK chart (5) . Tim Blaney suggested that we consider the future of WPAN as a 802.11 TGx or 802.x WG. Bob Heile reminded us that there is one MAC for one "dot".

MOTION: to accept as edited with the new revised PAR and "goal" language Comment 13 –99/18, Moved by Dick Braley, Seconded by Steve Shellhammer.

No discussion on the motion.

Motion on the floor to vote.

Motion passes: By unanimous consent

1.9 Dick Braley, Chairman adjourned Monday, January 11, 1999 at 17:15

2.0 Bob Heile, Vice Chairman opened Tuesday, January 12, 1999 at 8:40

2.1 Reports (continued)

2.1.1 Review document "Comments received on WPAN's PAR and 5 Criteria in Letter Ballot 16" -99/18:

2.1.1.1 Comment 14: [Black, Simon] We agree and our planned revisions to the PAR and 5C

2.1.1.2 Comment 15: [Nee, Richard van]

MOTION: to accept the comment edited with our new "goal" language Comment 15 –99/18, Moved by Dick Braley, Seconded by Mike McInnis.

Discussion on the motion. Pat Kinney said "...we need to do what we think is right." Rich Paine said "...coexistence is very important to Boeing." Bruce Kraemer said we can extend the MAC Layer such that it is a subset of the 802.11 Standard but the PHY Layer is new and not interoperable. Tim Blaney if you do not keep the same PHY Header format it is improbable that we can interoperate. Peter Murray said "interoperability and coexistence are two (2) different things. For example in the Unlicensed PCS (1910-1930MHz USA) there are etiquette's i.e., WINForum LBT to allow coexistence but not interoperable. "What I have heard is that the SG is trying to go back and correct the past vs. be forward thinking." The SG concluded the discussion by agreeing the dialog

Motion on the floor to vote.

Motion passes: By unanimous consent

2.1.1.3 Comment 16 [Kawaguchi, Dean M.] add goal language

2.1.1.4 Comment 17 [Boer, Jan] add goal language

2.1.1.5 Comment 18: [Hayes, Vic] ACTION: Add appendices to the PAR to expand on the scope & purpose. Bob Heile suggested that we should add documents e.g., WPAN Functional Requirements & CFA Summary.

2.1.1.6 Comment 19: [Hayes, Vic] Add Isochronous services for Voice & Video. Allen H. for isochronous what kind of data are you assuming? The WPAN PHY are presenting <1Mb to 20Mb? Tom Siep said we should consider this comment carefully. "Do we need Isochronous traffic?" The group openly discussed the WPAN applications and the various voice & video discussions. Peter Murray suggested that if asynch and isoch are indeed need then we should be considering HomeRF SWAP Protocol. Tim Blaney suggested that we consider QoS. ACTION: The SG agreed that the PAR Scope should comment

MOTION: to partially accept the comment and revise the PAR Purpose to include Comment 13 –99/18, Moved by Mike McInnis, Seconded by Dick Braley.

No discussion on the motion.

Motion on the floor to vote.

Motion passes: By unanimous consent

2.1.1.7 January 26, 1999 the Secretary took license with the minutes and captured the reflector comments from 1/22/99 to 1/25/99 on this item:

2.1.1.7.1E-Mail thread on "WLAN/ Isochronous Data Service" from Allen Heberling:

<snip>

From: Allen Heberling [heberlin@kodak.com]

Sent: Friday, January 22, 1999 10:37 AM

To: stds-802-11@ieee.org

Subject: WLAN/ IsochronousDataService

Gentlemen,

During the Orlando Interim meeting, Vic Hayes posed the challenge to the WPAN study group that they consider supporting Isochronous data services. I would like to pose the same challenge to the wider 802.11 community.

Background:

In reading through a non-802.11 group's proposal for a limited range wireless network, it is apparent that their proposal is PC-phone centric (i.e. a lot of prose is used to describe how to enable isochronous data to be exchanged between a PC and a cordless phone. Less prose is spent describing the transfer of "data" between computing type devices (e.g. PC to PC, PC to PDA). Whereas 802.11 wireless LANs have been oriented more towards extending traditional wired networks as found in corporate environments. My questions are these: Does it make sense to add isochronous data capability to the 802.11 MAC? And if so what would it take to add that capability to the current 802.11 MAC? I would appreciate reading your comments.

Thanks.

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Allen Heberling Phone: 716-588-1939, Fax: 716-722-9053

Digital Camera Advanced Dev., Eastman Kodak, Co.

66 Eastman Ave.

Rochester, NY. 14650-2015

From: Anil K. Sanwalka [anil@neesus.com]

Sent: Monday, January 25, 1999 1:32 PM

To: stds-802-11@ieee.org

Subject: Re: WLAN/ IsochronousDataService

I think it makes a great deal of sense for 802.11 to add isochronous data capability. I think this is the best way we can combat some of the competing wireless LAN proposals. My feeling is that the WPAN group should be looking at exactly that first. They can then select a proper subset of the modified MAC to define a "MAC Lite" which would be cheaper to manufacture and still be interoperable with an 802.11 LAN. I know that providing isochronous service was originally intended but got dropped along the way. It may be time to revisit it again.

From: Rich Seifert [seifert@netcom.com]
 Sent: Monday, January 25, 1999 2:36 PM
 To: Anil K. Sanwarka; stds-802-11@ieee.org
 Subject: Re: WLAN/ IsochronousDataService

I didn't think that competition was a factor in IEEE standards. In fact, if some technology is available (or will soon be) that meets an emerging market need (e.g., isochronous data support), then it is in IEEE 802.11's best interest to ADOPT such a technology as an IEEE standard, rather than attempt to INVENT another technology to compete with it. Without a doubt, the most successful standards are those that have been adopted from industry, not those that were designed in committee.

From: Chris Zegelin [chrisz@psd.symbol.com]
 Sent: Monday, January 25, 1999 3:02 PM
 To: stds-802-11@ieee.org; anil@neesus.com
 Subject: Re: WLAN/ IsochronousDataService

Just to add a personal opinion to this discussion....

The isochronous data service makes lots of sense when you want to send many 32 Kbps (CVSD) bi-directional voice data streams over a limited data channel (1 or 2 Mbps raw). It makes absolutely NO sense for mostly uni-directional 8 to 5.3 Kbps voice data streams over the same limited channel. You end up reserving way too much bandwidth for stuff that isn't there and anyway you can easily run some 15 plus conversations on one AP at 1Mbps raw. The cost of the DSP for 8 Kbps is heading towards \$4, vs free for the CVSD. Why bother to support CVSD when we are creating a data LAN and all the standards for voice on data LANs is 8Kbps or lower. The next question is streaming video. This is uni-directional and needs bandwidth priority mechanisms, not an isochronous service. As a portable application, it is very rarely real time; at least I would not like to mess with 802.11 on the off chance that someone comes up with a real time application. Video conferencing that works over a slow channel (100Kbps or less) has delays of a second or more and is not what I call real time (forced bandwidth allocation within a 100mS hop period). Other video proposals require the whole channel. I would like to see some compelling product reasons before investing in an isochronous service. HomeRF may have it, but there is some history there, and that alone does not make a good argument for inclusion in 802.11. I'm not against priority mechanisms, just the isochronous service as a method of providing priority.

From: McInnis, Michael D [Michael.McInnis@pss.boeing.com]
 Sent: Monday, January 25, 1999 4:12 PM
 To: stds-802-11@ieee.org; 'heberlin@kodak.com'
 Subject: RE: WLAN/ IsochronousDataService

In my opinion an Isochronous data channel is not nessary for voice traffic since Voice over IP (H.323) G.711 (64 Kb/s) and G.723.1 (5.3 to 6.4 Kb/s) seems to work very well with the IEEE 802.11 wireless specification, reference the Symbol wireless H.323 NetVision phone <http://www.symbol.com> Besides what would you do with the isochronous data channel once it leaves the IEEE 802.11 Access Point and hits the 802.3 LAN subnet??

</snip>

2.1.1.8 Comment 20: [Hayes, Vic] Bruce Kraemer suggested the word "goal" and "requirements" are not the same e.g., Interoperability? Bruce is worried about the end game i.e., WPAN 802.11 TGx approved then DOA when a standard is proffered. Tim Blaney is worried about the same thing; working very hard but getting a standard (PHY & MAC) that was rejected because we were not interoperable. Vic Hayes said we need to consider the comments in terms of WPAN Meeting participation - "will you still be interested in this work if the PAR changes?"

2.1.1.9 General Discussion on the LB16 Comments: The discussion returned to the Interoperability Classes. Steve Shellhammer suggests that the WPAN needs to overlap into 802.11 interoperability to differentiate from

Bluetooth. Bob Heile suggests we should not commit the SG and that we should have a goal to interoperate but not a requirement. Dick Braley said we ended up with 802.11 because it seemed like the place to identify a PHY & MAC Layer solution for the Wearable Computer applications; lately this seems to not be a good idea. Bruce K. said we should unequivocally state that the SG can not accept the "...interoperable requirement with the 802.11 Standard".

2.2 Discussion

2.2.1 Tom Siep provided the SG a table (below) to try and help crystallize the thought on interoperability. During the course of the discussion the SG had a lively discussion but the activity of filling the table in was not completed and/or planned to be:

No	Description	MAC Extensions	new PHY	Coexistence	Interoperability	WPAN SG Concerns	Study group continues
4	Full 802.11 compliance	No	no	yes	yes	Cost size and power	no
3a	Transmit and Receive, but non-compliant	Yes	Yes			Complexity	yes
3b	receive and understand	Yes					yes
3c	receive, detect 802.11						yes
2	Bridge-like 1 MAC, 2 PHYs						yes
1	Non-interoperable						no

2.2.2 The SG referred back to the WPAN Interoperability Classes and Richard Paine offered the following build to the classes. By adding the following to Class 4 – Full Compliance to the 802.11 MAC & PHY PICS:

2.2.2.1 Class 4 - Full Compliance to the 802.11 MAC & PHY PICS

2.2.2.1.1 Need for MAC Extensions: None

2.2.2.1.2 Need for new PHY: None

2.2.2.1.3 Need for coexistence: Done

2.2.2.1.4 Can not be cost competitive with Special Interest Group (Bluetooth & HomeRF) proposals:

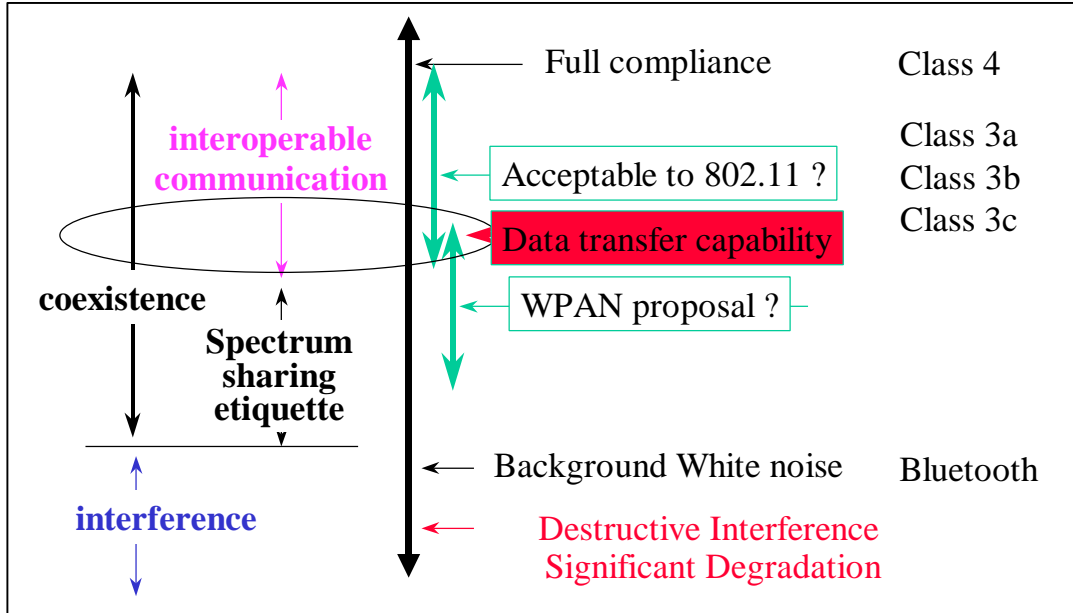
2.2.2.1.5 Can not be competitive in terms of power consumption with Special Interest Group (Bluetooth & HomeRF) proposals:

2.2.2.1.6 Can not be competitive in terms of physical size with Special Interest Group (Bluetooth & HomeRF) proposals:

2.2.2.1.7 Need for interoperability: Done

2.2.2.1.8 Need for Study Group: None

2.2.3 Medium Interoperability Continuum – Bruce Kraemer provided the SG a modified graphic (see below) to add in the prior discussion. The SG agreed to accept this new graphic as a communication device for communicating where the WPAN activity was positioning itself.



2.3 Liaison Update

2.3.1 Ian Gifford provided an overview of the “Meeting between Jim Carlo (Chair of IEEE 802), Ian Gifford (WPAN WGSG Secretary) and Ray Weaver and Simon Ellis (Intel members of Bluetooth) Monday, December 14, 1998”. Jim Carlo prepared a pitch for this meeting and the file [JC-802-Consortium.PDF] can be downloaded from the following URL: <ftp://ftp.flexipc.com/wearablesgroup/802>

2.3.2 Ian Gifford provided an overview of Liaison Update Report –98/359.

2.3.3 Tim Blaney Co-Chair HRF-Lite Subcommittee provided an overview on the HomeRF Lite (HRF-Lite) activity. This is not the recently released SWAP-CA v1.0 Specification. Tim indicated that the Marketing Requirements Document (MRD) rev. 0.3 will be revised at the February 1999 Meeting. The current plan is to have the HRF-Lite specification v1.0 be available at the end of 1999. The HRF-Lite “IPR” is still not confined by an adopters agreement and/or legal contracts.

2.3.4 Tim Blaney later alerted the SG that the next meeting of the HRF-Lite will be the day following the HomeRF Participant’s meeting in Orlando. So, the meeting will be: WHEN: February 12, 1999, 9:00 am to 3:00 pm; WHERE: Doubletree Orlando Resort and Conference Center, Orlando, FL USA.

2.4 The SG was adjourned at 3:30pm by Dick Braley.

- 3.0 Wednesday, January 13, 1999 the meeting was called to order by Bob Heile, Vice Chairman at 8:45am
- 3.1 Bob Heile reminded everyone there is a Social by the pool being hosted by Harris.
- 3.2 Reports (continued)
- 3.2.1 Review document "Comments received on WPAN's PAR and 5 Criteria in Letter Ballot 16" -99/18:
- 3.2.1.1 Bob Heile updated the group based on an evening discussion with our Sponsor – Vic Hayes. The issue of achieving higher WG consensus than indicated by the approved (81%) WPAN SG Motion 3. Vic Hayes indicated that it is not mandatory that the SG achieve 100% from the WG but that consensus is a nice to have.
- 3.2.1.2 Pat Kinney agreed that consensus is not a bad thing; he is in favor of resolving the “No Comments”. Jeff A. indicated that using the Open Session in Time Slot 2 later this morning will be a good time to engage the WG members informally to ask the question about goal vs. requirement. The SG continued to debate the relative merits Pat Kinney said that he hoped that the SG, if made into an 802.x Working Group would work closely with the 802.11 Working Group i.e., coexistence, spectrum etiquette, etc.
- 3.3 Contributions
- 3.3.1 A fourth Call For Proposal (CFP) was received from Allen Heberling, Eastman Kodak, -99/6 and -99/8 (Pitch). Allen presented the CFP at 9:25 to the Study Group.
- 3.3.2 Bob Heile adjourned the SG at 10:40 to reconvene in the Plenary Room to conduct the SG.
- 3.4 Open Session called the SG back to order at 10:55
- 3.4.1 Draft Document -99/5 was presented to the SG and a few WG members.
- 3.4.1.1 The open session generated a good process for clarifying the WPAN LB documents and subsequently additional edits were applied to the PAR & 5C.
- 3.4.1.2 Tom T. suggested that the SG determine if they want to be a Task Group under the 802.11 WG or do we want to be a Working Group under 802 LMSC. Bob Heile indicated that the SG would be meeting later 1/13/98 to discuss this.
- 3.4.1.3 Tom T. went on to say that it is generally understood that each Working Group has one MAC and at least one or more PHY Layer(s). Simon Black

remind the group that the MAC and PHY Layers in the Standard constitute many man years and should not be brushed aside.

- 3.4.1.4 The group discussed the terms Coexistence and Interoperability. Allen Heberling indicated that “Interoperability” is a confusing term - are we talking about MAC Layer, PHY Layer or a MAC & PHY Layer interoperability – which one?
- 3.4.1.5 Bob Heile summarized the discussion and suggested we add the following language to the PAR Scope: “A goal of the WPAN Group will be to achieve a level of interoperability (see -99/5) sufficient to transfer data between a WPAN device and an 802.11 device.”
- 3.4.1.6 Vic Hayes informed the group that the Bluetooth SIG is planning to submit a Tutorial during the Austin, TX 802 LMSC Plenary in March 1999. Vic went on to say that the Bluetooth SIG is considering submitting a PAR. Ian Gifford reminded the group that a recent meeting describing these items in more detail can be found on the WPAN anonymous ftp site; URL: <ftp://ftp.flexipc.com/wearablesgroup/802>
- 3.4.1.7 Steve Shellhammer asked, why then, is there a WPAN PAR? Vic Hayes indicated that the potential submission of a Bluetooth PAR would be fielded by the ExCom.

3.5 Bob Heile reconvened the SG at 3:55pm

- 3.5.1 Tom Siep asked for a motion to form an editorial Sub Group to finalize the PAR and 5C documents on behalf of the SG. The Sub Group shall consist of Bob Heile, Pat Kinney, Tom Siep, Mike McInnis, Steve Shellhammer, and Ian Gifford. The draft revisions will be forwarded via e-mail on or before 1/20/99. Ian Gifford will be the Chairman. The responses are due back to the Chair on or before 1/27/99. The plan is to forward the integrated documents for Sub Group final review on the 1/28/99 and Sponsor submission on 1/29/99.

MOTION: to form an editorial Sub Group to finalize the PAR and 5C documents on behalf of the SG, Moved by Tom Siep, Seconded by Pat Kinney.
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No discussion on the motion.

Motion on the floor to vote.

Motion passes: By unanimous consent

- 3.5.2 Bob Heile overviewed the the PAR submission process and that the SG needs to suggest either a Task Group in IEEE 802.11 or a Working Group in IEEE 802. Tom Siep said that the SG's first choice should be as a TG under 802.11. He went on to mention the fact that the SG, if a 802.11 TG, would require a charter change (more than one MAC Layer) in the 802.11 WG and this is problematic.
- 3.5.3 Steve Shellhammer said he does not know what the SG wants to do. 802.11 derivative means TG under 802.11; this non committal state is unacceptable. We should state unequivocally what we want. Bob Heile suggests that the 802 Charter has to change if the TG wins. See if we can fix the charter problem with 802.11 and use a derivative MAC & PHY Layer. The debate continued for sometime.

3.5.4 Bob Heile stated “The WPAN Study Group recommends that it become a Task Group of 802.11 with the understanding that this will likely require a change in the 802.11 charter and a rule change within 802 to allow multiple MAC Layers within a Working Group. The motivation for becoming a Task Group within 802.11 is to ensure the best use of a shared media. If this is not feasible the SG recommends the formation of a separate Working Group under 802 which would include all PAN related activity including Bluetooth, HomeRF, etc. should they also submit PARs.”

3.6 Bob Heile, Vice Chair adjourned the SG meeting on Wednesday, January 13, 1999 4:53pm.

4.0 802.11 Working Group Plenary Summary Report

4.1 Wireless Personal Area Networks - The WG letter ballot on the Project Authorization Request (PAR) and 5 Criteria, as proposed by the Study Group on Wireless Personal Area Networks (WPAN) resulted in an 81 percent approval. The balloted version will be sent to the IEEE 802 community for review and approval at the March 99 meeting. Resolution of comments into new drafts of the PAR and 5 Criteria will be sent out for reconfirmation ballot to be reviewed at the March meeting. The Study Group has recommended that the work be done in an 802.11 Task Group, provided the rules of 802 provide for the possibility of a difference in MAC. If that would not be true, it recommends to become a Working Group under 802.

5.0 Next Steps

WHAT	WHO	WHEN
Send an e-mail to Ray Weaver Intel to assist with the Bluetooth Tutorial	I. Gifford	1/18/99 Done
WPAN Sub Group PAR & 5C Distribution	I. Gifford	1/22/99 Done
WPAN SG Document(s) Submission to Sponsor	I. Gifford	1/99
WPAN SG Document Upload to ViA ftp site	I. Gifford	1/99
WPAN SG to WG clarification on Recirculation LB	B. Heile	1/99
Austin Plenary Meeting Agenda negotiation/conclusion	SG Leadership	1/99
Send a thank you letter to HomeRF™ Chairman	D. Braley/V. Hayes	1/99
Send a thank you letter to Bluetooth SIG Chairman	D. Braley/V. Hayes	1/99
WPAN SG Leadership Discussion	WPAN SG	3/8-10/99
Recirculation LB review	WPAN SG	3/8-10/99

6.0 Tentative Future Meetings

1999

March 8-12 - Hyatt Regency, Town Lake, Austin, TX, Plenary
 May 10-14 - Shinagawa Prince Hotel Tokyo, Japan?, Interim (Clarion, NTT, etc.)
 July 5-9 - Queen Elizabeth, Montreal, PQ, Plenary
 Sept TBD – TBD Santa Rosa, CA (Alantro)
 November 8-12 - Hyatt Regency Kauai, Koloa, HI Plenary

2000

March 6-10 – Hyatt Regency, Albuquerque, NM, Plenary
 July 10-14 – Hyatt Regency LaJolla, San Diego, CA, Plenary
 November 6-10 – Hyatt Regency, Tampa, FL, Plenary

2001

March 12-16 - ??, Plenary
 July 9-13 – Portland Marriott, Portland, OR, Plenary
 November 12-16 - ??, Plenary

Note: The reason we are looking all the way out to 2001 is due to the following IEEE 802 ExCom provided timeline:

TASKS	DUR	ORIGINAL	CURRENT
Submit WPAN PAR	-	Jun-98	Feb-99
First Unapproved WPAN Draft Specification	9 mo	Mar-99	Nov-99
Draft Specification approved by 802.11 WG	6 mo	Sep-99	May-00
Draft Specification approved by IEEE SAB	6 mo	Mar-00	Nov-00

Attendance list (not official see WG list)

Full name	att. %	memstatus	company	phone	e_mail
Mr. Jeff Abramowitz	100	voter	3COM	+1 408 326 5974	jeff_abramowitz@3com.com
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