
Project	IEEE 802.16 Broadband Wireless Access Working Group	
Title	IEEE 802.16.1 Task Group Meeting Minutes for Session #8	
Date Submitted	28 July 2000	
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Re:	IEEE 802.16 Session #8.	
Abstract	Session # 8 Task Group 1 minutes (13-14 July only; PHY-only sessions excluded).	
Purpose	This contribution provides minutes of Task Group 1 for Session #8.	
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IEEE 802.16 MAC Task Group Meeting Minutes for Session #8

Acting Secretary: Juan-Carlos Zuniga

Harris Corporation

Session # 8

Wednesday, July 12, 2000

8:10	Carl Eklund	Call to Order
	Demos Kostas	Presentation Number: IEEE 802.16.1mp-00/20
8:30	Richard Williams	How could you get those 6 ms retransmission time?
	Demos	It is assuming both a 1 ms ACK time and 6 retransmissions.
	Phil Guillemette	Is the 5-dB Eb/No gain showing the 3-dB loss of retransmission or not?
	Demos	It shows the net result error rate.
	Walt	Are you considering the 6 ms frame time and the required buffering time for the 1 ms ACK that you mentioned
	Richard Williams	Under poor conditions are you planning to turn the ARQ off?
		Yes. Under poor conditions only the FEC would take of the error correction,
8:35	Yigal Leiba	Presentation of Document Number: IEEE 802.16.1m-00/19
8:53	Juan-Carlos	What is the assumption to say that the interference happens only a small amount of time?
	Yigal	The small interference assumption is based on the TDMA scheme, where each subscriber transmits only during a small amount of time per frame.
	Carl	How do you solve packets arriving out of order?
		Sequence numbering take care of this issue, and it does not take more than 16 bits.
	Carl	Are these planned for the payload or the header?
		The header would need only a bit to advertise the existence of an ARQ in the payload.
	Karl	Is the scheme proposed only for upstream?
		Yes, is better suited for burst transmissions
	Demos	Why do you think downstream is not well suited if the overhead is small?
		The problem is not the overhead but the data channel. You would need upstream channel even with no data just to ACK the reception of messages.
	Discussion	

	Gene Robinson	I have an agreement with both speakers about what it has been said. The problem is that if you cannot engineer your link, it will help to deal with undeterministic errors. Also, the geometric analysis is true for a flat earth, and the interference in a system has to be engineered when choosing the antenna heights, gains and locations, but we should not design our standard to take care of this deployment-dependant issues.
	Karl	I have a concern about the 1 ms re-transmission time. It may be true for the TDD mode, but any of the other modes may not have a reception of and ACK in a 1 ms time, but rather 2 or 3 times this 1 ms delay.
	Ken Stanwood	To me the 1 ms is the very best case. Even in TDD the need of air link availability or processing time may lead to a higher delay.
	Demos	The ARQ is an option for US and DS, and used with FEC it can improve the performance. It could be a good point once we have the MAC and PHY proposals ready, to measure what the effect of using this scheme would be.
	Carl	It seems a good idea to do so.
	Demos	My presentation does not give much detail, but the contributed paper gives more information on how to implement this scheme for the 802.16 standard.
9:18	Carl	Is the PHY group ready to use the spare time that we have from now until 1 o'clock?
	Jeff Foerster	We are putting together the proposal now.
9:20	Carl	We adjourn for the morning. The PHY will continue at 11 o'clock and the MAC at one o'clock.

13:05	Carl	Call to Order
	Motion:	Motion to approve 8021.6. MAC Minutes from Session #7.5 (802.16.1m-00/06).
		Vote results:
		Passes Unanimously
	Glen Sater Ken Stanwood	Presentation on joint MAC proposal
14:22	Questions	
	Anader Benjamin-Seeyar	Is there going to be an evaluation for all the proposed ideas?
	Glen	SDL diagrams are being produced (as informative) already. The validation of the model will be carried out in Opnet
	David	Would this MAC be able to support 3,4,5 ms frames (i.e. 802.16.3)
	Ken	There is no issue. The MAC supports Mode A that uses a variable length frame.
	Roger Durand	Regarding the GPT and the GPC: is GPC ATM-like, whereas GPT allows BW re-allocation?
	Ken	Is more a complexity issue: If a simple CPE is required, the GPC allows the CPE not to care about reallocating BW. If more Processing power is available then you can afford the GPC mode.
	Sergio Licardie	Have you considered multiple grants for the same terminal in GPC within the same burst not to be separated?

	Ken	It is not explicitly said, but nothing precludes your scheduling algorithm from taking care of this issue
	Demos	Is ARQ going to be considered in your proposal
	Carl	As a contribution driven group, tomorrow we could make a decision on accepting or not.
	Demos	When is the right moment to bring contributions?
	Carl	Once the draft has been accepted, it will be the best moment to bring specific changes to the standard.
	David	Regarding the 802.16.3. Is it possible to modify the MAC for connection-oriented service?.
	Glen	It can transparently support connection-oriented and connection-less
	David	The size of the key is able to change or it is burned in the MAC
	Glen	The MAC field allows for increasing the encryption to higher levels with no modification
	Ken	The MAC is connection-oriented, but it supports connection-less
	Michael	Grants per connection filed size may waste BW
	Ken	The grants per terminal is more efficient, but it is also more complex
	Glen	You may want to build a system for enterprise constant applications, or for bursty residential one. The MAC has to support both
	Michael	Is it compulsory to support both then?
	Ken, Glen	Yes
	David	Will this presentation be posted on the Web
	Glen	I will put in the flash card
	Walter	What is the document number?
	Glen	802.16.1mc/00-21r1
14:45	Carl	Break
15:07	Carl	Reconvene
	Carl	Glen will make available the presentation on the flash disk. Asked for opinions about the ARQ scheme, perhaps though a call for contributions
	Demos	A Call for contributions would be greatly appreciated
	Carl	Is there anybody opposed to this call for contributions
	Phil	We should firstly evaluate if there is place in the MAC for a call for contributions?
	Roger Marks	The priority of this meeting should be the present document and not any call for contributions, although they can be important too
	Juan-Carlos	Would not ARQ be better suited for specific Convergence Layers and hence the definition of them too?
	Demos	We think ARQ applies for several services, so the MAC would be the best place to put this ARQ.
		Why don't the two parties agree upon a single ARQ scheme and then present it to the group?
	Informative votings	Is it worthwhile to consider ARQ at all as part of the 802.16.1 Standard? Favour: 25 Against: 11

		Is it worthwhile to consider ARQ as part of the 802.16.1 MAC sub-layer? Favour: 15 Against: 2
		Is it worthwhile to consider ARQ in a: Per Terminal basis: 2 Favour 19 Against Per Connection basis: 24 Favour 1 Against
	Baruch	To change the terminology of ARQ to Selective-ACK
	Carl	We will defer this issue for tomorrow
	Carl	Discussion on MAC modelling issues
	Juan-Carlos	Has Phil had a chance to get feedback from Opnet Technologies and the University of Sheffield?
	Phil	Opnet Technologies are considering the development of a common framework, but no specific answer was received. University of Sheffield is not an option. Regarding the time it will take, Opnet assume that two people in three months is a decent time frame.
	Sergio	When evaluating the model, a scheduling algorithm has to be defined for that purpose.
	Phil	A simple scheduler can solve that problem
		Is there a specific amount of time that we can plan on for carrying out this task?
	Glen	According to 802.15, it takes longer to understand the protocol than to create the SDL model. Also, by talking to Opnet Tech, there is no translation tool for converting SDL into Opnet language.
	Carl	If the 'money' issue for financing the model, a Industry Forum can be formed to support this development.
	Demos	Would it be possible for example just to increase the registration fee by 100 USD?
	Carl	That question should be make to Roger Marks tomorrow.
	Jim	Is there time for making a presentation on one section of the MAC?
	Carl	Perhaps people that have left for the 802.16.3 were not really interested?
	Jim	I would like to have some feedback from the present audience.
16:00	Jim	Presentation of SAP interface,
	Sergio	If the sequence number is issued by the Convergence, then duplication can exist.
	Jim	Yes. We have to change that
		Is there any primitive to tear down a connection?
	Jim	No
	Glen	There are some missing parameters and terminology that ought to be revised before submitting this document
	Ken	Also, there are primitives missing for other services that we haven't still considered.
16:25	Carl	Adjournment of session

Thursday, July 13, 2000

8:12	Carl Eklund	Call to Order
	Chun	The network entry procedure came from D+. Regarding the IP initialisation, are you planning on improving the DHCP procedure?
	Glen	Low priority TFTP gives a good performance
	Ken	Naturally works well with these kinds of messages, since no specific MAC messages are needed for this higher layer procedure. We think the actual way of establishing IP connectivity is good.
	Roger	Do we really have a two mode solution, or should we be calling it a single mode?
		There is an area where we have not merged the two proposals. The GPC allows for a simpler CPE, GPT you can make the system more efficient. Without knowing what the simulation results are, it is difficult to assess which one of the two is better. With a diversity of traffic and CPEs, the system can use the GPT mode and show a better performance. The idea now is to be able to make both types of CPE co-exist in the same BS, making minimal changes to the BS.
	Roger	But the scheduling is quite different?
	Ken	The BS must look at each connection individually anyway.
	Roger	The concern is for people external to this Task Group, who to whom a dual mode MAC sounds like a complication
	Ken	We would be happy to explain to anyone the purpose of these two schemes.
	Jim	The extra capability comes for free
	Gene	How are Time distribution, Synchronisation and the Power Control addressed in the MAC?
	Glen	There is a very well defined procedure for a CPE entering the network
	Glen	How do you handle time sync?
	Ken	It can be derived from the PHY timing.
	Gene	Is there room for a GPS timing reference?. It is required for ranging, synchronisation with other cells,
	Ken	GPS is not necessary for ranging. Only need PHY timing and round trip delay. The MAC works well if you synchronise it to a global std or if you make it free running. The accuracy is good for it to work properly.
	Jeff	You can synchronise your BS source to whichever network you want.
	Gene	Power Control every 10 sec or so can create a lot of traffic.
	Ken	You can send unsolicited power control messages, so only when you need to make a correction
	Michael	GPC will waste a lot of air traffic and I don't think is necessary at all.
	Phil	You don't need to implement both on the Terminal
	Ian Barager	You don't want to make a system work in both modes
	Glen	I agree, the operator has to be able to choose

	Carl	The operator will purchase the equipment and will have the choice for which type of CPE to choose
	Gene	BWA make people expect a certain bandwidth guaranteed, either they will pay for a fixed BW or they will pay a small premium for a low quality service.
	Carl	Is there any other question or comment?
8:50	Roger	Comment on procedures We need Motion A To accept IEEE 802.16.1mc-00/21r1 as the tentative draft of the 802.16.1 MAC, subject to the specification of the "TBD" items in the draft will be handled as Procedural change, requiring a majority vote.
		Motion B Technical
	Roger	Explanation on the issue
	Ian	TBDs are not critical, and to me they are not a short-stopper.
	Glen	Perhaps 80% of the TBDs are cross-references to section numbers that were lost in the translation
	Ken	There are parts that ought to be revised or the system won't work, and they do not necessarily have a TBD written.
	Jim	There is still some work to be done
	Carl	Do you suggest to defer the approval of the document
	Roger	We must go for the Letter Ballot
	Jim	To rephrase the motion
	Karl	Before going to the Letter Ballot we should merge the PHY and MAC proposal.
	Roger	At September we will have the editorial power to modify a single document
	Karl	We can then have either the document separate or one single one
	Jim	We do want a Letter Ballot before September
	Karl	The PHY has a section of what the MAC must tell, and the MAC has a section saying what the PHY must say. So before going to the letter ballot we should clean these two sections to make the editorial process easier.
	Ken	Should we add this two-week time period to the proposal to motion A
	Roger	Other option is to use a Technical Voting scheme through mail before the Letter Ballot
	Roger	The PHY should then make a resolution

9:40		PHY group discussions starts
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9:50	Jay	On Monday there was a motion to replace last meeting's draft with a cleaner version. Some changes regarding FCC issues were addressed yesterday, so we'll start by formulating the motion to replace the current draft with the one that includes the latest changes.
	Jeff	On Tuesday a simplified specification was submitted. Based on the outcome of that session and the report of the ECC sub-committee, the present draft was created.

	Motion: Jeff Foerster, Seconded by Eric Jacobsen	To accept the revised PHY layer draft specification IEEE 802.16.1p-00/07r1 as the current working PHY layer draft specification, replacing the current PHY layer draft specification IEEE 802.16.1p-00/07.
	Roger	Amendment to the Motion: To delete pages 1-3, 1-4, 1-5, and 1-6 of the document. And delete the word "revised" from the title. Accepted
		The amended document IEEE 802.16.1p-00/07r2 will be based on document IEEE 802.16.1p-00/07r1 with pages 1-3, 1-4, 1-5, and 1-6 deleted
	Roger	Last motion withdrawn
	Motion: Jeff Foerster, Seconded by Phil Guillemette	To accept the revised PHY layer draft specification IEEE 802.16.1p-00/07r1, as amended below, as the current working PHY layer draft specification, replacing the current PHY layer draft specification IEEE 802.16.1p-00/07. The amended document 802.16.1p-00/07r2 will be based on document 802.16.1p-00/07r1 with pages 1-3, 1-4, 1-5, and 1-6 deleted. Furthermore, the word "revised" from the title will be deleted. All deleted pages will be submitted as an additional contribution.
		Question called 21 in favour no oppositions no abstentions
10:20	Roger	Break
10:50	Roger, Carl	Meeting reconvene
	Motion: Jim Mollenauer Seconded by Karl Stambaugh	To accept IEEE 802.16.1mc-00/21r1 as the working 802.16.1 MAC draft specification
	Discussion	
	Yigal	What about the comments that we have made before the break
	Roger	The review process will still carry on
	Ken	How does this impact future changes for the draft?
	Roger	We have prepared a second motion in preparation for submitting the draft. (Future motion showed as informative regarding Ken's question)
	Phil	This is meant to be a draft specification, but we cannot depend on accepting the second motion for making modifications.
	Richard	The document will be the basis for changes
	Jay	When we adopted the PHY it was two documents very difficult. The present document needs also some work to be done, but this is part of the normal process.

	Richard	If we don't accept this motion we allow new contributions in the next meeting
	Phil	When the PHY was accepted there was no Letter Ballot immediately following the approval, which gave the chance to make the changes.
	Ken	I entertain the possibility of mixing both documents. This motion is good if the second one passes. We can withdraw or make a single amendment this motion and formulate a single one with the following one.
	Roger	No single motion makes a short-stop to the process, otherwise no standard would be created
	Brian	Can we call the question
	Roger	I object to calling the question
	Motion: Roger seconded by Ken	Motion to amend the motion to: To resolve to develop an IEEE 802.16.1 MAC draft specification on the basis of IEEE 802.16.1mc-00/21r1.
	Jim	What does "on the basis" mean
	Ken	Gives the freedom to change without the 75%
	Brian	Friendly amendment to be more specific
	Phil	The problem is that after the Letter Ballot we create a much more complex process for all the changes
	Roger	The document will follow a normal flow
	Roger	Call the question: 18 in favour none opposed Motion to amend passes
	Motion: Roger seconded by Ken	To resolve to develop an IEEE 802.16.1 MAC draft specification on the basis of IEEE 802.16.1mc-00/21r1.
	Roger Duran	Does this motion imply that for new changes we will need 75% or 50%?
	Ken	It only says that we will use the document as a working document for the standard.
	Carl	Question called: 21 in favour none opposed Motion passes

	Phil Guillemette Seconded by Brian Petry	Motion: To initiate an 802.16.1 Final Task Group Review, as follows: <ul style="list-style-type: none"> - The Review shall be carried out as an electronic comment submittal process soliciting specific change requests. - The Review shall begin by the 4th of August 2000. - The Review period shall close on the 1st of September. - The draft to be reviewed shall be a single coherent document produced by an 802.16.1 Editorial Team based on documents IEEE 802.16.1p-00/07r2, IEEE 802.16.1mc-00/21r1, and 802.16.1s-99/00r1. The Team may make editorial and self-consistency revisions. It will complete “TBD” items and include an index of those left open. - If the editorial team fails to submit such a document by the 3rd of August, the Final Task Group Review will take place on the basis of documents IEEE 802.16.1p-00/07r2, IEEE 802.16.1mc-00/21r1. - Comment resolution shall be scheduled for Session #9. The first order of business shall be to resolve all open “TBD” items. The intent is to initiate a Working Group Letter Ballot based on a draft approved by the Task Group and Working Group at Session #9
	Ken	Friendly amendment (accepted): To add “[or editorial revisions of those documents]” after : If the editorial team fails to submit such a document by the 3 rd of August, the Final Task Group Review will take place on the basis of documents IEEE 802.16.1p-00/07r2, IEEE 802.16.1mc-00/21r1
	Carl calls the question	19 in favour none opposed Motion carries
	Carl	Does anybody object for making a call for contributions?
	Carl	Designed editors: MAC Sater, Mollenauer, Zuniga, Stanwood, Guillemette, Eklund, Stamatelos, Overall Petry, PHY Stambaugh, Klein, D. Williams, Ran, Foerster,

	Motion: To make those mentioned in the list the Editorial Team	To form the 802.16.1 Editorial Team of the mentioned individuals. Motion carries unanimously
	Durand	Suggestion: To take the time left for the Editorial Process
	Roger	Appoints Foerster as co-ordinator of the PHY Editorial Process, and Sater as co-ordinator of the MAC
12:00	Roger	802.16.1 meeting adjourned