APPROVED

Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**IEEE 802.16.3 Session #11 Minutes**
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Re:	IEEE 802.16.3 Session #11 (Ottawa, Ontario, Canada, Jan 22-26, 2001)
Abstract	
Purpose	To record the meeting events
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Minutes of 802.16.3 Session #11
A Task Group of IEEE 802.16
Ottawa, Ontario Canada
22-26 January, 2001

Call to order
Brian Kiernan called the meeting to order at 10am, Jan 22, 2001.

Agenda for the week
Brian discussed the agenda for the week.
The agenda was modified for Tuesday Jan 23rd to start at 8:30am to allow for more time to discuss the MAC contributions. There were 11 invited PHY proposals and 3 uninvited proposals.

Motion 1 To review the 3 uninvited PHY proposals on Wednesday's agenda.
Motion 1 passes 9-3.

Motion 2 Anader Benyamin-Seeyar - To allow uninvited PHY presentations however, not allow them to be a part of the voting process, 2nd David Falconer.
Motion 2 fails 6-11.

The agenda was approved with the above changes.

Motion 3 Brian Kiernan to approve the minutes from Session #10.
Motion 3 approved via unanimous voice vote.

Liaison Reports

ETSI BRAN Liaison
Demos Kostas presented an updated from ETSI BRAN with the introduction of a name change from FWA below 11 GHz to HiperMAN.

T1P1
Brian Kiernan mention that this group approved a standard based on CDMA and is circuit switched oriented. These documents will be available from ANSI.

Reports from 802.16.3 Groups

Traffic Model
Rick Baugh will be holding a meeting Monday evening meeting after the tutorial to discuss the traffic model.

PHY Evaluation Criteria
Anader Benyamin-Seeyar reported that the group will review the votes from this session and will work to develop a shorter list of criteria for PHY system proposals at session #12.   In addition, the group will add coexistence issue into the criteria evaluation list.

Channel Model
There will be an output from the ad hoc meeting to be presented on Tuesday.

MAC
Subir Varma stated that there will be a Joint meeting with TG4 tomorrow. Many of the proposals are common to each other so tomorrow should be enough time for review. At this time, there were no proposals for MAC criteria. Demos Kostas volunteered to chair a MAC criteria group.

Motion 4 by George Fishel, that the task group would recommend to the working group to add a section in the body to add a list of additional contributors, 2nd David Trinkwon.
Friendly Amendment: David Trinkwon, To expand the cover sheet to a 2nd page to the title page template with contributors.
Motion 4 fails 3-4.

Motion 5 by Brian Kiernan to make a motion to the opening plenary allow a template to be more than one page so the group can list more contributors, 2nd by Demos Kostas.
Motion 5 16-0

Meeting adjourned at 12:00 noon.

Call to Order
The meeting was called to order at 3:40pm on Monday, January 22.

Evaluation Criteria
Concern that the last voting pattern was not objective. For example some proposals received the same vote across all criteria. Due to this, the group will consider to select a shorter list of criteria to simplify the process. In a straw poll, a number of people were not happy with the results of the last vote. Possible alternatives include:

Discussion
Do it similar to TG1 to normalize the distribution of the various curves – Zion Hadad
Keep it the same – David Trinkwon
Something similar to the Olympics where the lowest and highest scores are thrown out – Roger Marks
Remove scores that are far from the average – Zion Hadad
Software developed by Brian Petry which would not allow a person to vote all "1s" and all "10s." It may be good to use this but according to Brian, this didn't make a large difference according to Brian Kiernan - George Fishel. A lot of complexity doesn't bring anything. As we get closer to real data, things will settle itself – Brian Kiernan
Scott Marin called this a "beauty" contest where certain people have an affinity towards a particular proposal, best to eliminate it to three - George Fishel.

Coexistence Evaluation Criteria
There is a possibility for some of the TG2 members to work on coexistence with TG3, however TG3 would not like to have a separate group from the PHY for coexistence. There may be some support from TG2 members to join with TG3 in this effort.

The group came up with a number of recommendations to eliminate more criteria. Although the group made progress, a completion of this criteria is due Thursday so the group will meet at a different time.

 The meeting was adjourned at 5:30pm.

Call to Order
The meeting was called to order at 8:35am on Tuesday, January 23.

Channel Model

In this session, the following contribution was presented by Vinko Erceg as a result of the channel model ad hoc group.

Contribution 802.16.3c-01/29 Channel Models for Fixed Wireless Applications (V. Erceg, et al., 01/01/22)

In addition, the following contribution was made by Amir Sarajendini regarding some comments on the above channel model.

Contribution 802.16c-01/26 802.16 Issues with previously proposed channel models for Broadband Fixed Wireless Applications (Amir Sarajedini, Phil Kelly, Dale Branlund, Randall Schwartz, 01/01/19)

MAC Proposals (Joint TG3 and TG4)

The following MAC proposals were discussed in a joint meeting with TG3 and TG4.

Contribution 802.16.4c-01/10 A Proposal for the Enhancement of the 802.16.1 MAC to Provide a per-Service Flow Reliable Connection Service
(Jacob Jorgensen, Ken Peirce, Subbu Ponnuswamy, 01/01/13)

Contribution 802.16.4c-01/11 A Proposal for the Enhancement of the 802.16.1 MAC: Multiple Higher Layer PDUs per MAC Encapsulation
(Jacob Jorgensen, Ken Peirce, Subbu Ponnuswamy, 01/01/13)

Contribution 802.16.4c-01/12 [also TG4] A Proposal for the Enhancement of the 802.16.1 MAC: Multiple Higher Layer PDUs per MAC Encapsulation
(Jacob Jorgensen, Ken Peirce, Subbu Ponnuswamy, 01/01/13)

Contribution 802.16.4c-01/05 MAC Headers Structure for 802.16.4 (Vladimir Yanover, 01/01/13)

Contribution 802.16.4c-01/06 Data Integrity in 802.16.4 MAC (Naftali Chayat, Vladimir Yanover, Inbar Anson, 01/01/13)

Contribution 802.16.4c-01/07 Reservation Tools for the 802.16.4 MAC (Naftali Chayat, Vladimir Yanover, 01/01/13)

Contribution 802.16.4c-01/02 Modifications to the TG1 MAC for use in TG4 Systems
(Subir Varma, 01/01/12)

Contribution 802.16.3c-01/20 Increasing Link Robustness in TG3 Systems (Subir Varma, 01/01/17)

Contribution 802.16.3c-01/21 A MAC Transport Layer Structure for TG3 Systems (Subir Varma, 01/01/17)

Contribution 802.16.3c-01/22 Comments on the Time Base Structure of TG3 (Subir Varma, 01/01/17)

Contribution 802.16.3c-01/25 Proposed Enhancements to 802.16.1 MAC to Accommodate OFDMA PHY (Itzik Kitroser, Zion Hadad, Yossi Segal, 01/01/17)

The joint TG3, TG4 MAC group assembled a list of issues to discuss jointly with the TG1 MAC group.

The meeting was adjourned at 5:40pm.

Call to Order

Brian Kiernan called the meeting to order at 8:35am.

The PHY Ad Hoc group decided to keep the voting process the same as the previous round.

PHY Proposals

The following PHY proposals were presented.

Contribution 802.16.3c-01/01 OFDM-based Physical Layer submission to 802.16.3 FWA (Marianna Goldhammer, Naftali Chayat, Tal Kaitz, Garik Markarian, Sean Sonander, David Williams, Neil McSparron, Jose F. Kukielka, 01/01/17)

Contribution 802.16.3c-01/02 PHY Proposal for MMDS Communications (Yonatan Manor, Howard Sandler, Chris Tappenden, Chet Shirali, Menashe Shahar, John Sanford, Sanjay Moghe, Randy Howell, George Fishel, Baruch Buskila, Amos Dotan, 01/01/17)

Contribution 802.16.3c-01/04 802.16.3 PHY Ottawa Proposal (Ron McCallister and John Liebetreu, 01/01/17)

Contribution 802.16.3c-01/08 PHY Layer System Proposal for Sub 11 GHz BWA (Anader Benyamin-Seeyar, David Falconer, David Shani, Moshe Ran, Vacit Arat, Demos Kostas, Remi Chayer, Frederick Enns, Malik Audeh, Joe Hakim, Subir Varma, Dean Chang, Brian Eidson, Yoav Hebron, Chet Shirali, Sirikat Lek Ariyavisitakul, John Langley, David Fisher, Garik Markarian, David Williams, Igor Perlitch, Ed Kevork, Ray Anderson, 01/01/17)

Contribution 802.16.3c-01/09 A "Block" Adaptive Modulation and Coding PHY (John Langley, Demos Kostas, Garik Markarian, David Williams, Igor Perlitch, Ed Kevork, Joe Hakim, Subir Varma, Dean Chang, Sirikat Lek Ariyavisitakul, David Falconer, Brian Eidson, Yoav Hevron, Remi Chayer, Anader Benyamin-Seeyar, Frederick Enns, Malik Audeh, David Fisher, David Shani, Moshe Ran, Vacit Arat, 01/01/17)

Contribution 802.16.3c-01/05 IEEE 802.16.3 PHY Utilizing Turbo Product Codes (Dave Williams, Sean Sonander, Neil McSparron, Garik Markarian, Keith Pickavance, 01/01/17)

Contribution 802.16.3c-01/06 Overview of Physical Layer Proposal for IEEE 802.16.3 (F. Sun, A. Macdonald, L. Lee, A. R. Hammons, 01/01/17)

Contribution 802.16.3c-01/11 OFDMA PHY proposal for the 802.16.3 PHY layer (Yossi Segal, Zion Hadad, Itzik Kitroser, Olivier Seller, Dave Williams, 01/01/17)

Contribution 802.16.3c-01/07 802.16.3 2G OFDM System for Broadband Wireless Access Development, Session #11 Presentation (Robert M. Ward Jr, 01/01/17)

Contribution 802.16.3c-01/10 [Rev. 0: 01/01/17] OFDM based 802.16.3 PHY Proposal (Nico van Waes, 01/01/22)

Contribution 802.16.3c-01/12 RM Wavelet Based (WOFDM) PHY Proposal for 802.16.3, Rev.0.0 (Miller, Nasserbakht, Klesensk, 01/01/17)

Contribution 802.16.3c-01/13 Air Interface Proposal Using OFDM with SDM/TDM and OFDMA/TDMA (Eric Jacobsen, 01/01/17)

Contribution 802.16.3p-01/28 PHY Proposal (Randall Schwartz, 01/01/19)

General Contributions

The following proposals are general contributions.

Contribution 802.16.3c-01/14 Turbo Code Comparison (TCC v TPC) (Brian Edmonston, 01/01/17)

Contribution 802.16.3p-00/57 Channel estimation issues for TDD and FDD OFDM (Carl Scarpa, 00/12/12)

The meeting was adjourned at 6:00pm Wednesday Jan 24th.

Call to order

Brian Kiernan called the meeting to order at 9:00am, Thursday Jan 25th.

Brian Kiernan presented a revised agenda for the day that was approved by unanimous voice vote.

ETSI BRAN and TM4 Liaison Letters

Marianna Goldhammer worked with Roger Marks to develop a liaison letter to the HIPERMAN group. The task group had a few edits.

In addition, a liaison letter to TM4 requesting a clarification on "new Work Item EN/TM 4130 – Revision of all 1-3 GHz and 3-11 GHz standards, covers also the definitions of new equipment types." This letter as well was approved with some edits.

PHY Q&A

At this time, the floor was open for any questions regarding PHY proposals.

Here are a few (but not all) of the comments made during the session

Ron McAllister – wanted simulation results for SC with DFE
John Langley – Detail on peak to average power ratios for OFDM solutions were not discussed in detail. To have more detail, this may be added to the PHY criteria list.
David Shani – Would like to know if there is any commonality between all the different OFDM flavors.

Traffic Model Ad Hoc

Rick Baugh presented the results in the traffic model ad hoc group detailed in the following contribution:

Contribution 802.16.3c-01/30 Traffic Model ad hoc Report of January 2001 (Work in Progress) (Rick Baugh)

Motion 6 David Trinkwon to adopt 80216c-01/30 as a baseline traffic model for purposes of evaluating PHY candidates, 2nd by Randall Schwartz.
Motion 6 passes by unanimous voice vote.

Channel Model Ad Hoc

Vinko Erceg presented the results of the channel model ad hoc group.

Here are a few of the changes that will be provided in detail in contribution 802.16.3c-01/29r1:

- Doppler frequency 0.4 and 2 Hz
- Tap delays (0-20 microseconds) and powers
- Proposed changes
    - Base Station Antenna Height 30m (vs 20m)
    - CPE Antenna Height 6.5m (3m before)
        - K-factors changes

Motion 7 David Trinkwon to accept the changes discussed in Vinko's presentation as it stands.
Motion 7 Passes by unanimous voice vote.

There will be an updated version of this document with numbers by mid February.

PHY Criteria Evaluation for Session #12

Anader Benyamin-Seeyar presented some updates on the PHY evaluation criteria. This criteria has been updated but is not final.

Motion 8 Anader Benyamin-Seeyar – to delete sections #5, 6 and 10 from the PHY evaluation criteria, 2nd by Nico van Waes.
Friendly Amendment by David Trinkwon to move the deleted items to the system characteristics – not accepted.
Friendly Amendment by Anader to change criteria to delete to #5, 6, and 9
Friendly Amendment by David Trinkwon to remove #9 – agreed
Motion 8 Passes with no opposition as revised – to delete sections #5 and 6 from the PHY evaluation criteria.

Motion 9 Anader Benyamin-Seeyar to remove #6 from the list, 2nd Jori Arrakoski
Motion 9 fails 4-10.

Motion 10 Paul F. Struhsaker to expand the section to include spectral mask, in-band emissions and out-of-band emissions in the "Compatibility with existing relevant standards." 2nd Demos Kostas
Motion 10 Carries by unanimous voice vote

Motion 11 Nico van Waes to accept the document PHY evaluation criteria as revised, 2nd by Anader Benyamin-Seeyar
Motion 11 carries with no objections.

Joint Meeting with TG3 and TG2

Philip Whitehead presented some ideas for coexistence below 11 GHz.

Brian Kiernan expressed the fact that coexistence is not a part of the TG3 PAR. In addition, this effort requires significant resources that that have not been identified. The work will require inputs from people involved in TG3. In order to accomplish this, a study group needs to form regarding coexistence below 11 GHz.

Brian took a straw poll to see how many people in TG3 would be a part of a study group – about four people raised their hands. About four people from TG2 are interested in this as well.

MAC Contributions

The following contributions were covered:

Contribution 802.16.3c-01/24 Proposal for MAC protocol modification for 802.16.3 Application (Burcak Beser, Victor Hou, Chao-Chun Wang, 01/01/17)

Contribution 802.16.3c-01/23 Proposal for Layer Separation (Burcak Beser, Victor Hou, Chao-Chun Wang, 01/01/17)

Contribution 802.16.3c-01/19 Proposed Enhancements to 802.16.1 MAC for 801.16.3 Applications (George R. Fishel et al., 01/01/17)

Contribution 802.16.3c-01/18 MAC enhancements for VoIP delay minimization (Marianna Goldhammer, 01/01/17)

Changes to TG1 MAC

The group what would be presented to the joint TG1, TG3, TG4 MAC meeting. The decision was made to discuss the various proposals from TG3 and TG4 plus others with TG1.
Motion 12 David Trinkwon to take the specific proposal as a TG3 proposal into TG1.
Motion 12 fails due to no 2nd.

Brian Kiernan recommended that TG3 and TG4 MAC representatives hold an Ad Hoc before the 7:30pm meeting to make some "illustrative" changes to the TG1 MAC.

The meeting was adjourned at 4:45pm, Thursday Jan 25th.

Call to Order

Brian Kiernan called the meeting to order at 8:05am, Friday January 26th.

Brian put together a report for the plenary in document 802.16.3-01/03.

PHY

PHY Proposals 16 reviewed, 6 Invited, 49 people voted, 42 members.
Revised PHY Evaluation Criteria approved

Call for contributions for the PHY (Six Invited Proposals)

The contributions will be reviewed using the updated PHY evaluation criteria.
All contributions are submitted in the format of a draft standard.
In order to get through the next vote, each submission needs to have a vote of 7 or better in **every** category.
The deadline for contributions is March 5, 2000.

The call for contributions was accepted by the task group with no opposition.
Naftali Chayat and Zion Hadad are going to unite their OFDM PHY contributions and invites all of the other OFDM contributors to unite with this group as well.

MAC

Call for contributions: Proposed Enhancements to the MAC

This is due March 7, 2001.
This document was accepted with no opposition.

There has been discussion of having an interim MAC meeting jointly with the TG4 interim meeting in February. The feeling is that the MAC group does not need to meet and will use the MAC reflector and phone conferences to cover the requirements.

Revisions to 802.16s PARs

A PAR revision plan will be discussed at the working group meeting. Details are documented in IEEE 802.16-01/03r1.

The meeting was adjourned at 9:00am.