
IEEE P802.15
Wireless Personal Area Networks

Project	IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)	
Title	Minutes of the conference calls TG3c Technical Requirements Sub-Group	
Date Submitted	[15 July, 2005]	
Source	[Alireza Seyedi] [Philips] [345 Scarborough Rd., Briarcliff Manor, NY, 10510, USA]	Voice: [+1-914-945-6318] Fax: [+1-914-945-6580] E-mail: [alireza.seyedi@philips.com]
Re:	[]	
Abstract	[This document contains the minutes of the conference calls of the TG3c Technical Requirements sub-group]	
Purpose	[]	
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1. First conference call

Minutes of the 1st conference call can be found in document 05-0329-00-003c

2. Second conference call

Minutes of the 2nd conference call can be found in document 05-0332-00-003c

3. Third conference call

Minutes of the 3rd conference call can be found in document 05-0351-00-003c

4. Fourth conference call

Minutes of the 4th conference call can be found in document 05-0352-00-003c

5. Fifth conference call

5.1. Date

The 5th conference call was held on June 23rd at 8PM Eastern US time.

5.2. Attendees:

1. Reed Fisher
2. Brian Gaucher
3. Hideto Ikeda
4. Nobujiko Kuribayashi
5. Abbie Mathew
6. Tony Pollock
7. Khusro Saleem
8. Alireza Seyedi
9. Yozo Shoji
10. Stan Skafidas
11. Su-Khiong Yong

5.3. Issues discussed and decisions made:

1. The checking and updating of the table of applications in Annex B, and resolve/remove question marks was discussed. Since there were no volunteers A. Seyedi and H. Ikeda accepted to take on this task.
2. There was discussion on whether the table in Annex B implies that all the applications must be satisfied by the proposal. The group agreed that this is not the intention and this table is merely a summary of all the contributions. It was decided that a sentence clarifying this point to be added. S. Skafidas will draft this sentence and provide it to the sub-group.
3. The requirement of “4 simultaneously operating piconets” was discussed with respect to regulatory domains with smaller band allocations (Europe, Australia and perhaps Korea). The sub-group was not clear whether this requirement is equivalent to having 4 separate frequency bands. This issue is to be clarified with MAC liaison (J. Gilb) and further discussed on the next call. T. Pollock and S. Yong to look into regulations in Australia and Korea respectively.
4. The sentence “Combination of analog/digital broadcasting channels and digital communication channels should be supported” and the related item in the table below were removed. This was due to (i) Analog broadcasting does not comply with .15.3 MAC, (ii) There are few analog broadcasting applications, (iii) Our standard should be forward looking and not held back by legacy systems.
5. Section 6.0 was edited to read as: (changes are marked in red)
“The PHY shall be able to coexist with other wireless devices that may be in close proximity to IEEE 802.15.3c devices. This includes interference from 802.15.3c devices to other wireless systems as well as interference from other wireless systems or radiators to 802.15.3c devices.

Coexistence and interference resistance shall, at a minimum, be considered for the following wireless devices: 802.15.1 (Bluetooth™), IEEE 802.11, IEEE 802.15 (3&4), IEEE 802.16, WiMax, ISM cordless phones, and mmWave collision avoidance radars. Interference resistance from other radiators, like microwave ovens, shall also be considered.”

5.4. Action Items:

1. A. Seyedi and H. Ikeda to compare applications to the original contributions and resolve or remove question marks from annex B.
2. S. Skafidas to draft text clarifying the purpose of the table in Annex B.
3. A. Seyedi to clarify the issue of simultaneously operating piconets.

5.5. Next Conference Call:

Agenda:

1. Roll Call
2. Review action items from last call.
3. Start review and editing of Section 7 (Channel Models), and move to the following sections as time permits.
4. Adjourn

Date:

Thursday June 30th / Friday July 1st

Times:

US Eastern Time:	8.00 PM	Thursday
US Mountain Time:	6.00 PM	Thursday
US Pacific Time:	5.00 PM	Thursday
Japan/South Korea Time:	9.00 AM	Friday
Eastern Australia Time:	10.00 AM	Friday

Please check the time conversion for your region. The reference is the US eastern time.

Call-in Number: 1-517-623-4457

Passcode: 71198#

6. Sixth conference call

6.1. Date

The 6th conference call was held on June 30th at 8PM Eastern US time.

6.2. Attendees:

1. Reed Fisher
2. James Gilb
3. Hideto Ikeda
4. Nobujiko Kuribayashi
5. Abbie Mathew
6. Hiroyo Ogawa
7. Tony Pollock
8. Alireza Seyedi
9. Yozo Shoji
10. Stan Skafidas
11. Su-Khiong Yong

6.3. Issues discussed and decisions made:

1. To avoid the text enforcing the requirement of 4 channels in regulatory domains with small bandwidth allocation, Section 5.0 was modified as follows:
“The bit rates and ranges specified in section 3.0 shall be achievable on each piconet for operation with at least 3 other piconets operating in close proximity even with some degree of performance degradation. This requirement is based on the bandwidth available in the US, Canada and Japan regulatory domains. The proposers should demonstrate the number of channels that their proposal provides in other regulatory domains, where possible.”
2. To require the proposers to make use of the channel models that will be provided by the group the text in Section 7.0 was modified as follows. Also, the empty table was removed.
“Performance in a multipath environment is a critical feature for the TG3c alternative PHY. Document (yy/nnn) provides a reference alternative PHY channel model. The individual proposers ~~should~~shall make use of the TG3c models as they become available as a basis for evaluating the performance of their proposals. Individuals submitting proposals that are not addressed by the RF channels selected by the group ~~are encouraged to~~shall provide specific details of the channel models used with references to literature, used in other standards, and/or research.”
3. Section 8.0 was reviewed. It was decided to postpone the discussion of this section to next call, so that the members have time to review the Section

- referred to in the 802.15.3-2003 standard. S. Skafidas took the action item to check the referred section. The table was removed.
4. Section 9.0 was reviewed. There was a suggestion to require the proposers to provide the size of their antenna. However, it was decided to leave the text unchanged. The table was removed.
 5. Section 10.0 was reviewed. There was a discussion on specifying examples for “complexity”, such as gate count and die size. It was decided to leave the text unchanged, and leave more detailed description and requirement for the Selection Criteria document. The table was removed.
 6. Sections 11.0 and 12.0 were reviewed and left unchanged.
 7. Sub-group members are asked to check Annex A to make sure that their names are not omitted or misspelled.
 8. The text of Annex B was replaced with the text provided by S. Skafidas to clarify that not all the application have to be addressed by the proposals, as discussed on the last call. The text now reads:
“Table below summarizes potential applications of millimeter wavelength systems as submitted in response to the CFA. Any submission should try to illustrate support for some of the applications listed. The applications have been arranged in the numeric order of the document number (last column).”
 9. The table in Annex B was modified to replace the question marks with data from the original contributions. H. Ikeda and A. Seyedi provided these modifications. It was mentioned that the 40Mbps data rate calculated based on the exemplary system provided in the contribution does not reflect the real requirement of the application. H. Ogawa will email the correct data rate requirement for this application.

6.4. Action Items:

1. S. Skafidas to check the section in the 802.15.3-2003 standard referred to in Section 8.0.
2. H. Ogawa to provide the correct data rate requirement for application item 13 in the table in Annex B. (*The correct data rate was provided on July 1st. The rate requirement is >1Gbps. The table has been modified accordingly.*)

6.5. Next Conference Call:

Agenda:

1. Roll Call
2. Review action items from last call.
3. Return to review and edit Section 8.0, if necessary.
4. Discuss any other concern in the document.
5. Discuss report and preparation for plenary meeting in San Francisco.
6. Adjourn

Date:

Thursday July 14th / Friday July 15th

Please note that this conference call is in two weeks. There will be no conference call on July 7th/8th.

Times:

US Eastern Time:	8.00 PM	Thursday
US Mountain Time:	6.00 PM	Thursday
US Pacific Time:	5.00 PM	Thursday
Japan/South Korea Time:	9.00 AM	Friday
Eastern Australia Time:	10.00 AM	Friday

Please check the time conversion for your region. The reference is the US eastern time.

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Passcode: 71198#

7. Seventh conference call

7.1. Date

The 7th conference call was held on July 14th at 8PM Eastern US time.

7.2. Attendees:

1. Hideto Ikeda
2. Nobujiko Kuribayashi
3. Abbie Mathew
4. Hiroyo Ogawa
5. Tony Pollock
6. Khusro Saleem
7. Alireza Seyedi
8. Yozo Shoji
9. Stan Skafidas

7.3. Issues discussed and decisions made:

1. S. Skafidas presented the group with some details regarding the power management methods in the 802.15.3-2003 standard, referred to in Section 8.0. Based on this information, the group decided to leave the paragraph unchanged. The last sentence was removed, due to its redundancy. The paragraph now reads:
“The proposer should indicate the possible power management actions that can be initiated by Standard 802.15.3-2003 "PHY-PWRMGT.request". Furthermore, the proposers should provide text including a table that indicates the number of power save levels offered and how much power each level saves. *A power save state is also required.*”
2. The group discussed whether in Section 3.0 clarification should be added regarding the data rate at the PHY-SAP, and the fact that this data rate is different from the true rate that the user sees. This issue was left to be discussed in San Francisco, together with the rate/range values.
3. For consistency the group decided to remove the “requirement tables at the end of all sections. This was done since the data in these tables are redundant.

7.4. Action Items:

1. Alireza to present status report in SF.

7.5. Next Conference Call:

To be announced.