Project	**IEEE 802.16 Broadband Wireless Access Working Group**
Title	**IEEE 802.16.1 MAC Task Group Meeting Minutes for Session # 5**
Date Submitted	**2000-03-01**
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Re:	This contribution is to provide the minutes of the 802.16.1 MAC task group for Session #5.
Abstract	802.16.1 Session # 5 MAC task group minutes.
Purpose	The author proposes these minutes be accepted.
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Release	The contributor acknowledges and accepts that this contribution may be made public by 802.16.
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IEEE 802.16.1 MAC Task Group Meeting Minutes for Session #5

Editor and Acting Secretary: Phil Guillemette
SpaceBridge Networks Corporation

Session # 5.

Time	Speaker	Discussion
1315	Jung Yee	Call Meeting to order. Review Approved agenda from yesterday.
	Moved by: Carl Eklund Seconded by: Jim Mollenauer	**Motion to approve Minutes from Meeting #4. Vote results: Passes Unanimously**
1320	Brian Petry	Presentation of 802.16mc-00/06, "MAC Modeling and Simulation Tools: Recommendations." (Petry MAC Modeling and Simulation.ppt)
1400	Andrew Sundelin	Presentation of "802.16 MAC Simulation Recommendations" (802-16-mac-sim-rec-isky.ppt)
1410	Jung Yee	What do we actually want to do with a simulation tool? This should be answered later today. Should see if NIST is able/willing to help us in our simulation. # of people attending dinner on Wednesday = 59. # of people not attending dinner on Wednesday = 13.
1415	Nader Moayeri	Presenting "A framework for evaluating IEEE 802.16 MAC Layer Proposals" (Moayer WCTG-MAC-eval.ppt)
1520	Jung Yee	Call session to order, after break. Discuss Session #6 Planning. Discuss evaluation criteria.
	Moved by: Brian Petry Seconded by: Jim Mollenauer	**Motion: Keep the evaluation criteria that we developped in session #4 for evaluating the submissions for session #5 as is for session #6. Vote Results: Accepted unanimously.**
Pending	**Moved by: Jim Mollenauer Seconded by: Gene Robinson**	**Motion: Use the set of performance metrics presented by NIST as a set of criteria for the simulated evaluation of the MAC proposals. Accepted amendment provided by Roger Marks:** Additionaly, use the metrics described in the headings of the QoS table, Table 1 from the Functional Requirements document, as performance metrics. Vote Results: **Pending the result of the following motion.**
	Moved by: Roger Marks Seconded by: Brian Petry	**Motion: Move to table prior motion until Thursday when a thought out call for contributions is presented. Accepted amendment provided by Ray Sanders: Have Jung Yee prepare the call for contributions. Vote Results: 1 in opposition. Motion Carries.**

1615	**Moved by: Carl Eklund Seconded by: Phil Guillemette**	**Motion to adjourn. Unanimous.**

Wednesday, January 12, 2000

Time	Speaker	Discussion
1335	Jung Yee	Bring MAC session to order.
1335	Glen Sater	Presenting "Media Access Control Protocol Based on DOCSIS 1.1"
1425		Questions
	Brian Petry	Which of the additions to DOCSIS 1.1 are mandatory
	Glen Sater	All are mandatory
	Ken Stanwood	What is traffic model that is being looked at? One VPI/VCI per SID?
	Glen Sater	One VPI/VCI per SID. Protocol originaly designed for 16 users, but with the changes made, it supports larger deployment into medium business.
	Ken Stanwood	What is rational on limitation of concatenation (requires that all traffic within packet belong to same service flow for QoS reasons)
	Glen Sater	Try not to deviate much from docsis due to time limitations. Problem is that by concatneating multiple service flows together was not possible in time alloted.
	Ken Stanwood	Do you have any proposals for better physical layer control?
	Glen Sater	Can define algorithms to provide updates through ranging more often when it is required.
	Ken Stanwood	Is it possible to do seemlessly do load leveling. How would this be handled.
	Glen Sater	Depends on network …
	Naftali Chayat	??
	Glen Sater	With respect to error rates, don't know. MAC checks for errors and will drop packets.
	Naftali Chayat	Error handling left to higher layers?
	Glen Sater	Yes.
	Jim Mollenauer	How is TDD handled by the MAC
	Glen Sater	Scheduling problem. Must ensure messages are sent to terminals on time.
	Jim Mollenauer	Are there plans to address this in the future?
	Glen Sater	Don't know
	Serge	Why would there me multiple bursts for a particular terminal within a frame instead of continuous allocation.
	Glen Sater	Function of scheduling mechanism
	Serge	Wrt PHY, it doees not mention much wrt loop back for monitoring uplink.
	Glen Sater	BS continuously monitors received signal. Periodic ranging. May use contention based interval to request ranging.
	Serge	How do bs mac and phy communicate info for ranging?

	Glen Sater	Leave up to vendor to define that interface.
	Marianna Goldhammer	Can the modulation types be controled.
	Glen Sater	It can be supported.
	Marianna Goldhammer	Why is there no dynamic changing for modulation
	Glen Sater	Currently static
	Marianna Goldhammer	Can change this?
	Glen Sater	Yes, living document.
	Marianna Goldhammer	Referring to the etsi work, there is a stadard…
	Yigal Leiba	How many MIPS are required in BS for MAC?
	Glen Sater	Don't know for 40Mbps and above. It should be simple enough to determine the MIPS required based on todays computing technology.
1445	Jung Yee	Break and start at 1530.
1545	Jim Mollenauer	Presenting Ensemble, 3Com, BreezeCom and Nokia MAC proposal.
1650		Questions
	Phil Guillemette	What percentage of downlink frame is used by the frame control header.
	Ken Stanwood	Depends on modulation being used. At least 25 bytes plus maps.
	Demos Costas	How do you guarantee sequencing integrity for ATM traffic when ARQ is used.
	Naftali Chayat	Cells are buffered until previous cell has been completely received.
	Demos Costas	Why not use AAL2 for fractional T1 instead of AAL1?
	Jim Mollenauer	We do not use ATM for handling T1 like connections
	Juan Carlos	Will at least the synchronisation time slot be sent for T1 use.
	Jim Mollenauer	?
	Yigal Leiba	Why wait for previous packets to be complete before sending packet.
	Naftali Chayat	Damage of disordering information is worse than losing it in several scenarios. So order of packets must be kept.
	Karl Stambaugh	How do you know what parts of a packet to drop if part of the payload is lost.
	Naftali Chayat	If ARQ is not being used,then discard TDU. If ARQ is used, the missing pieces will be recent until packet is complete.
	Karl Stambaugh	The only way that you know that the IP packet is not complete is by looking at the length field once it is received at the destination?
	Naftali Chayat	MAC can tell that packet is incomplete.
	Ken Stanwood	MAC detects garbage then deals with it appropriately
	Bill Myers	Scheduling algorithm takes care of priority for retransmits and jitter buffer is implemented as well?
	Jim Mollenauer	Yes. If jitter is too tight, then ARQ should probably not be used.
	Bill Myers	The different modulations that were discribed are dinamycally variable and for both us and ds?

	Jim Mollenauer	Yes
	Bill Myers	How would you detect and correct interference due to 64QAM on other modulations
	Jay Klein	Dynamic variability would take care of the changing interference.
	Bill Myers	May create instability
	Jay Klein	?
	Andrew Sundelin	How do you plan to support video multiplexing? How does MPEG fit into your scheme.
	Jim Mollenauer	It sits above the MAC. Don't have and don't want MPEG framing.
	Kamran Etemad	Are there mac entities for individual terminals or users?
	Ken Stanwood	Mac is for the radio.
	Kamran Etemad	ARQ is based on individual user?
	Ken Stanwood	Based on individual connections. User may have multiple connections.
	Kamran Etemad	Does the user now if it was the right base stationg
	Ken Stanwood	Only if it is not told that it is the wrong one
	?	How does radio now that it has to wait until the next frame for bandwidth request.
	Ken Stanwood	Does not have to wait. Can use the contention slots.
	?	4bits sequence number for sequence number so window can only be 8?
	Naftali Chayat	15 packets only.
	?	What is the maximum peak bandwidth due to 4 bit sequence.
	Carl Eklund	Can also use frame number information.
	Demos Costas	How is ATM transmitted, i.e. how is the 1 byte updated for each cell?
	Naftali Chayat	?
	Demos Costas	What kind of redundancy is being included during packing of cells
	Jim Mollenauer ,Carl Eklund	?
`	Tod Williams	How will IP telephony be handled? ARQ turned off?
	Ken Stanwood	Can handle various qos so voice of IP likely be used some sort of VBR service.
	Jim Mollenauer	Add to the above by noting that for voice over IP you used compression.
	Naftali Chayat	For the ARQ, the encoder/decoder delay over the network does not have any impact on the system.
17:30	Closing up	

Thursday, January 13, 2000

Time	Speaker	Discussion
1325	Jung Yee	Call meeting to order and a couple announcements.

	Jim Mollenauer	Presenting tentative text for call for contributions. (MAC Call for Contributions.doc)
	Moved by: Jung Yee Seconded by: Jim Mollenauer.	**Motion: To accept the current document prepared by Jim Mollenauer as the call for contributions to be presented in the Friday Plenary Meeting Vote Results: Unanimously accepted. Note: This is the follow-up to the motion that was pending from Tuesday's meeting.**
1355	Jung Yee	Ended meeting.