AGENDA & MINUTES (Unconfirmed) - IEEE 802 LMSC EXECUTIVE COMMITTEE MEETING
(updated March 12, 2007)

Friday November 17, 2006   1:00 PM – 6:00 PM

Dallas, TX

1.00		**MEETING CALLED TO ORDER**	-	**Nikolich**	**1**	**01:00 PM**

Paul Nikolich called the meeting to order at 1:00 PM Members in attendance were:

Paul Nikolich	- Chair, IEEE 802 LAN / MAN Standards Committee
Mat Sherman	- Vice Chair, IEEE 802 LAN / MAN Standards Committee
Pat Thaler	- Vice Chair, IEEE 802 LAN / MAN Standards Committee
Bob O'Hara	- Recording Secretary, IEEE 802 LAN / MAN Standards Committee
Buzz Rigsbee	- Executive Secretary, IEEE 802 LAN / MAN Standards Committee
John Hawkins	- Treasurer, IEEE 802 LAN/MAN Standards Committee
Tony Jeffree	- Chair, IEEE 802.1 - HILI Working Group
Bob Grow	- Chair, IEEE 802.3 - CSMA/CD Working Group
Stuart Kerry	- Chair, IEEE 802.11 - Wireless LANs Working Group
Bob Heile	- Chair, IEEE 802.15 – Wireless PAN Working Group
Roger Marks	- Chair, IEEE 802.16 – Broadband Wireless Access Working Group
Mike Takefman	- Chair, IEEE 802.17 – Resilient Packet Ring Working Group
Mike Lynch	- Chair, IEEE 802.18 – Regulatory TAG
Steve Shellhammer	- Chair, IEEE 802.19 – Wireless Coexistence TAG
Arnie Greenspan	- Chair, IEEE 802.20 – Mobile Broadband Wireless Access
Vivek Gupta	- Chair, IEEE 802.21 – Media Independent Handover
Carl Stevenson	- Chair, IEEE 802.22 – Wireless Regional Area Networks
Geoff Thompson	- Member Emeritus (non-voting)

2.00	MI	**APPROVE OR MODIFY AGENDA**	-	**Nikolich**	**9**	**01:01 PM**

r05   **AGENDA - IEEE 802 LMSC EXECUTIVE COMMITTEE**
MEETING
Friday, November 17, 2006 - 1:00PM -6:00PM

1.00		**MEETING CALLED TO ORDER**	-	**Nikolich**	**1**	**01:00 PM**
2.00	MI	**APPROVE OR MODIFY AGENDA**	-	**Nikolich**	**9**	**01:01 PM**
3.00			-			**01:10 PM**
3.01			-			**01:10 PM**
3.02			-			**01:10 PM**
4.00	II	**Announcements from the Chair**	-	**Nikolich**	**1**	**01:10 PM**
4.01	II		-			**01:11 PM**
		Category (* = consent agenda)	-			
			-			
5.00		**IEEE Standards Board Items**	-			**01:11 PM**
5.01	ME	**802.15.4d PAR to NesCom**	-	**Heile**	**5**	**01:11 PM**
5.02	ME	**Conditional approval of 802.15.4a to RevCom**	-	**Heile**	**10**	**01:16 PM**
5.03	ME	**802.16m PAR to NesCom**	-	**Marks**	**10**	**01:26 PM**
5.04	ME	**Conditional approval of 802.16k to RevCom**	-	**Marks**	**10**	**01:31 PM**
5.05	ME	**Conditional approval for 802.16g to sponsor ballot**	-	**Marks**	**5**	**01:36 PM**
5.06	ME	**Conditional approval of 802.16/COR2 to sponsor ballot**	-	**Marks**	**5**	**01:41 PM**

5.07	ME	P802.1av PAR to NesCom	-	Jeffree	5	01:46 PM
5.08	ME	P802.1aw PAR to NesCom	-	Jeffree	5	01:48 PM
5.09	ME	P802.1AB Revision PAR to NesCom	-	Jeffree	5	01:58 PM
5.10	ME	P802 Revision PAR to NesCom	-	Jeffree	5	02:08 PM
5.11	ME	P802.1ak conditional approval to forward to RevCom	-	Jeffree	10	02:18 PM
5.12	ME	Conditional approval of 802.17b to RevCom	-	Takefman	10	02:28 PM
5.13	ME	IEEE Std 802.3-2005/Cor2 PAR to NesCom	-	Grow	2	02:33 PM
5.14	ME	P802.3ap Conditional to RevCom	-	Grow	5	02:38 PM
5.15	ME	IEEE Std 1802.3-2001 Refirmation conditional to RevCom	-	Grow	5	02:43 PM
5.16	ME		-			02:48 PM
5.17	ME		-			02:48 PM
5.18	ME		-			02:48 PM
6.00		Executive Committee Study Groups, Working Groups, TAGs	-			02:48 PM
6.01	MI		-			02:48 PM
6.02	MI*	802.15.4c Altenrnative PHY for China SG extension	-	Heile		02:48 PM
6.03	MI*	802.15.4d alternative PHY for Japan SG extension	-	Heile		02:48 PM
6.04	MI*	802.3 HSSG extension	-	Grow		02:48 PM
6.05	MI*		-			02:48 PM
6.06	MI	Formation of 802.15 Medical Body Area Network SG	-	Heile	5	02:48 PM
6.07	MI	Formation of 802.17 Protected Inter-Ring Connection SG	-	Takefman	5	02:53 PM
6.08	MI	Formation of 802.11 Direct Link Setup SG	-	Kerry	5	02:58 PM
6.09	MI	Energy Efficient Ethernet 802.3 SG formation	-	Grow	5	03:03 PM
7.00		Break	-		10	03:08 PM
8.00		IEEE-SA Items	-			03:18 PM
8.01	II	802 Task Force update	-	Kipness	5	03:18 PM
8.02	II		-			03:23 PM
8.03			-			03:23 PM
9.00		LMSC Liaisons & External Interface	-			03:23 PM
9.01	II	Get IEEE 802 Program Update	-	Kenney	5	03:23 PM
9.02	ME	Liaison to ITU-R CPM regarding WRC-07 AI 1.4	-	Lynch	10	03:28 PM
9.03	ME	Response to ITU-R WP8A Liaison regarding IP over wireless	-	Lynch	10	03:38 PM
9.04	ME	Contribution to ITU-R WP8F to modify M.1457	-	Lynch	10	03:48 PM
9.05	II	802.20 report	-	Greenspan	10	03:58 PM
9.06	ME	802.17b press release	-	Takefman	5	04:08 PM
9.07	ME	802.17c press release	-	Takefman	5	04:13 PM
9.08	ME	Letter to NIST from 802.16 WG	-	Marks	1	04:18 PM
9.09	ME	802.16 Letter to ITU-R	-	Marks	5	04:19 PM
9.10	II	802.17 Liaison letter to ITU-T SG 15 Q9	-	Takefman	5	04:24 PM
9.11	II	802.1/802.17 liaison response to ITU-T on protection and restoration	-	Jeffree	5	04:29 PM
9.12	II	802.1 liaison response to MEF re their 10038 - implementors agreements	-	Jeffree	5	04:34 PM
9.13	II	802.1 liaison response to MEF re their 10036 - protocol filtering at UNIs	-	Jeffree	5	04:39 PM
9.14	II	802.1 liaison response to IETF CCAMP	-	Jeffree	5	04:44 PM
9.15	II	802.1 liaison response to the NGN Management Focus Group	-	Jeffree	5	04:49 PM
9.16	II	802.1 liaison response to ITU-T regarding linktrace	-	Jeffree	5	04:54 PM
9.17	ME	confirm Geoff Thompson and Floyd Backes as 802 RAC representatives	-	Nikolich	2	04:59 PM
10.00		LMSC Internal Business	-			05:01 PM
10.01	MI	TREASURER'S REPORT	-	Hawkins	5	05:01 PM
10.02	MI	Approval of WG Voting P&P Revision	-	Sherman	5	05:06 PM
10.03	MI	Approval of ballot for AudCom P&P Revision	-	Sherman	5	05:11 PM
10.04	MI	Reciprocal voting rights in TAGs and WGs	-	Lynch	5	05:16 PM
10.05	MI	Affirm Chair's decision on CA documents	-	Sherman	10	05:21 PM
10.06	MI		-			05:31 PM

10.07	MI	contract updates (meeting planner, network services, hotel)	-	Rigsbee	15	05:31 PM
10.08	MI	Attendance automation plan	-	Nikolich	5	05:46 PM
10.09	MI	Approval of T&E funding for 802.20 chair (non-conflicted EC vote)	-	Nikolich	5	05:51 PM
10.10	MI	Coordination of input to ITU	-	Lynch	5	05:56 PM
11.00		**Information Items**	-			06:01 PM
11.01	II	Status on impact of improper editing of P&P change	-	Sherman	5	06:01 PM
11.02	II	Open office hours feedback	-	Nikolich	5	06:06 PM
11.03	II	Network Services Report	-	Rigsbee	5	06:11 PM
11.04	II	Future meeting sites	-	Rigsbee	10	06:21 PM
11.05	II		-			06:21 PM
11.06	II	IEEE Std 802.3-2005 Revision plan	-	Grow	2	06:23 PM
11.07			-			06:23 PM
11.08			-			06:23 PM
11.09			-			06:23 PM
11.10			-			06:23 PM
		ADJOURN SEC MEETING	-	**Nikolich**		**06:00 PM**

ME - Motion, External   **MI - Motion, Internal**
DT- Discussion Topic   **II - Information Item**

Special Orders

Moved: To approve the agenda, as modified.
Moved: Grow/Jeffree
Passes: 15/0/0

3.00			-			01:10 PM
3.01			-			01:10 PM
3.02			-			01:10 PM
4.00	II	Announcements from the Chair	-	Nikolich	1	01:10 PM
4.01	II		-			01:11 PM
		Category (* = consent agenda)	-			
			-			
5.00		**IEEE Standards Board Items**	-			01:11 PM
5.01	ME	802.15.4d PAR to NesCom	-	Heile	5	01:11 PM

802.15.4d Agenda Item

Executive Committee Actions-802.15.4d

P Beecher moved *that the 802.15 WG forward the contents of the PAR (doc 15-06-401-04) in the proper form and the 5 C (doc 15-06-402-04) to the 802 ExCom for approval and forward the PAR to NesCom for approval of the formation of the 802.15.4d task group*. Clint Powell seconded. Following no discussion the vote was taken: 35/0/1. This motion carries.

Documents were circulated on Nov 16 to the EC and included all comments received except Vice Chair info in the draft PAR which will be included by the IEEE.

Executive Committee Actions-802.15.4d

- Move to forward 15-06-0401-05-004d-ieee-802-15-sg4d-draft-par.pdf to NesCom

Moved: Bob Heile

Second: Roger Marks

The PAR Copyright Release and Signature Page must be submitted by FAX to +1-732-875-0695 to the NesCom Administrator.
If you have any questions, please contact the NesCom Administrator.

Once you approve and submit the following information, changes may only be made through the NesCom Administrator.

Draft PAR Confirmation Number: 186046127.16174
Submittal Email: bheile@ieee.org
Type of Project: Amendment to an Existing Standard 802.15.4-2006
1.1 Project Number: P802.15.4d
1.2 Type of Document: Standard for
1.3 Life Cycle: Full
1.4 Is this project in ballot now? No
2.1 Title of Standard: Standard for Information Technology - Telecommunications and Information Exchange Between Systems - Local and Metropolitan Area Networks - Specific Requirements - Part 15.4: Wireless Medium Access Control (MAC) and Physical Layer (PHY) Specifications for Low Rate Wireless Personal Area Networks (WPANs) - Amendment: Title of the base standard: Standard for Information Technology - Telecommunications and Information Exchange Between Systems - Local and Metropolitan Area Networks - Specific Requirements - Part 15.4: Wireless Medium Access Control (MAC) and Physical Layer (PHY) Specifications for Low Rate Wireless Personal Area Networks (WPANs) - Amendment: Alternative Physical Layer Extension to support the Japanese 950MHz Band
3.1 Name of Working Group: Wireless Personal Area Network (WPAN) Working Group
Contact information for Working Group Chair Robert F Heile Email: bheile@ieee.org Phone: 781-929-4832
Contact Information for Working Group Vice Chair Email: Phone:
3.2 Sponsoring Society and Committee:IEEE Computer Society/Local and Metropolitan Area Networks (C/LM) **Contact information for Sponsor Chair:** Paul Nikolich Email: p.nikolich@ieee.org Phone: 857-205-0050 **Contact information for Standards Representative:** Email: Phone:
3.3 Joint Sponsor:/ () **Contact information for Sponsor Chair:** Email: Phone: **Contact information for Standards Representative:**

Email: Phone:	
4.1 Type of Ballot: Individual	
4.2 Expected Date of Submission for Initial Sponsor Ballot: 2008-03	
4.3 Projected Completion Date for Submittal to RevCom: 2008-07	
5.1 Approximate number of people expected to work on this project: 100	
5.2 Scope of Proposed Standard: This Project will define an amendment to the existing standard 802.15.4-2006. The proposed amendment shall be limited to defining a new PHY and such changes to the MAC as are necessary to support a new frequency allocation (950MHz -956MHz, forthwith referred to as 950MHz) in Japan. The amendment shall completely follow the new technical conditions described in Japanese ministerial ordinance. The amendment shall coexist with passive tag systems in the band.	
5.3 Is the completion of this standard is dependent upon the completion of another standard: No **If yes, please explain:**	
5.4 Purpose of Proposed Standard: It was always the intention for 802.15.4 to include support for an unlicensed sub 1GHz band in Japan, but none was available. The Japanese regulatory authority has now defined an unlicensed 950MHz band for RFID systems and hence this sub 1GHz band can also be used for IEEE802.15.4 in Japan for the first time. Interference in 950 MHz is lower than that in 2.4 GHz. Transmission distance in 950 MHz is also longer than that in 2.4 GHz. Due to improved range and reliability, this makes it appropriate for many applications for which 2.4GHz is not appropriate. The amendment to 802.15.4 will standardize a new PHY and necessary changes to the existing MAC to support Japanese 950 MHz.	**Old Purpose:**
5.5 Need for the Project: 802.15.4 has always embraced operation in 2 bands: 2.4GHz for global use and sub 1 GHz bands as regionally available. Currently 802.15.4 supports 906-928 MHz band in the US and the 868MHz band in Europe. This amendment will allow for similar operation in the sub 1GHz band in Japan for applications benefiting from better propagation characteristics – such as automatic meter reading and industrial control and monitoring Japan is a large and important market which makes undertaking a project like this worthwhile.	
5.6 Stakeholders for the Standard: Given the expected broad deployment and use of wireless sensor and control networks in every aspect of the environment, the stakeholders are practically everybody.	

Intellectual Property

6.1.a. Has the IEEE-SA policy on intellectual property been presented to those responsible for preparing/submitting this PAR prior to the PAR submittal to the IEEE-SA Standards Board? Yes
If yes, state date: 2006-09-19
If no, please explain:

6.1.b. Is the Sponsor aware of any copyright permissions needed for this project? No
If yes, please explain:

6.1.c. Is the Sponsor aware of possible registration activity related to this project? No
If yes, please explain:

7.1 Are there other standards or projects with a similar scope? No
If yes, please explain:
and answer the following: Sponsor Organization:
Project/Standard Number:
Project/Standard Date: 0000-00-00
Project/Standard Title:

7.2 Future Adoptions
Is there potential for this standard (in part or in whole) to be adopted by another national, regional, or international organization? Do not know at this time

If Yes, the following questions must be answered:
Technical Committee Name and Number:
Other Organization Contact Information:
Contact person:
Contact Email address:

7.3 Will this project result in any health, safety, security, or environmental guidance that affects or applies to human health or safety? No
If yes, please explain:

7.4 Additional Explanatory Notes: (Item Number and Explanation)

8.1 Sponsor Information:
Is the scope of this project within the approved scope/definition of the Sponsor's Charter? Yes
If no, please explain:

Submit to NesCom   Save and Come Back Later

Contact the NesCom Administrator

IEEE P802.15
Wireless Personal Area Networks

Project	IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)
Title	**IEEE P802.15 WPAN SG4d Draft 5C**
Date Submitted	[18 September, 2006]
Source	[Phil Beecher, SG4d Chair] Voice: [+44 1737 227728] [Integration UK Ltd] Fax: [] [16 West Street, Reigate, Surrey, UK] E-mail:[pbeecher@integration.com]
Re:	[Document 15-06-0334-00-wng0-Japanese-950MHz.ppt from Shigeru Fukunaga.]
Abstract	[During the July 2006 IEEE 802 Plenary the IEEE P802.15 working group formed the IEEE 802.15 4d study group with the goal to create a Project Authorization Request for enhancements to the IEEE 802.15.4-2006 standard. This document contains the 5 criteria.]
Purpose	[This document is supporting the submission of the PAR to the P802.15 Working Group]
Notice	This document has been prepared to assist the IEEE P802.15. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.
Release	The contributor acknowledges and accepts that this contribution becomes the property of IEEE and may be made publicly available by P802.15.

IEEE P802.15 Low Rate Wireless Personal Area Networks Study Group Functional Requirements Standards Development Criteria

The IEEE P802.15 4d Study Group for Wireless Personal Area Networks (WPANs) reviewed and completed the required IEEE Project 802 Functional Requirements, Standards Development Criteria (a.k.a. the Five Criteria). The IEEE P802.15 WPAN Five Criteria response is in Italics below.

1. BROAD MARKET POTENTIAL

a) Broad sets of applicability

There is increasing interest for Low Rate Wireless Personal Area Network (WPAN-LR). Especially in Japan, sub Giga band is required for the many applications of WPAN-LR.

Examples of applications include Home Automation, Meter Reading, Medical Monitoring, Precision Agriculture and Environmental Networks, Industrial Controls, and Access/Authorization. Examples of devices include Smart Tags & Badges, Auto Location ID's, Stick-on and Security Sensors, Interactive Toys, Human Interface Devices (HIDs), Portable bar code readers, and Remote controls. With an effective wireless standard, geared to this class of applications, the Japanese market potential is huge.

The wireless capability will make these devices easier to use and provide additional functionality and efficiency.

b) Multiple vendors and numerous users

The breadth of membership of this WPAN Low Rate Study Group demonstrates the interest in this class of WPANs. Members include international wireless industry leaders, academic researchers, semiconductor manufacturers, system integrators, and end users. Already, there are industry consortiums, such as ZigBee and WINA actively addressing the requirements of ultra low power, low data rate wireless PAN class networks and are promoting the current standard .There are currently at least 3 semiconductor manufacturers providing semiconductor solutions for sub 1GHz 80215.4.

The target user base will be large as indicated by the growing demand for wireless connectivity in almost all devices.

c) Balanced costs (LAN versus attached stations)

The proposed amendment to 802.15.4-2006 will be developed with the aim that the connectivity costs will be a reasonably small fraction of the cost of the target devices such as sensors, tags, HIDs, and bar code readers as previously mentioned.

2. COMPATIBILITY

IEEE 802 defines a family of standards. **All standards shall be in conformance with IEEE 802.1 Architecture, Management and Interworking. All LLC and MAC standards shall be compatible with ISO 10039, MAC Service Definition1, at the LLC/MAC boundary. Within the LLC Working Group there shall be one LLC standard, including one or more LLC protocols with a common LLC/MAC interface. Within a MAC Working Group there shall be one MAC standard and one or more Physical Layer standards with a common MAC/Physical layer interface. Each standard in the IEEE 802 family of standards shall include a definition of managed objects, which are compatible with OSI systems management standards.**

Note: This requirement is subject to final resolution of corrections and revision to current ISO 10039, currently inconsistent with ISO 8802 series standards.

The MAC (Medium Access Control) Layer of the Wireless Personal Area Network (WPAN) Standard will be compatible with the IEEE 802 requirements for architecture, management, and inter-networking.

3. DISTINCT IDENTITY

a) Substantially different from other IEEE 802 standards.

802.15.4-2006 uniquely supports wireless sensor and control application. Without amendment, 802.15.4-2006 will not support the `new frequency allocation 950MHz -956MHz, (forthwith referred to as 950MHz)` *proposed by the Japanese Ministerial Ordinance.*

b) One unique solution per problem (not two solutions to a problem).

The proposed amendment to 802.15.4-2006 will provide a unique solution for the Japanese 950 MHz as WPAN-LR standard.

c) Easy for the document reader to select the relevant specification.

The proposed amendment to 802.15.4-2006 for Japanese 950 MHz will be a clearly distinguishable specification.

4. TECHNICAL FEASIBILITY

a) Demonstrated system feasibility

Physical layer implementations in the 900MHz band are well known and well characterized

b) Proven technology, reasonable testing

There are examples of technology that exist today, which will allow design and fabrication of these radio systems.

c) Confidence in reliability

The air interface protocol will be designed to meet commercial reliability standards. Existing products provide confidence in the reliability of the proposed project.

Although not strictly required as there are no other IEEE standard radios operating in the specified band, a Coexistence Assurance document will be created to describe coexistence with other systems operating in the band.

5. ECONOMIC FEASIBILITY

a) Known cost factors, reliable data

High volume applications in Japanese 950 MHz band provide a low cost source of components. Existing products indicate cost targets are easily met..

b) Reasonable cost for performance

Based on test results, prototype, and production solutions, the estimates meet expected size, cost, and power requirements.

c) Consideration of installation costs

One of the 802.15.4-2006 standard objectives includes low cost installation with minimal to no operator intervention.

Moved: Move to forward 15-06-0401-05-004d-ieee-802-15-sg4d-draft-par.pdf to NesCom

Moved: Heile/Marks
Passes: 16/0/0

5.02   ME   Conditional approval of 802.15.4a to RevCom   -   Heile   10   01:13 PM

802.15.4a Agenda Item

Conditional Approval for 15.4a

Ballots Sent: 128

Ballots Returned: 110
o   Affirmatives   92
o   Negatives with comment   6
o   Negatives without comment   0
o   Abstentions   12
o   Total   **110**

No Response   18
Total Ballots   128

Percent Returned (92 + 6+ 12) / 128 = 86%
     Percent Affirmative 92 / (92 + 6) = 94%
     Percent Abstentions 12 / 110 = 11%

Conditional Approval for 15.4a

- 133 comments received from the 6 disapproving voters

- 67 were classified as "must be satisfied".

- 63 were either accepted or accepted in principle by the work group

- 4 were rejected (3 were from one voter, one from another voter).

Conditional Approval for 15.4a

Comment	Proposed Change	Resolution Detail
The 2450MHz CSS physical layer violates the PAR. It does not support precision ranging, and it does not give any significant improvements in communication range or robustness compared to the 2.4 GHz PHY in 802.15.4-2006, beyond what will be implementation specific (rather than depending on the specified PHY). Furthermore, CSS uses around 3x the RF bandwidth of the 2.4 GHz PHY in 15.4-2006. The marginal improvements in theoretical performance do not justify the standardization of yet another 2.4 GHz physical layer from IEEE. **By- Oyvind Jambu**	Remove the CSS PHY from the standard. Alternatively, define a 2.4 GHz PHY that significantly improves performance over the IEEE 802.15.4-2006 2.4 GHz PHY.	This draft amendment does indeed define an alternative PHY clause for a data communication standard with precision ranging, extended range, enhanced robustness and mobility amendment to standard 802.15.4 as stated in the 802.15.4a PAR. The two modulation methods; UWB and CSS are appropriate given the global regulatory environment and other aspects of the RF environment. These methods are complementary and together; fulfill the goals of this amendment. The improvement in link margins for severe multipath for CSS is significant over the DSS as stated in 15.4-2006.
Comparing to 802.11b/g 15MHz Foffset case, 802.15.4 receiver is too much affected in case of 3MHz Foffset because simultanious relaxations on duty cycle of (1%)/(50%) and frame length of 22octet/1500octet. **By- Shusaku Shimada**	Uncertain but perhaps some simulation condition might be changed.	The simulation conditions state in Annex E are believed to be appropriate. The commenter is invited to propose specific simulation conditions for review.
No data rate requirement is ordinated. **By- Shusaku Shimada**	Delete (7)	At the time of this draft this statement is believed to be true.
DAA isn't defined yet. **By- Shusaku Shimada**	Remove the term identification signals.	We agree that DAA is not sufficiently defined, however, at the time of this draft this statement was believed to be true.

Conditional Approval for 15.4a

Motion in the WG: *the 802.15. WG make a request of the 802 EC for conditional approval to forward the 802.15.4a draft to RevCom*

Moved: Pat Kinney

Second: Rick Alfvin

29/0/0

Conditional Approval for 15.4a

Move that the recirculated 802.15.4a draft be conditionally approved for forwarding to RevCom

Moved: Bob Heile

Second: John Hawkins

Moved: that the recirculated 802.15.4a draft be conditionally approved for forwarding to RevCom

Moved: Heile/Hawkins
Passes: 16/0/0

5.03	ME	802.16m PAR to NesCom	-	Marks	10	01:15 PM

Moved: *To forward the P802.16m PAR (IEEE 802.16-06/054r3) to NesCom.*
See also Five Criteria (IEEE 802.16-06/055r3).
Moved: Marks/Heile

Submittal Email: r.b.marks@ieee.org
Type of Project: Amendment to an Existing Standard 802.16-2004
1.1 Project Number: P802.16m
1.2 Type of Document: Standard for
1.3 Life Cycle: Full
1.4 Is this project in ballot now? No
2.1 Title of Standard: IEEE Standard for Local and metropolitan area networks - Part 16: Air Interface for Fixed Broadband Wireless Access Systems - Amendment: IEEE Standard for Local and metropolitan area networks - Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access Systems Advanced Air Interface
3.1 Name of Working Group: Broadband Wireless Access Working Group
Contact information for Working Group Chair   Roger B Marks   Email: r.b.marks@ieee.org   Phone: 1-303-725-4626
Contact Information for Working Group Vice Chair   Email: Phone:
3.2 Sponsoring Society and Committee: IEEE Computer Society/Local and Metropolitan Area Networks (C/LM)   **Contact information for Sponsor Chair:**   Paul Nikolich   Email: p.nikolich@ieee.org   Phone: 857-205-0050   **Contact information for Standards Representative:**   Email: Phone:
3.3 Joint Sponsor:/ ()   **Contact information for Sponsor Chair:**   Email: Phone: **Contact information for Standards Representative:**   Email: Phone:
4.1 Type of Ballot: Individual
4.2 Expected Date of Submission for Initial Sponsor Ballot: 2009-03
4.3 Projected Completion Date for Submittal to RevCom: 2009-11
5.1 Approximate number of people expected to work on this project: 300

5.2 Scope of Proposed Standard: This standard	**Old Scope:**

amends the WirelessMAN-OFDMA specification to provide an advanced air interface for operation in licensed bands. It addresses the cellular layer requirements of IMT-Advanced next generation mobile networks as specified in Rec. ITU-R M.1645. This amendment provides continuing support for legacy OFDMA equipment.	

5.3 Is the completion of this standard is dependent upon the completion of another standard: Yes
If yes, please explain: The project is dependent on the completion of IMT-Advanced requirements on a timely basis.

5.4 Purpose of Proposed Standard: The purpose of this standard is to provide performance improvements necessary to support future advanced services and applications, such as those described by the ITU in Report ITU-R M.2072.	**Old Purpose:**

5.5 Need for the Project: The International Telecommunications Union Radiocommunications Sector (ITU-R) is developing the IMT-Advanced radio interface standards to provide advanced air interface specifications for mobile telecommunications. Under the current schedule, initial proposals for IMT-Advanced are anticipated to be solicited for mid-2008, and standardization is expected to continue through 2009. This project will develop an advanced IEEE 802.16 air interface by working cooperatively with ITU-R and its members.

5.6 Stakeholders for the Standard: Vendors developing IEEE 802.16 products, licensed carriers using IEEE 802.16 products, members of the WiMAX Forum™ and members of ITU-R.

Intellectual Property

6.1.a. Has the IEEE-SA policy on intellectual property been presented to those responsible for preparing/submitting this PAR prior to the PAR submittal to the IEEE-SA Standards Board? Yes
If yes, state date: 2006-11-13
If no, please explain:

6.1.b. Is the Sponsor aware of any copyright permissions needed for this project? No
If yes, please explain:

6.1.c. Is the Sponsor aware of possible registration activity related to this project? No
If yes, please explain:

7.1 Are there other standards or projects with a similar scope? No
If yes, please explain: It is anticipated that other standards will also be submitted to the ITU-R for IMT-Advanced. At this time, there is no indication about the number of standards that may be proposed or the number of standards that may be adopted by the ITU-R for IMT-Advanced.

~~Other IEEE 802 projects may target aspects of IMT-Advanced, but the scope of this standard is expected to be unique within IEEE 802.~~

and answer the following: Sponsor Organization:
Project/Standard Number:
Project/Standard Date: 0000-00-00
Project/Standard Title:

7.2 Future Adoptions
Is there potential for this standard (in part or in whole) to be adopted by another national,

regional, or international organization? Yes

If Yes, the following questions must be answered:
Technical Committee Name and Number: ITU-R
Other Organization Contact Information:
Contact person: Jose Costa
Contact Email address: costa@nortel.com

7.3 Will this project result in any health, safety, security, or environmental guidance that affects or applies to human health or safety? No
If yes, please explain:

7.4 Additional Explanatory Notes: (Item Number and Explanation)
The title of this PAR should be:
"IEEE Standard for Local and metropolitan area networks - Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access Systems Advanced Air Interface"

However, the automatic PAR titling system does not permit the assignment of this name.

Note that the base of the title must contain the words "and Mobile". These words are not in the title of IEEE 802.16-2006, but the title was modified by IEEE 802.16e-2005.

3.3 Joint Sponsor:

The PAR submittal form does not allow for the entry of Joint Sponsor information. The Joint Sponsor is as follows:

Joint Sponsor: IEEE Microwave Theory and Techniques Society
Contact information for Sponsor Chair: Richard Snyder
Email: r.snyder@ieee.org
Phone: +1-201-492-1207

5.2 Scope
Some of the requirements specified in Rec. ITU-R M.1645 that this amendment will target are:

- 100 Mbits/s - high mobility, as defined in Recommendation ITU-R M.1645
- Frequency bands - licensed bands as identified in Report ITU-R M.2079
- Target cell size: Micro and Macro-cells as defined in Table 7-15 of Report ITU-R M.2078

8.1 Sponsor Information:
Is the scope of this project within the approved scope/definition of the Sponsor's Charter? Yes
If no, please explain:

Contact the [NesCom Administrator](#)

Five Criteria Statement for P802.16m PAR Proposal

CRITERIA FOR STANDARDS DEVELOPMENT (FIVE CRITERIA)

Broad Market Potential

A standards project authorized by IEEE 802 shall have a broad market potential. Specifically, it shall have the potential for:
a) Broad sets of applicability.
b) Multiple vendors and numerous users.
c) Balanced costs (LAN versus attached stations).

a) IMT-Advanced radio interface standardization is being developed by the ITU-R, based on global user and technology trends for next generation mobile networks and on the needs of developing countries. Common technical, operational and spectrum-related parameters of systems will maximize the commonality between IMT-Advanced air interfaces. By updating IEEE Std 802.16 to meet the requirements of next generation mobile networks targeted by the cellular layer of IMT-Advanced, this amendment will ensure that IEEE Std 802.16 fulfills a broad and globally defined set of use cases.

b) The internationally harmonized requirements of IMT-Advanced and the consensus building process used to develop those radio interface standards will ensure wide industry support. This wide support is anticipated to lead to multiple vendor sources to meet the needs and requirements of ~2 billion users [ITU-R Rec. M.1645] utilizing the globally harmonized spectrum identified for IMT-Advanced.

c) Implementation complexity will be balanced between the mobile station (MS) and the base station (BS).

Compatibility

IEEE 802 defines a family of standards. All standards shall be in conformance with the IEEE 802.1 Architecture, Management and Interworking documents as follows: If any variances in conformance emerge, they shall be thoroughly disclosed and reviewed with 802.
Each standard in the IEEE 802 family of standards shall include a definition of managed objects which are compatible with systems management standards.
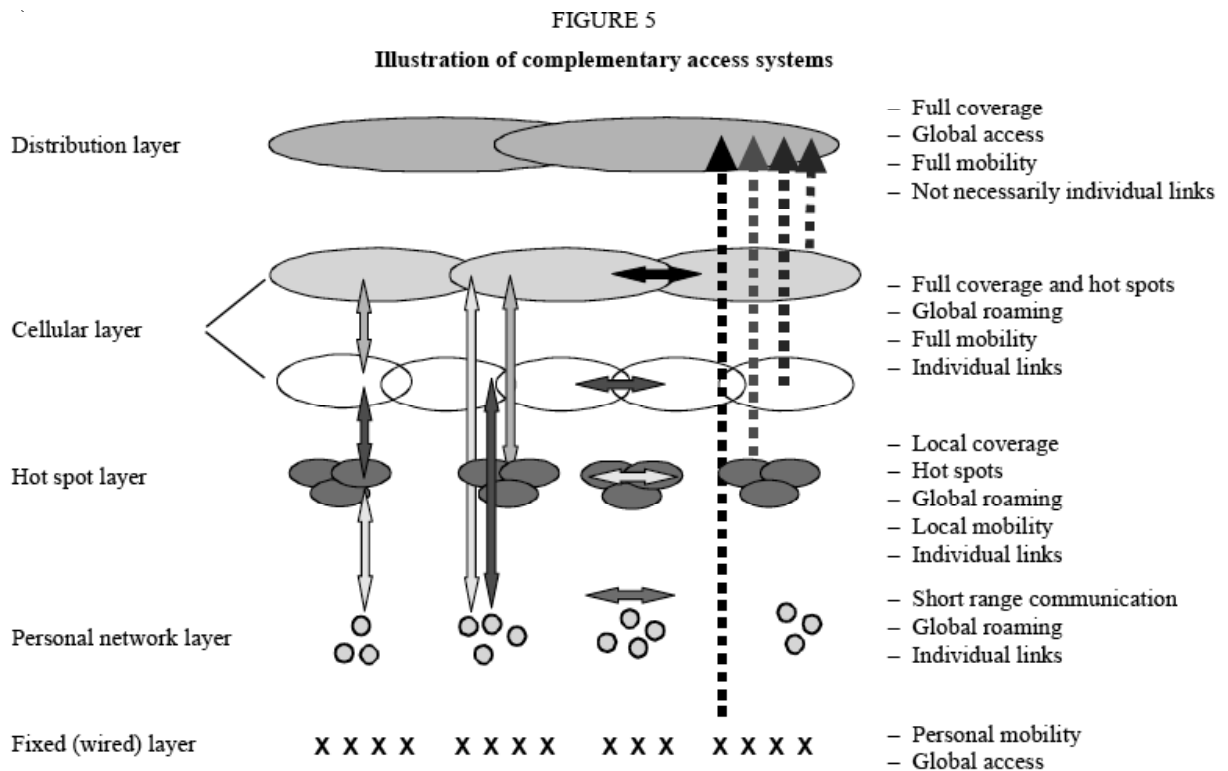

This amendment to IEEE Std 802.16 to meet the IMT-Advanced requirements will conform with the 802.Overview and Architecture, 802.1D, 802.1Q and parts of 802.1F . IEEE 802.16 will thoroughly disclose and review with 802 any variance that emerges.
Managed objects defined will be consistent with existing policies and practices for 802.1 standards

Distinct Identity

Each IEEE 802 standard shall have a distinct identity. To achieve this, each authorized project shall be:

a) Substantially different from other IEEE 802 standards.

b) One unique solution per problem (not two solutions to a problem).

c) Easy for the document reader to select the relevant specification.

ITU-R Recommendation M.1645 (Framework and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000) discusses a multi-layer structure as described in Figure 5 of M.1645(reproduced below)

FIGURE 5

Illustration of complementary access systems

Distribution layer	– Full coverage – Global access – Full mobility – Not necessarily individual links
Cellular layer	– Full coverage and hot spots – Global roaming – Full mobility – Individual links
Hot spot layer	– Local coverage – Hot spots – Global roaming – Local mobility – Individual links
Personal network layer	– Short range communication – Global roaming – Individual links
Fixed (wired) layer	– Personal mobility – Global access

No existing IEEE 802 standards or projects meet the preliminary cellular layer IMT-Advanced target requirements, such as 100 Mbit/s in high-speed mobility applications. In order to address this and other ITU-R M.1645 elements, such as the distribution layer, the hotspot layer, the personal network layer and the fixed (wired) layer, other IEEE 802 groups have the opportunity to develop their own submissions for the ITU-R. M.1645 envisions the use of multiple coordinated technologies, therefore other IEEE 802 media and interworking standards may be suited to address specific parts of the M.1645 structure.
The project will produce an interoperable and distinguishable extension to the IEEE Std 802.16 so that users can easily distinguish the enhancements from the original standard

.Technical Feasibility

For a project to be authorized, it shall be able to show its technical feasibility. At a minimum, the proposed project shall show:
a) Demonstrated system feasibility.
b) Proven technology, reasonable testing.
c) Confidence in reliability
d) Coexistence of 802 wireless standards specifying devices for unlicensed operation

a) Initial deployments of 802.16 technology provide confidence that the necessary enhancements to meet the cellular layer requirements of IMT-Advanced are feasible. As part of the ITU-R process, there will be opportunity to submit input to the development of these requirements, ensuring a good match between the 802.16 amendment capabilities and the specified IMT-Advanced requirements.
b) Existing deployments of 802.16 have proven the technology, including testing and certification.
c) IEEE Std 802.16 technologies are now mature, with industry confidence in their reliability
d) A Coexistence Assurance (CA) is not applicable since the project is only for licensed operation.

Economic Feasibility

For a project to be authorized, it shall be able to show economic feasibility (so far as can reasonably be estimated), for its intended applications. At a minimum, the proposed project shall show:
a) Known cost factors, reliable data.
b) Reasonable cost for performance.
c) Consideration of installation costs.

a) *The economic viability of IEEE 802.16 systems has been analyzed within the industry and a number of development efforts are ongoing. The existence of these development efforts indicates that IEEE 802.16 systems are expected to have a cost that is consistent with reasonable business strategies. The proposed amendment is done within the framework of international standardization, which will further enhance the economic viability of the standard. The deployment costs of IEEE Std 802.16, such as radio and baseband architecture, are well known.*

b) *Because IMT-Advanced is intended to be a globally deployed system, it is expected that cost effective performance can be achieved through large economies of scale.*

c) *The anticipated installation costs for this type of technology are in line with current industry practices for cellular systems.*

Arnie expressed that 60% of the 802.20 WG had difficulty with the approval of this PAR. Their concern is that other 802 WGs may be precluded from working in this area, if this PAR is approved. He relayed that some members of 802.20 had concerns about the factual correctness of material in the PAR.

Roger indicated that some of the material in the comments from members of 802.20. He said that section 7.1 has been revised. He hoped that this change would satisfy the issues expressed by many members of 802.20.

Stuart indicated that 802.11 is interested in participating in the IMT-Advanced work. He expressed support for the motion.

Bob O'Hara asked for clarification on a remark made by Roger, asking if the changed PAR had been approved by the PAR. Roger indicated that it had not, but was within the spirit of a unanimous motion passed by the WG to allow the chair to modify the PAR to address concerns of the EC.

Joanne Wilson indicated that many have expressed concern that M.1645 does not include requirements, as it seems to be referenced in the PAR. She also indicated the M.1729 is referenced without limitation to only those bands that are allocated to mobile communications. She indicated that changes had been proposed that would allow the work to be done while correcting these deficiencies.

Geoff indicated he has concerns about the technical content of the PAR, since the IMT-Advanced is for a circuit switched network, not a packet network. He is also concerned that the PAR needs to be reworked to incorporate the material that is only referenced.

Roger indicated that he can provide material that shows that IMT-advanced does include packet switched aspects. He also indicated that the material in the M.1645 is understood not to be requirements, but a framework and, as such, include much more material than a PAR.

Roger indicated that 802.20 was asked if there were any objections to 802.16 going forward with the PAR. There were no objections.

Fails: 5/7/4

5.04   ME   Conditional approval of 802.16k to RevCom   -   Marks   10   01:37 PM

802.16k to RevCom
Conditional Approval

The 802.16 NetMan TG:
Voted 14-0-0 to accept comment database 802.16-06/069r2.

Voted 13-0-0 to authorize the editor to revise P802.16k/D3, in accordance with the comment resolutions in 802.16 06/069r2, and reissue the document as P802.16k/D4

The 802.16 WG voted 70-0-0, to develop and issue the Draft P802.16k/D4 and to request conditional approval to forward P802.16k/D4 to RevCom.

Date Closed

802.16k Sponsor Ballot
first Recirculation
Closed 11/11/2006

Vote Tally

- 802.16k/D3
  - 129 approve
  - 3 disapprove
    - Tony Jeffree
    - Mick Seaman (No ballot submitted in recirc)
    - Pieter-Paul Giesberts (No ballot submitted in recirc)
  - 10 abstain

  - Approval Ratio 95%
  - Return Ration 77 %

Schedule for recirc ballot and resolution meeting

15 day Recirculation Ballot:
  Starts ~Monday 27th November.
  Ends 15 days later.

802.16 NetMan TG will meet during the London Joint Interim (*15-18 January 2006)* to resolve any remaining comments

Comments that support remaining disapprove Votes

- 1 Comment by Tony Jeffree

- 1 Comment by Michael J Seaman
- 1 Comment by, Pieter-Paul Giesberts

Comments and resolutions described on the following 8 slides:

Technical Comment #1
Tony Jeffree

The text in the draft does not correspond to the text in the proposed resolution of my (and others) comments on this subclause. Notably, the new text states "Clause 5.1 (ATM CS), Clause 5.2.5 (IEEE Std 802.1Q-2003 virtual local area network (VLAN) specific part) and clause 5.2.6 (Packet CS IP specific part) directly support the ISS." whereas the comment resolution text states "Clause 5.1 (ATM CS), Clause 5.2.5 (IEEE Std 802.1Q-2003 virtual local area network (VLAN) specific part) and clause 5.2.6 (Packet CS IP specific part) directly support neither bridging nor the ISS." The missing "...neither...nor..." from the draft text completely reverses the meaning of this sentence. Consequently, the revised draft increases (rather than reduces) the lack of clarity in this piece of text. Having said that, the proposed replacement text posted as comment resolution seems to me to be sadly lacking in clarity itself.

Resolution of Technical Comment #1

Proposed Resolution

I strongly suggest that the ballot resolution committee takes the opportunity of the upcoming 802 meeting to talk with 802.1 experts to straighten out the text of this subclause. In the meantime, my "No" vote stands.

Resolution of Group

On page 3, line 46, modify text as:

Clause 5.1 (ATM CS), Clause 5.2.5 (IEEE Std 802.1Q-2003 virtual local area network (VLAN) specific part) and clause 5.2.6 (Packet CS IP specific part) shall not ~~directly~~ support the Internal Sublayer Service~~ISS~~.

On page 3, line 58, modify text as:

The 802.16 MAC CPS presents a connection oriented MAC service. The 802.3 packet CS utilizes this service to present the 802.3 service. A pair of communicating peer CS entities between an 802.16 BS and an 802.16 SS create a point to point LAN as defined in 6.4.3. ~~The 802.3 packet CS does not provide a port based transparent connection between the BS and the SS. Synchonization between the Classifier in the 802.3 convergence sublayer and the learned MAC address table in the Standard Learning Bridge is required to establish forwarding of frames over IEEE802.16 to the corresponding SS. This synchronization of the classification process in the BS and the learned MAC address table in the Standard Learning Bridge is not necessary for convergence sublayers not applying classification to the destination MAC address.~~

Technical Comment #2
Michael J Seaman

There is clearly something wrong with this amendment's definition of 2 rather than 1 way of supporting the ISS with no way indicated of making an interoperable choice of the method to be used. This indicates a further problem in the 802.16 standards itself. I would expect the 802.3 packet CS to be used exclusively. If option priority or any other capabilities are provided by the other CS they could as well be provided by the 802.3 CS and ignored on transmission or receipt by clients with no knowledge beyond basic 802.3.

There have been other comments about the interoperability confusion caused by 802.16s redefinition of the lower sublayers of protocol identification, instead of using Ethertypes - many of which are already assigned - and the already standard methods of carrying protocols over Ethertype, so this issue is clearly bigger than just this amendment. See for example draft-iab-link-encaps.txt.

Resolution of Technical Comment #2
Proposed Resolution

Remove the support of the ISS by the 802.1 CS from this document entirely, and add a note deprecating the use of that CS.

802.16 should further reduce the number of different 'services' supported. Attempts to be all things to all men are not useful.

Resolution of Group (in initial Sponsor Ballot)

Accepted-Modified

Delete 6.5.5.2
Delete 7.7.5

Modify the text in 6.5.5 as:

The WMAN MAC access method is specified in IEEE Std 802.16. Clause 5 of that standard specifies the Service Specific Convergence Sublayers (CS) that implement the 802.16 MAC service. Clauses 5.2.4 (802.3 Packet CS) ~~and 5.2.5 (802.1 Packet CS)~~ describes the modes of the Packet CS that supports ~~bridging~~the ISS. Clause 5.1 (ATM CS), Clause 5.2.5 (IEEE Std 802.1Q-2003 virtual local area network (VLAN) specific part) and clause 5.2.6 (Packet CS IP specific part) directly support ~~neither bridging nor~~ the ISS. Multiple encapsulation methods are provided in Clause 5, however bridging function is based on the underlying transport method only, and is indifferent to link layer control encapsulation. Clause 6

specifies the MAC Common Part Sublayer (MAC CPS) transmission and reception procedures and Annex C describes the MAC CPS service definition.

In IEEE Std 802.16 there is no explicit definition of the MAC service definition for the ~~802.1 Packet CS nor the~~ 802.3 Packet CS. The 802.3 Packet CS MAC service is defined in IEEE ~~s~~Std 802.3 clause 2 ~~and the 802.1 Packet CS MAC service is defined to be the ISS (6.4)~~.

The 802.16 MAC CPS presents a connection-oriented MAC service. ~~Both t~~The 802.3 ~~and 802.1~~ packet CS utilize~~s~~ this service to present ~~either~~ the 802.3 ~~or ISS MAC~~ service ~~respectively~~. A pair of communicating peer CS entities between an 802.16 BS and and 802.16 SS create a point-to-point LAN as defined in 6.4.3. <u>The 802.3 packet CS does not provide a port based transparent connection between the BS and the SS. Synchonization between the Classifier in the 802.3 convergence sublayer and the learned MAC address table in the Standard Learning Bridge is required to establish forwarding of frames over IEEE802.16 to the corresponding SS. This synchronization of the classification process in the BS and the learned MAC address table in the Standard Learning Bridge is not necessary for convergence sublayers not applying classification to the destination MAC address.</u>

Since ~~neither~~ the 802.3 specific part of the packet CS ~~nor the 802.1 specific part of the packet CS~~ forwards the frame_check_sequence parameter of the M_UNITDATA.indication, then

1)Any service flow using this MAC CS shall enable the 802.16 MAC CRC
2)PHS validation shall not be turned off for this service flow (since 802.16 MAC CRC ~~can not~~<u>cannot</u> protect suppressed MAC header fields).

Additional Relevant Changes by Group (For recirc)

On page 3, line 46, modify text as:

Clause 5.1 (ATM CS), Clause 5.2.5 (IEEE Std 802.1Q-2003 virtual local area network (VLAN) specific part) and clause 5.2.6 (Packet CS IP specific part) <u>shall not</u> ~~directly~~ support the <u>Internal Sublayer Service</u>~~ISS~~.

Technical Comment #3
Pieter-Paul Giesberts

Changes are required to make this draft amendment to IEEE Std 802.1D compatible with 802.16. Currently, this version is NOT compatible in the following areas: It refers to a "802.1 Packet CS", but the .16 std calls this the "IEEE Std 802.1Q-2003 VLAN CS" (in 5.2.5) or the "Packet, IEEE 802.1Q VLAN" CS (in 11.13 CS specification). The statement "The user_priority parameter of the M_UNITDATA primitive is not encoded in the MAC CPS MSDU." (6.5.5.2) is incorrect, as the user priority is carried in the VLAN tag. It refers to a Priority byte in the MAC CPS MSDU (6.5.5.2), but there is no such byte defined in 802.16. It states incorrectly that access_priority may be used in classification. There is no classifier rule parameter defined for this. It states that "IEEE std 802.16 imposes no limit on the length of a MAC CPS MSDU" (6.5.5.2). However, 802.16 section 5.2.5.2 specifies the Ethertype as one of the classification parameters, implying that there is a Length/Ethertype in the SDU; This limits the length to 1500.

Resolution of Technical Comment #3

Proposed Resolution

All references to the 802.16 "802.1 Packet CS" should be replaced by "802.1Q VLAN Packet CS". The majority of section 6.5.5.2 (page 4 line 38 through page 5 line 5) should be replaced by: "The IEEE 802.1Q VLAN Packet CS provides the Enhanced ISS as described in IEEE Std 802.1Q-2003 clause 6.4." The paragraph starting with "IEEE std 802.16 imposes no limit on the length of a MAC CPS MSDU...." (page 5 lines 24..28) should be deleted. Sections 6.5.5.2.1 and 6.5.5.2.2 should be deleted. Section 7.7.5, Table 7-4, should specify value '0' for Access Priority for all values of user_priority (similar to IEEE 802.3).

Resolution of Group (in initial Sponsor Ballot)

Accepted-Modified

Delete 6.5.5.2
Delete 7.7.5

Modify the text in 6.5.5 as:

The WMAN MAC access method is specified in IEEE Std 802.16. Clause 5 of that standard specifies the Service Specific Convergence Sublayers (CS) that implement the 802.16 MAC service. Clauses 5.2.4 (802.3 Packet CS) and 5.2.5 (802.1 Packet CS) describes the modes of the Packet CS that supports bridgingthe ISS. Clause 5.1 (ATM CS), Clause 5.2.5 (IEEE Std 802.1Q-2003 virtual local area network (VLAN) specific part) and clause 5.2.6 (Packet CS IP specific part) directly support neither bridging nor the ISS. Multiple encapsulation methods are provided in Clause 5, however bridging function is based on the underlying transport method only, and is indifferent to link layer control encapsulation. Clause 6

specifies the MAC Common Part Sublayer (MAC CPS) transmission and reception procedures and Annex C describes the MAC CPS service definition.

In IEEE Std 802.16 there is no explicit definition of the MAC service definition for the ~~802.1 Packet CS nor the~~ 802.3 Packet CS. The 802.3 Packet CS MAC service is defined in IEEE ~~s~~Std 802.3 clause 2 ~~and the 802.1 Packet CS MAC service is defined to be the ISS (6.4)~~.

The 802.16 MAC CPS presents a connection-oriented MAC service. ~~Both t~~The 802.3 ~~and 802.1~~ packet CS utilize~~s~~ this service to present ~~either~~ the 802.3 ~~or ISS MAC~~ service ~~respectively~~. A pair of communicating peer CS entities between an 802.16 BS and and 802.16 SS create a point-to-point LAN as defined in 6.4.3. <u>The 802.3 packet CS does not provide a port based transparent connection between the BS and the SS. Synchonization between the Classifier in the 802.3 convergence sublayer and the learned MAC address table in the Standard Learning Bridge is required to establish forwarding of frames over IEEE802.16 to the corresponding SS. This synchronization of the classification process in the BS and the learned MAC address table in the Standard Learning Bridge is not necessary for convergence sublayers not applying classification to the destination MAC address.</u>

Since ~~neither~~ the 802.3 specific part of the packet CS ~~nor the 802.1 specific part of the packet CS~~ forwards the frame_check_sequence parameter of the M_UNITDATA.indication, then

1)Any service flow using this MAC CS shall enable the 802.16 MAC CRC
2)PHS validation shall not be turned off for this service flow (since 802.16 MAC CRC ~~can not~~<u>cannot</u> protect suppressed MAC header fields).

Additional Relevant Changes by Group (For recirc)

On page 3, line 46, modify text as:

Clause 5.1 (ATM CS), Clause 5.2.5 (IEEE Std 802.1Q-2003 virtual local area network (VLAN) specific part) and clause 5.2.6 (Packet CS IP specific part) <u>shall not</u> ~~directly~~ support the <u>Internal Sublayer Service</u>~~ISS~~.

Moved: *To grant conditional approval, under Clause 20, to forward P802.16k to RevCom*
Moved: Marks/Jeffree

Passes: 16/0/0

| 5.05 | ME | Conditional approval for 802.16g to sponsor ballot | - | Marks | 5 | 01:41 PM |

P802.16g to Sponsor Ballot: Conditional Approval

17 November 2006

Rules

Motions requesting conditional approval to forward where the prior ballot has closed shall be accompanied by:

- Date the ballot closed
- Vote tally including Approve, Disapprove and Abstain votes
- Comments that support the remaining disapprove votes and Working Group responses.
- Schedule for confirmation ballot and resolution meeting.

Date the ballot closed:
14 November 2006

Stage	Open	Close	
WG Letter Ballot Recirc #1	30 Jan	1 Mar	2006
.			
.			
.			
WG Letter Ballot Recirc #4	30 Oct	14 Nov	2006

Vote tally including Approve, Disapprove and Abstain votes

- 201   Approve   90%
- 23   Disapprove
- 30   Abstain   14%

- However:
  - Several other Disapprove voters gave verbal instruction to change vote; have not yet received written confirmation.
  - 11 Disapprove voters have never provided any comments
  - No new Disapprove voters in either LB 20c or LB 20d

Comment resolution

		Editorial	Technical	Total	Disapprove Comment	Disapprove Voter
LB20d	C802.16-06/073r3	59	70	129	0	0
LB20c	C802.16-06/048r2	22	36	58	2	1
LB20b	C802.16-06/034r4	31	87	118	8	6
LB20a	C802.16-06/024r3	19	75	94	7	3
LB20	C802.16-06/014r3	173	579	752	33	8
		304	**847**	**1151**	**50**	**12**

Comments that support the remaining disapprove votes and Working Group responses

- attached

Schedule for confirmation ballot and resolution meeting

- Nov 24:   Issue D6

- Nov 28-Dec 13:   recirculation

- Jan 15-18:   comment resolution at 802.16 Session #47, if necessary

802.16 WG Motions

802.16 Closing Plenary: 16 Nov 2006:

Motion: To develop and issue the Working Group Draft P802.16g/D6, to authorize the WG Chair to forward P802.16g/D6 to the EC for conditional approval to initiate a Sponsor Ballot on the Draft, to initiate a Working Group Letter Ballot confirmation recirculation to close around December 13, 2006, and to authorize the WG Chair to initiate a Sponsor Ballot on the Draft

- Proposed: Phillip Barber
- Seconded: David Johnston
- Approved 77-0-1.

Motion

To grant conditional approval, under Clause 20, to forward P802.16g for Sponsor Ballot

Moved: Marks

Seconded:

Approve:

Disapprove:

Abstain:

| **Comment by:** | Scott Migaldi | **Membership Status:** Member | **Date:** 2006/06/01 |

Comment # **236D**   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 164   **Line** 62   **Fig/Table#**   **Subclause** F.1.3.2

The last sentence on the page that read 'The link layer events are indentified in Table-1 in the IEEE 802.21 specification.' references a table that has been changed.

Suggested Remedy

Table-1 is now incorrect and the new reference should read Table-2. Recomend updating Table-1 to Table-2 in the sentence.

GroupResolution   **Decision of Group:** **Accepted-Modified**

Delete Annex F

Reason for Group's Decision/Resolution

Group's Notes

Approved unopposed

Editor's Notes   **Editor's Actions**   l) none needed

See resolution of comment 232 as suggested

| **Comment by:** | Scott Migaldi | **Membership Status:** Member | **Date:** 2006/06/01 |

Comment # **238D**   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 165   **Line** 29   **Fig/Table#**   **Subclause** F.1.3.5

This entire paragraph is redunant. F.1.3.2 already mentions, by reference, where the most current information could be found.

Suggested Remedy

Remove the paragraph

GroupResolution   **Decision of Group:** **Accepted-Modified**

Delete Annex F

Reason for Group's Decision/Resolution

Group's Notes

Accepted unopposed

Editor's Notes   **Editor's Actions**   l) none needed

see resolution of comment 232 as suggested

| **Comment by:** | Scott Migaldi | **Membership Status:** Member | **Date:** 2006/06/01 |

Comment # **167D**   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 41   **Line** 57   **Fig/Table#**   **Subclause** 14.2.2.3

No information concering Basic RF configuration procedures for setting and retriveing information

Suggested Remedy

Add Physical Layer Standard Configuration Parameters table from contribution C802.16g-06/0018

GroupResolution   **Decision of Group:** **Accepted-Modified**

Delete subclauses 14.2.2.2 through 14.2.2.5

Reason for Group's Decision/Resolution

remand contribution to 802.16i

Group's Notes

Accepted unopposed

Editor's Notes   **Editor's Actions**   l) none needed

See comment resolution for 166 as suggested

| **Comment by:** | Scott Migaldi | **Membership Status:** Member | **Date:** 2006/06/01 |

Comment # **168D**   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 41   **Line** 62   **Fig/Table#**   **Subclause** 14.2.2.4

No information concering Basic MAC configuration procedures for setting and retriveing information

Suggested Remedy

Add MACLayer Standard Configuration Parameters table from contribution C802.16g-06/0018

GroupResolution   **Decision of Group:** **Accepted-Modified**

Delete subclauses 14.2.2.2 through 14.2.2.5

Reason for Group's Decision/Resolution

remand contribution to 802.16i

Group's Notes

Accepted unopposed

Editor's Notes   **Editor's Actions**   l) none needed

See comment resolution for 166 as suggested

Comment by: Scott   Migaldi   **Membership Status:**   Member   **Date:**   2006/06/01

Comment # **234D**   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 159   **Line** 43   **Fig/Table#**   **Subclause** 14.2.12

Add section on BS Initiated Configuration Management

Suggested Remedy

See contribution C80216g-06_018 Comment 3

GroupResolution   **Decision of Group:**   **Rejected**

Reason for Group's Decision/Resolution

remand contribution to 802.16i

Group's Notes

Vote:
For: 0 Against: 11 Abstain: 2

Editor's Notes   **Editor's Actions**

| **Comment by:** | Scott Migaldi | **Membership Status:** | Member | **Date:** | 2006/06/01 |

Comment # **246D**　　　　　　**Document under Review:** **IEEE 802.16-06/014r3**　　　**Ballot ID:** **20b**

Comment　　**Type** Technical　　**Part of Dis** ☒ **Satisfied** ☐　　**Page** 999　**Line**　　**Fig/Table#**　　**Subclause** 5.2.8.1

It is not clear how a GPCS at the transmitter side, maps a LOGICAL_FLOW_ID to a service flow. Furthermore the receiver cannot determine to which logical flow a SDU belongs because because LOGICAL_FLOW_ID is not transferred over the 802.16 air interface. When the SFID is used, no mapping at the transmitter side is required and also the receiver can determine to which service flow a SDU belongs.

Suggested Remedy

Replace LOGICAL_FLOW_ID by SFID

GroupResolution　　　　　　　　**Decision of Group:** **Accepted-Modified**

On page 9, line 30, change:
from:
LOGICAL_FLOW_ID
to:
LOGICAL_FLOW_ID = SFID, MSID

Reason for Group's Decision/Resolution

Group's Notes

Accepted unopposed

Editor's Notes　　　　　**Editor's Actions**　　l) none needed

See resolution of comment 43 as suggested

| **Comment by:** | Scott Migaldi | **Membership Status:** Member | **Date:** 2006/06/01 |

Comment # **247D**   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 999   **Line**   **Fig/Table#**   **Subclause** 5.2.8.4

Section 5.2.8.4 specifies the PROTOCOL_TYPE is a 16-bit number assigned from a set of possible values of the PPP data link (DL) layer protocol numbers, but Figure 17e and specifies 1 byte.

Suggested Remedy

Replace "1 Byte" by "2 Byte" in Figure 17e.

GroupResolution   **Decision of Group:**   **Accepted-Modified**

1. page 9 line 27, insert a new item with the following text:
With GPCS, the upper layer protocol that is immediatedly above the 802.16 GPCS is identified by a TLV parameter, GPCS protocol type, as defined in 11.13.19.3.3.20. The GPCS protocol type shall be included in C-SFM primitives and DSx messages during connection establishment.
2a. p 9, delete line 32
2b. p 10, delete line 50 to 62
3. p 11, delete line 39
4. p 11, delete line 46 to 48
5. p 12, delete line 31
6. p 12, delete line 37 to 47

1. p9, replace line 31 to 37 with the following text:
GPCS allows ~~provides an optional way to~~ multiplex~~ing~~ of multiple layer protocol types (e.g., IPv4, IPv6, Ethernet) over the same 802.16 connection. ~~A TLV parameter, MULTIPROTOCOL_ENABLE, is defined in the DSx messages to enable/disable this feature. . The capability of supporting this feature is indicated in a TLV parameter of the REG messages.~~ An appropriate protocol type value is used to represent multiprotocol, and it is used in the protocol type TLV in DSx messages to indicate the mutiple protocols are supported for a conncection/service flow. It is beyond the scope of the GPCS to specify how to multiplex and demultiplex multiple protocol data packets over a 802.16 connection/service flow.

2. p11, delete line 7 to 14
3. p13, delete line 7 to 35
4. p 27, delete line 7 to 32
5. p 10, delete line 1 to 7

Reason for Group's Decision/Resolution

Group's Notes

Accepted unopposed

Editor's Notes   **Editor's Actions**   l) none needed

See resolution of comments 35, 46 as suggested

Comment by:	Scott Migaldi	Membership Status: Member	Date: 2006/06/01

Comment # 248D   Document under Review: **IEEE 802.16-06/014r3**   Ballot ID: **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 999   **Line**   **Fig/Table#**   **Subclause** 11.7.7.1

There is no support bit defined for GPCS.

Suggested Remedy

Suggested remedy: Add a bit definition in the "Classification/PHS options and SDU encapsulation support" bitmap.

GroupResolution   **Decision of Group:** **Accepted-Modified**

Add the following

[Modify section 11.7.7.1]

11.7.7.1 Classification/PHS options and SDU encapsulation support

This parameter indicates which classification/PHS options and SDU encapsulation the SS supports. By default, Packet, IPv4 and 802.3/Ethernet shall be supported, thus absence of this parameter in REG-REQ means that named options are supported by the SS. When the length field of the TLV is 2 or 4, it indicates that bits 16-31 are zero.

Type	Length	Value	Scope
7	2 or 4	Bit #0: ATM	
REG-REQ			
		Bit #1: Packet, IPv4	
REG-RSP			
		Bit #2: Packet, IPv6	
		Bit #3: Packet, 802.3/Ethernet	
		Bit #4: Packet, 802.1/Q VLAN	
		Bit #5: Packet, IPv4 over 802.3/Ethernet	
		Bit #6: Packet, IPv6 over 802.3/Ethernet	
		Bit #7: Packet, IPv4 over 802.1Q VLAN	
		Bit #8: Packet, IPv6 over 802.1Q VLAN	
		Bit #9: Packet, 802.3/ethernet (with optional 802.1Q VLAN tags) and ROHC header compression	
		Bit 10: Packet, 802.3/ethernet (with optional 802.1Q VLAN tags) and ECRTP header compression	
		Bit 11: Packet, IP (v4 or v6) with ROHC header compression	

Bit 12: Packet, IP (v4 or v6) with ECRTP header compression
Bit 13: GPCS
Bits #1314-31: Reserved; Shall be set to zero

Reason for Group's Decision/Resolution

Group's Notes
Accepted unopposed

Editor's Notes   **Editor's Actions**   l) none needed

See resolution of comment 116 as suggested

Comment by:		Scott Migaldi		**Membership Status:** Member		**Date:** 2006/06/01

Comment # **250D**   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 999   **Line**   **Fig/Table#**   **Subclause** 11.13.19.2.1

Section 5.2.8.4 specifies the PROTOCOL_TYPE is a 16-bit number assigned from a set of possible values of the PPP data link (DL) layer protocol numbers, but section 11.13.19.2.1 mentions a TBD IANA registry.

Suggested Remedy

Specify the same as in 5.2.8.4

GroupResolution   **Decision of Group:** **Accepted-Modified**

1. page 9 line 27, insert a new item with the following text:
With GPCS, the upper layer protocol that is immediatedly above the 802.16 GPCS is identified by a TLV parameter, GPCS protocol type, as defined in 11.13.19.3.3.20. The GPCS protocol type shall be included in C-SFM primitives and DSx messages during connection establishment.
2a. p 9, delete line 32
2b. p 10, delete line 50 to 62
3. p 11, delete line 39
4. p 11, delete line 46 to 48
5. p 12, delete line 31
6. p 12, delete line 37 to 47

1. p9, replace line 31 to 37 with the following text:
GPCS allows ~~provides an optional way to~~ multiplex<u>ing</u> of multiple layer protocol types (e.g., IPv4, IPv6, Ethernet) over the same 802.16 connection. ~~A TLV parameter, MULTIPROTOCOL_ENABLE, is defined in the DSx messages to enable/disable this feature. . The capability of supporting this feature is indicated in a TLV parameter of the REG messages.~~ An appropriate protocol type value is used to represent multiprotocol, and it is used in the protocol type TLV in DSx messages to indicate the mutiple protocols are supported for a conncection/service flow. It is beyond the scope of the GPCS to specify how to multiplex and demultiplex multiple protocol data packets over a 802.16 connection/service flow.

2. p11, delete line 7 to 14
3. p13, delete line 7 to 35
4. p 27, delete line 7 to 32
5. p 10, delete line 1 to 7

Reason for Group's Decision/Resolution

Group's Notes

Accepted unopposed

Editor's Notes   **Editor's Actions**   l) none needed

See resolution of comments 35, 46 as suggested

| **Comment by:** | Scott Migaldi | **Membership Status:** | Member | **Date:** | 2006/06/01 |

Comment # 251D-0   **Document under Review:** IEEE 802.16-06/014r3   **Ballot ID: 20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 999   **Line**   **Fig/Table#**   **Subclause** 11.13.19.2.1

Section 5.2.8.4 specifies the PROTOCOL_TYPE is a 16-bit number assigned from a set of possible values of the PPP data link (DL) layer protocol numbers, but section 11.13.19.2.1 specifies a length of 1 byte.

Suggested Remedy

Change the length to 2 bytes

GroupResolution   **Decision of Group:**   **Accepted-Modified**

1. page 9 line 27, insert a new item with the following text:
With GPCS, the upper layer protocol that is immediatedly above the 802.16 GPCS is identified by a TLV parameter, GPCS protocol type, as defined in 11.13.19.3.3.20. The GPCS protocol type shall be included in C-SFM primitives and DSx messages during connection establishment.
2a. p 9, delete line 32
2b. p 10, delete line 50 to 62
3. p 11, delete line 39
4. p 11, delete line 46 to 48
5. p 12, delete line 31
6. p 12, delete line 37 to 47

1. p9, replace line 31 to 37 with the following text:
GPCS ~~allows~~ ~~provides an optional way to~~ multiplex~~ing~~ of multiple layer protocol types (e.g., IPv4, IPv6, Ethernet) over the same 802.16 connection. ~~A TLV parameter, MULTIPROTOCOL_ENABLE, is defined in the DSx messages to enable/disable this feature. . The capability of supporting this feature is indicated in a TLV parameter of the REG messages.~~ An appropriate protocol type value is used to represent multiprotocol, and it is used in the protocol type TLV in DSx messages to indicate the mutiple protocols are supported for a conncection/service flow. It is beyond the scope of the GPCS to specify how to multiplex and demultiplex multiple protocol data packets over a 802.16 connection/service flow.

2. p11, delete line 7 to 14
3. p13, delete line 7 to 35
4. p 27, delete line 7 to 32
5. p 10, delete line 1 to 7

Reason for Group's Decision/Resolution

Group's Notes

Accepted unopposed

Editor's Notes   **Editor's Actions**   l) none needed

See resolution of comments 35, 46 as suggested

| Comment by: | Scott Migaldi | Membership Status: | Member | Date: | 2006/06/01 |

Comment # **081D**   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 16   **Line** 43   **Fig/Table#**   **Subclause** 6.3.2.3.71.1

Sections 6.3.2.3.71.1 and 6.3.2.3.71.2 define TLVs. Since they aren't defined in Chapter 11, the formatting rules mentioned in the beginning of that Chapter aren't necessarily applicable to these TLVs. Therefore there is no unambigous format for these TLVs (e.g. size of length field is undefined).

Suggested Remedy

Create new Section "11.20 SII-ADV message encodings" and move and renumber subsections 6.3.2.3.71.1 and 6.3.2.3.71.2 into that section.

GroupResolution   **Decision of Group:** **Accepted-Modified**

Add new section 6.3.25:
6.3.25 MIH Handover Function
MIH handover function is the support of Std 802.21-2007 specific features and functions. MS and BS that support the MIH handover function shall identify themselves by inclusion of the MIH capability supported. MS and BS that do not support the 802.21 MIH handover function shall not support the MOB_MSMIH-REQ, MOB_MSMIH-RSP, MOB_BSMIH-REQ, or MOB_BSMIH-RSP MAC management messsages.

Modify 11.1.3 by adding the following rows:
Type | Length | Value | Scope
| 6 | Indicates conformance with IEEE Std 802.16g-2007 |
| 6̶7-255 | *Reserved* |

Add a new section 11.20:
11.20 MIH Message Encodings
These management frames carry MIHF Frame described in subclause 8.2.1 of Std 802.21-2007 under transport option 3 of Table 17, subclause 8.2 of Std 802.21-2007.

Name | Type | Length | Value
MIHF_Frame_package | ?? | variable | MIHF Frame described in subclause 8.2.1 of Std 802.21-2007 under transport option 3 of Table 17, subclause 8.2 of Std 802.21-2007

Reason for Group's Decision/Resolution

Group's Notes
Accepted unopposed

Editor's Notes   **Editor's Actions**   l) none needed

See resolution of comment 62 as suggested

| <u>Comment by:</u> | Scott   Migaldi | <u>Membership Status:</u>   Member | <u>Date:</u>   2006/06/01 |

<u>Comment #</u> **112D**   <u>Document under Review:</u> **IEEE 802.16-06/014r3**   <u>Ballot ID:</u> **20b**

<u>Comment</u>   <u>Type</u> Technical   <u>Part of Dis</u> ☒ <u>Satisfied</u> ☐   <u>Page</u> 23   <u>Line</u> 46   <u>Fig/Table#</u>   <u>Subclause</u> 8.4.5.3.27

There are two problems with this Section: 1) The described IE is 9 bits long and therefore breaks the DLMAP's nibble alignment. 2) This section defines a BS capability that is to be broadcasted by the BS in DLMAP messages. Not only is this not in line with the remainder of the standard (which uses DCD/UCD or SBC/REG messages for capabilities), it also generates an unnecessary amount of overhead when BS start to include this indication every frame or every so many frames.

Suggested Remedy

Remove section 8.4.5.3.27 and add a similar capability TLV for either the DCD or in case it is necessary for the SS/MS to indicate if it supports MIH as well (which seems likely to be the case) for the REG-REQ/RSP messages.

GroupResolution   <u>Decision of Group:</u>   **Accepted-Modified**

Delete subclause 8.4.5.3.27

Editor to insert appropriate editorial instruction

[Modify section 11.4.1 DCD Channel encoding, table 358]:

Table 358 - DCD channel encoding

```
_____
|  Name                   | Type  | Length |      Value (variable lenght)      | PHY  |
|                         |(1 byte |        |                                   | scope|
-------------------------------------------------------------------------------
|MIH Capability Support |  55    |  1      | 0 = MIH Capability not supported | All    |
|                         |        |        | 1 = MIH Capability supported     |        |
-------------------------------------------------------------------------------
```

1. Remove section 8.4.5.3.27
2. Insert new section 11.7.26 on Page 27, line 33 as the follwing:

11.7.26 MIH Capability Supported

The "MIH Capability Supported" TLV indicates if MIH is supported.

```
 _____
|   Type    |   Length   |               Value               |    Scope      |
 _____
|    46     |     1      |    0:   MIH Capabiliy not supported   |  REG-REQ/RSP   |
|           |            |    1:   MIH Capabiltiy supported       |                |
 _____
```

Reason for Group's Decision/Resolution

Group's Notes

Accepted unopposed

Editor's Notes   **Editor's Actions**   l) none needed

2006/06/17   **IEEE 802.16-06/014r3**

Comment by: Yong   Chang   **Membership Status:**   Member   **Date:**   2006/06/01

Comment # 241   **Document under Review:**   **IEEE 802.16-06/014r3**   **Ballot ID:**   **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 999   **Line**   **Fig/Table#**   **Subclause** 11.7.4

Section 11.7.4 is related with the section 5.2.8 Generic Packet Convergence Sublayer (GPCS).
This section also is beyond the scope of 802.16g PAR

Suggested Remedy

Remove section 11.7.4

GroupResolution   **Decision of Group:**   **Rejected-Duplicate**

Reason for Group's Decision/Resolution

Existing Convergence Sublayers fail to meet the needs of network managed service flows in a critical QoS environment with scarce air
interface resources

Group's Notes

Same as comment 34
Vote:
For: 13 Against: 14 Abstain: 3

Editor's Notes   **Editor's Actions**

<u>Comment by:</u>	José Costa	<u>Membership Status:</u> Member	<u>Date:</u> 2006/06/01

<u>Comment #</u> **034**	<u>Document under Review:</u> **IEEE 802.16-06/014r3**	<u>Ballot ID:</u> **20b**

<u>Comment</u>   <u>Type</u> Technical   <u>Part of Dis</u> ☒ <u>Satisfied</u> ☐   <u>Page</u> 9   <u>Line</u> 4   <u>Fig/Table#</u>   <u>Subclause</u> 5.2.8

A new Packet Convergence sublayer is not required to enable interoperable and efficient management of conformant 802.16 devices, and is therefore out of scope of the 802.16g project and beyond the limits of its purpose. 802.16 devices can be efficiently managed with the existing packet convergence sublayers.

<u>Suggested Remedy</u>

Remove Section 5.2.8 starting on line 13, along with all other references to GPCS and its related parameters in the remainder of the 16g draft (as a consequence lines 4-11 on page 9 should also be removed).

<u>GroupResolution</u>   <u>Decision of Group:</u>   **Rejected**

<u>Reason for Group's Decision/Resolution</u>

Existing Convergence Sublayers fail to meet the needs of network managed service flows in a critical QoS environment with scarce air interface resources

<u>Group's Notes</u>

Vote:
For: 13 Against: 14 Abstain: 3

<u>Editor's Notes</u>   **<u>Editor's Actions</u>**

| **Comment by:** | Yong   Chang | **Membership Status:** Member | **Date:** 2006/06/01 |

Comment # 037   **Document under Review:** IEEE 802.16-06/014r3   **Ballot ID:** 20b

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 9   **Line** 13   **Fig/Table#**   **Subclause** 5.2.8

Section 5.2.8 Generic Packet Convergence Sublayer (GPCS) is to add another CS option.
This section also is beyond the scope of 802.16g PAR because this is not related to the Management function.

13. Scope of Proposed Project:
This document provides enhancements to the MAC and PHY management entities of IEEE Standard 802.16-2004, as amended by P802.16e, to create standardized procedures and interfaces for the management of conformant 802.16 devices.

Suggested Remedy

Remove section 5.2.8 Generic Packet Convergence Sublayer (GPCS)

GroupResolution   **Decision of Group:**   **Rejected-Duplicate**

Reason for Group's Decision/Resolution

Existing Convergence Sublayers fail to meet the needs of network managed service flows in a critical QoS environment with scarce air interface resources.

Group's Notes
Same as comment 34
Vote:
For: 13 Against: 14 Abstain: 3

Editor's Notes   **Editor's Actions**

| **Comment by:** | Yong Chang | **Membership Status:** Member | **Date:** 2006/06/01 |

Comment # **242**   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 999   **Line**   **Fig/Table#**   **Subclause** 11.13.19.1

Section 11.13.19.1 is related with the section 5.2.8 Generic Packet Convergence Sublayer (GPCS).
This section also is beyond the scope of 802.16g PAR

Suggested Remedy

Remove the GPCS of section 11.13.19.1

GroupResolution   **Decision of Group:**   **Rejected-Duplicate**

Reason for Group's Decision/Resolution

Existing Convergence Sublayers fail to meet the needs of network managed service flows in a critical QoS environment with scarce air interface resources

Group's Notes

Same as comment 34
Vote:
For: 13 Against: 14 Abstain: 3

Editor's Notes   **Editor's Actions**

| **Comment by:** | Yong   Chang | **Membership Status:** | Member | **Date:** | 2006/06/01 |

Comment # **243**   **Document under Review:**   **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 999   **Line**   **Fig/Table#**   **Subclause**   11.13.19.2

Section 11.13.19.2 is related with the section 5.2.8 Generic Packet Convergence Sublayer (GPCS).
This section also is beyond the scope of 802.16g PAR

Suggested Remedy

Remove the GPCS of section 11.13.19.2

GroupResolution   **Decision of Group:**   **Rejected-Duplicate**

Reason for Group's Decision/Resolution

Existing Convergence Sublayers fail to meet the needs of network managed service flows in a critical QoS environment with scarce air interface resources

Group's Notes

Same as comment 34
Vote:
For: 13 Against: 14 Abstain: 3

Editor's Notes   **Editor's Actions**

Comment by:	John Humbert	**Membership Status:** Member	**Date:** 2006/06/01

Comment # 008   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID: 20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 1   **Line** 56   **Fig/Table#**   **Subclause** 1.1

The introduction does not reference all of the approved ammendments

Suggested Remedy

Change from:

This document provides enhancements to the MAC and PHY management entities of IEEE Standard 802.16-2004, as amended by P802.16e, to create standardized procedures and interfaces for the management of conformant 802.16 devices.

Change To:

This document provides enhancements to the MAC and PHY management entities of IEEE Standard 802.16-2004, as amended by P802.16e and P802.16f, to create standardized procedures and interfaces for the management of conformant 802.16 devices.

GroupResolution   **Decision of Group:**   **Rejected**

Reason for Group's Decision/Resolution

The Scope statement in the Amendment document must match the Scope statement of the approved PAR for this project. Regardless of the list of documents that may be presented as part of such a scope statement, IEEE process and procedure requires that any Amendment project have scope to amend all approved 802.16 documents at the time of the projects work, so the remedy proposed by this comment is moot.

Group's Notes
Vote:
For: 0 Against: 10 Abstain: 1

Editor's Notes   **Editor's Actions**

Comment by:	John Humbert	**Membership Status:** Member	**Date:** 2006/06/01

Comment # 033   **Document under Review:** IEEE 802.16-06/014r3   **Ballot ID:** 20b

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 6   **Line** 32   **Fig/Table#**   **Subclause** 4

NCMS not a defined Abbreviation or acronym

Suggested Remedy

NCMS - Network Control and Managment System

GroupResolution   **Decision of Group:**   **Accepted-Modified**

Add the following to Clause 4:

NCMS - Network Control and Managment System

Reason for Group's Decision/Resolution

Group's Notes
Accepted unopposed

Editor's Notes   **Editor's Actions**   k) done

| Comment by: | John Humbert | | Membership Status: | Member | | Date: | 2006/06/01 |

Comment # 036   **Document under Review:** IEEE 802.16-06/014r3   **Ballot ID:** 20b

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 9   **Line** 8   **Fig/Table#**   **Subclause** 5

Need for genereic convergance sublayer not supported, nor is it well defined.   The current standard defines an adequate number of converganece sublayers. Also this section leaves the managment of the GPCS to some undefined entity that is out of scope of the standard.

Suggested Remedy

Delete section 5

GroupResolution   **Decision of Group:**   **Rejected-Duplicate**

Reason for Group's Decision/Resolution

Existing Convergence Sublayers fail to meet the needs of network managed service flows in a critical QoS environment with scarce air interface resources.
Proposed remedy removes all of the existing sublayers as well, thus is not appropriate.

Group's Notes

Same as comment 34
Vote:
For: 13 Against: 14 Abstain: 3

Editor's Notes   **Editor's Actions**

| **Comment by:** | John Humbert | **Membership Status:** | Member | **Date:** | 2006/06/01 |

Comment # 068   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 14   **Line** 59   **Fig/Table#** 108a   **Subclause** 6.3.2.3.67

TLV parameters not defined

Suggested Remedy

Define TLV parameters or delete table / sections

GroupResolution   **Decision of Group:**   **Accepted-Modified**

Add new section 6.3.25:

6.3.25 MIH Handover Function

MIH handover function is the support of Std 802.21-2007 specific features and functions. MS and BS that support the MIH handover function shall identify themselves by inclusion of the MIH capability supported. MS and BS that do not support the 802.21 MIH handover function shall not support the MOB_MSMIH-REQ, MOB_MSMIH-RSP, MOB_BSMIH-REQ, or MOB_BSMIH-RSP MAC management messsages.

Modify 11.1.3 by adding the following rows:

Type | Length | Value | Scope

      | 6 | Indicates conformance with IEEE Std 802.16g-2007 |

      | 6̶7-255 | *Reserved* |

Add a new section 11.20:

11.20 MIH Message Encodings

These management frames carry MIHF Frame described in subclause 8.2.1 of Std 802.21-2007 under transport option 3 of Table 17, subclause 8.2 of Std 802.21-2007.

Name | Type | Length | Value

MIHF_Frame_package | ?? | variable | MIHF Frame described in subclause 8.2.1 of Std 802.21-2007 under transport option 3 of Table 17, subclause 8.2 of Std 802.21-2007

Reason for Group's Decision/Resolution

Group's Notes

Accepted unopposed

Editor's Notes   **Editor's Actions**   l) none needed

See resolution of comment 62 as suggested

| **Comment by:** | Mi-Young Yoon | **Membership Status:** Member | **Date:** 2006/06/01 |

Comment # **226D-1**   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 137   **Line**   **Fig/Table#**   **Subclause** 14.2.11.4

Scanning-related primitives are defined in 14.2.11.4, 14.2.11.5 and 14.2.11.6. They are similiar to the primitives defined in 14.2.9.4. These primitives should be merged and be kept in 14.2.9.4 for HO.

Suggested Remedy

Remove these three sections and merge with the primitives defined in 14.2.9.4

GroupResolution   **Decision of Group:**   **Rejected-Duplicate**

Reason for Group's Decision/Resolution

no specific text provided
commenter is correct, but more complicated than indicated to merge the primitives

Group's Notes

Editor's Notes   **Editor's Actions**

| **Comment by:** | Mi-Young Yoon | **Membership Status:** Member | **Date:** 2006/06/01 |

Comment # **229D-1**   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 146   **Line**   **Fig/Table#**   **Subclause** 14.2.11.7

HO control primitives are already defined in 14.2.9. Most of the primitives defined in 14.2.11.7 and 14.2.11.8 seem to be redundant and can be removed.

Suggested Remedy

Remove these two sections and merge with primitives defined in 14.2.9

GroupResolution   **Decision of Group:**   **Rejected-Duplicate**

Reason for Group's Decision/Resolution

seeking contribution to merge these primitives with section 14.2.9 before removing them from 14.2.11.7 & 8

Group's Notes

Editor's Notes   **Editor's Actions**

| **Comment by:** | Naftali Chayat | | **Membership Status:** | Member | | **Date:** | 2006/06/01 |

Comment # 038   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ⊠ **Satisfied** ☐   **Page** 9   **Line** 13   **Fig/Table#**   **Subclause** 5.2.8

Adding a new CS option (GPCS) does not fit 802.16g PAR: to provide enhancements to the MAC and PHY management entities

Suggested Remedy

Delete section 5.2.8 Generic Packet Convergence Sublayer (GPCS)

GroupResolution   **Decision of Group:**   **Rejected-Duplicate**

Reason for Group's Decision/Resolution

Existing Convergence Sublayers fail to meet the needs of network managed service flows in a critical QoS environment with scarce air interface resources.

Group's Notes

Same as comment 34
Vote:
For: 13 Against: 14 Abstain: 3

Editor's Notes   **Editor's Actions**

| **Comment by:** | Ran   Yaniv | **Membership Status:** Member | **Date:** 2006/06/01 |

Comment # 040   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID: 20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 9   **Line** 13   **Fig/Table#**   **Subclause** 5.2.8

Adding a new CS option (GPCS) does not fit 802.16g PAR: to provide enhancements to the MAC and PHY management entities

Suggested Remedy

Delete section 5.2.8 Generic Packet Convergence Sublayer (GPCS)

GroupResolution   **Decision of Group:**   **Rejected-Duplicate**

Reason for Group's Decision/Resolution

Existing Convergence Sublayers fail to meet the needs of network managed service flows in a critical QoS environment with scarce air interface resources

Group's Notes

Same as comment 34
Vote:
For: 13 Against: 14 Abstain: 3

Editor's Notes   **Editor's Actions**

| **Comment by:** | Ran Yaniv | **Membership Status:** | Member | **Date:** | 2006/06/01 |

Comment # **136D**   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 32   **Line** 51   **Fig/Table#** 383a   **Subclause**

Table 383a—"Target BER Information" in the section 11.13.38 does not belong to 802.16g according to the PAR

Suggested Remedy

Remove Table 383a

GroupResolution   **Decision of Group:** **Accepted**

Remove Table 383a

Reason for Group's Decision/Resolution

Group's Notes

Accepted unopposed

Editor's Notes   **Editor's Actions**   k) done

Comment by: Ran   Yaniv   **Membership Status:**   Member   **Date:**   2006/06/01

Comment # 256D   **Document under Review:**   **IEEE 802.16-06/014r3**   **Ballot ID:**   **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 999   **Line**   **Fig/Table#**   **Subclause**

The section 11.13.38 does not belong to 802.16g according to the PAR

Suggested Remedy

Remove the section 11.13.38

GroupResolution   **Decision of Group:**   **Rejected**

Reason for Group's Decision/Resolution

In certain circumstances and for certain QoS types, the PER value can provide valuable and useful direction when the network is making decisions on handover, burst profiles, and error correction to be applied to a given service flow and MS

Group's Notes

Vote:
For: 0 Against: 1 Abstain: 19

Editor's Notes   **Editor's Actions**

| **Comment by:** | Vladimir   Yanover | **Membership Status:** | Member | **Date:** | 2006/06/01 |

Comment # 041   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ⊠ **Satisfied** ☐   **Page** 9   **Line** 13   **Fig/Table#**   **Subclause** 5.2.8

Section 5.2.8 Generic Packet Convergence Sublayer (GPCS) contains material that does not belong to 802.16g according to the PAR:

13. Scope of Proposed Project:
This document provides enhancements to the MAC and PHY management entities of IEEE Standard 802.16-2004, as amended by P802.16e, to create standardized procedures and interfaces for the management of conformant 802.16 devices.
Additional CS option [5.2.8 Generic Packet Convergence Sublayer (GPCS)] clearly does not fit.
CS is a part of MAC. CS operations occur at the data plane. So this is not "management" (or the whole MAC is "management").

Suggested Remedy

Remove section 5.2.8 Generic Packet Convergence Sublayer (GPCS)

GroupResolution   **Decision of Group:**   **Rejected-Duplicate**

Reason for Group's Decision/Resolution

Existing Convergence Sublayers fail to meet the needs of network managed service flows in a critical QoS environment with scarce air interface resources

Group's Notes
Same as comment 34
Vote:
For: 13 Against: 14 Abstain: 3

Editor's Notes   **Editor's Actions**

Comment by:	Vladimir Yanover	**Membership Status:** Member	**Date:** 2006/06/01

Comment # 137   **Document under Review:** IEEE 802.16-06/014r3   **Ballot ID:** 20b

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 32   **Line** 51   **Fig/Table#** 383a   **Subclause**

Table 383a—"Target BER Information" in the section 11.13.38 does not belong to 802.16g according to the PAR:

13. Scope of Proposed Project:
This document provides enhancements to the MAC and PHY management entities of IEEE Standard 802.16-2004, as amended by P802.16e, to create standardized procedures and interfaces for the management of conformant 802.16 devices.

Table 383a is a sort of PHY related information: Normalized C/N values for certain Target BER values, so it is not in scope of 802.16g project. The text does not provide any explanation what management entities are supposed to do with this information.

I would understand if the standard contained specification of Target BER per Service Flow. But how is it related to S/N? Per SF?

Suggested Remedy

Remove Table 383a

GroupResolution   **Decision of Group:** **Accepted**

Remove Table 383a

Reason for Group's Decision/Resolution

Group's Notes
Accepted unopposed

Editor's Notes   **Editor's Actions**   k) done

Comment by:	Vladimir Yanover		**Membership Status:** Member	**Date:** 2006/06/01

Comment # 257   **Document under Review:** IEEE 802.16-06/014r3   **Ballot ID: 20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 999   **Line**   **Fig/Table#**   **Subclause**

The section 11.13.38 does not belong to 802.16g according to the PAR:

13. Scope of Proposed Project:
This document provides enhancements to the MAC and PHY management entities of IEEE Standard 802.16-2004, as amended by P802.16e, to create standardized procedures and interfaces for the management of conformant 802.16 devices.

I would understand if 802.16 MAC contained a TLV specifying the Target BER per Service Flow. But how is it related to management?

The text says: "*This PER could underline be the PER as seen by the application (post ARQ and/or HARQ processing) or as seen on the airlink (before the application of ARQ and/or HARQ)*" ... can it be a standard?

Suggested Remedy

Remove the section 11.13.38

GroupResolution   **Decision of Group:**   **Rejected-Duplicate**

Reason for Group's Decision/Resolution

In certain circumstances and for certain QoS types, the PER value can provide valuable and useful direction when the network is making decisions on handover, burst profiles, and error correction to be applied to a given service flow and MS

Group's Notes
Same comment as 256
Vote:
For: 0 Against: 1 Abstain: 19

Editor's Notes   **Editor's Actions**

| **Comment by:** | Vladimir Yanover | **Membership Status:** | Member | **Date:** | 2006/06/01 |

Comment # 143   **Document under Review:** IEEE 802.16-06/014r3   **Ballot ID:** 20b

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 33   **Line** 39   **Fig/Table#**   **Subclause** 11.13.39

Numerous problems in 11.13.39 "DL Available Radio Resource" (marked by red)

Available Radio Resource indicator shall indicate the average percentage of available physical radio resources [what is physical radio resource?] for DL where averaging shall take place over a time interval which shall be defined by configuration [no definition of configuration so far, therefore it can be that BS and SS calculate this parameter based on different formulas].
Available physical radio resources shall be defined as the set of subchannels and symbols within a radio frame, which are not used by any non-best-effort service flow class [there are no "service flow classes" in 802.16. Also at the DL allocation is a rectangular region shared between several Service Flows, so in many cases it is impossible to say which symbols are occupied by which Service Flows]

Suggested Remedy

Remove section 11.13.39

GroupResolution   **Decision of Group:** **Accepted-Modified**

On page 33, line 41, modify text as:
Available Radio Resource indicator shall indicate the average percentage of available physical radio resources for DL where averaging shall take place over a time interval which shall be ~~common to all BS within an operator network~~defined by configuration. Available physical radio resources shall be defined as the set of subchannels and symbols within a radio frame, which are not used by any non-best-effort service flow class as identified by either the uplink grant scheduling type or the data delivery service as identified in the service flow encodings.

Reason for Group's Decision/Resolution

Group's Notes
Accepted unopposed

Editor's Notes   **Editor's Actions**   k) done

| **Comment by:** | Vladimir Yanover | **Membership Status:** | Member | **Date:** | 2006/06/01 |

Comment # 165   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 40   **Line** 6   **Fig/Table#**   **Subclause**

Numerous problems in 11.13.40 "UL Available Radio Resource" (marked by red)

Available Radio Resource indicator shall indicate the average percentage of available physical radio resources [what is physical radio resource?] for UL where averaging shall take place over a time interval which shall be defined by configuration [no definition of configuration so far, therefore it can be that BS and SS calculate this parameter based on different formulas].
Available physical radio resources shall be defined as the set of subchannels and symbols within a radio frame, which are not used by any non-best-effort service flow class [there are no "service flow classes" in 802.16. Also UL allocation in 802.16 is not provided in terms of symbols (all MSs share same set of symbols)]

Even if those problems resolved, how this value can be used? No instructions.

Suggested Remedy
Remove section 11.13.40

GroupResolution   **Decision of Group:** **Accepted-Modified**

On page 34, line 8, modify text as:
UL Available Radio Resource indicator shall indicate the average percentage of available physical radio resources for UL where averaging shall take place over a time interval which shall be common to all BS within an operator network~~defined by configuration~~.
Available physical radio resources shall be defined as the set of subchannels and symbols within a radio frame, which are not used by any non-best-effort service flow class as identified by either the uplink grant scheduling type or the data delivery service as identified in the service flow encodings.

Reason for Group's Decision/Resolution

Group's Notes
Accepted unopposed

Editor's Notes   **Editor's Actions**   l) none needed

As already addressed by comment 149 and the resolution in that essentially renumbers this section to 11.18.3

| **Comment by:** | Vladimir Yanover | **Membership Status:** | Member | **Date:** | 2006/06/01 |

Comment # **232**   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 158   **Line** 10   **Fig/Table#**   **Subclause**

The draft contains requirements to itself that is strange (unprecedented) and misleading. What is a reader of this document expected to do with the requirements?

Suggested Remedy

Delete Annex F

GroupResolution   **Decision of Group:**   **Accepted**

Delete Annex F

Reason for Group's Decision/Resolution

Group's Notes

Accepted unopposed

Editor's Notes   **Editor's Actions**   k) done

Comment by:	José Costa	**Membership Status:** Member	**Date:** 2006/06/30

Comment # **1066**   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 58   **Line** ?   **Fig/Table#**   **Subclause** 14.2.4.1.1.2.2

C-SM-NOTFY is Event Type primitive.

Suggested Remedy

C-SM-NOTFY
(
~~Operation Type : Action~~,
~~Action~~ Event Type : AK_Transfer,
Object ID : BS,
Attribute List :
MS ID
AK
AK Lifetime
AK Sequence Number
AKID
)

GroupResolution   **Decision of Group:** **Accepted**

C-SM-NOTFY
(
~~Operation Type : Action~~,
~~Action~~ Event Type : AK_Transfer,
Object ID : BS,
Attribute List :
MS ID
AK
AK Lifetime
AK Sequence Number
AKID
)

Reason for Group's Decision/Resolution

Group's Notes

Accepted without objection

2006/06/17   **IEEE 802.16-06/014r3**

Comment by:	Ran Yaniv	**Membership Status:** Member	**Date:** 2006/06/30

Comment # **1007**   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 9   **Line** 13   **Fig/Table#**   **Subclause** 5.2.8

The document contains section 5.2.8 Generic Packet Convergence Sublayer (GPCS) that in my view falls out of the scope of "Management Plane Procedures and Services" document. CS features include defiition of format (of encapsulation), calssification, PHS. If one calls this "management" in the sense of 16g, then the scope of 16g must include the whole 802.16 MAC that certainly would not be correct.

Suggested Remedy

Remove section 5.2.8, 11.7.7.1

GroupResolution   **Decision of Group:**   **Rejected**

Reason for Group's Decision/Resolution

The consensus of the group is that the material does indeed fall within the scope of the amendment. The scope of the project has been interpreted as including the interface between the 802.16 entities and the NCMS, including data plane, management plane and control plane. The GPCS is in scope in that it includes the mapping of the classification of the service flows from network connectionless service to 802.16 connection oriented service.

Existing Convergence Sublayers fail to meet the needs of network managed service flows in a critical QoS environment with scarce air interface resources.

Group's Notes
Vote:
For: 4 Against: 16 Abstain: 3

Editor's Notes   **Editor's Actions**

Comment by:	Ran Yaniv		**Membership Status:** Member		**Date:** 2006/06/30

Comment # **1026**   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 13   **Line** 21   **Fig/Table#**   **Subclause** 6.3.25

The document contains section 6.3.25 MIH Handover Function that in my view falls out of the scope of "Management Plane Procedures and Services" document. Though this set of features would be a good thing to cover, including it in 16g document means an unaccetable extension of the scope of this document defined in the reviewed document as

"enhancements to the MAC and PHY management entities of IEEE Standard 802.16-2004, as amended by P802.16e, to create standardized procedures and interfaces for the management of conformant 802.16 devices".

MIH for certain is NOT a feature from 802.16-2004 amended by P802.16e, so related management procedures and messages cannot appear in 16g document.
My recommendation is to remove MIH stuff to another (yet to be created) amendment.

Suggested Remedy

Remove section 6.3.25

GroupResolution   **Decision of Group:** **Rejected**

Reason for Group's Decision/Resolution

The consensus of the group is that the material does indeed fall within the scope of the amendment. The scope of the project has been interpreted as including the interface between the 802.16 entities and the NCMS, including data plane, management plane and control plane. IEEE 802.21 MIH material is in scope for this project in that it is a known feature of intended networks in which 802.16 will be deployed, the support of which is critical to 802.16 performance in the intended networks. See resolution of comments 1002, 1007, 1007D,1022 and 1023.

Group's Notes
Vote:
For: 1 Against: 9 Abstain: 2

Editor's Notes   **Editor's Actions**

Comment by: Ran   Yaniv   **Membership Status:**   Member   **Date:** 2006/06/30

Comment # 1040   **Document under Review:** IEEE 802.16-06/014r3   **Ballot ID:** 20b

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 27   **Line** 10   **Fig/Table#**   **Subclause** 11.1.3

The document contains section 11.1.3 "MAC version encoding" that in my view falls out of the scope of "Management Plane Procedures and Services" document. This table should certainly be fixed, but in future 802.16-2005e Corrigenda project.
Also there is no such thing as conformance to (just) an amendment

Suggested Remedy

Remove sections 11.1.3

GroupResolution   **Decision of Group:**   **Accepted-Modified**

In table 439, change the values to:
6: Indicates conformance with IEEE Std 802.16-2004, IEEE Std 802.16e-2005 and IEEE Std 802.16f-2005
7: Indicates conformance with IEEE Std 802.16-2004, IEEE Std 802.16e-2005, IEEE Std 802.16f-2005 and IEEE Std 802.16g-2007
7 8-255

Reason for Group's Decision/Resolution

Commenter makes assumption about interpretation of the value that differs from previous usage for this value in previous amendments. The group feels that interpretation of this value is unclear in the standard. However, the group feels that this issue should be better evaluated in the Maintenance process, not in 16g. At this time, the group is compelled to rely upon precedent usage of this value.

Group's Notes
Accepted without objection

Editor's Notes   **Editor's Actions**   k) done

Corrected markup for last line. It should be 6 8-255

Comment by: Ran   Yaniv   **Membership Status:**   Member   **Date:**   2006/06/30

Comment #   **1086**   **Document under Review:**   **IEEE 802.16-06/014r3**   **Ballot ID:**   **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 165   **Line** 17   **Fig/Table#**   **Subclause** F.1

There are no such things in 802.16 as

- handoff

- hard handoff

Suggested Remedy

Change the title

F.1 Hard Handoff Procedures

to

F.1 Handover Procedures

GroupResolution   **Decision of Group:**   **Accepted**

Change the title

F.1 Hard Handoff Procedures

to

F.1 Handover Procedures

Reason for Group's Decision/Resolution

Group's Notes

Accepted without objection

Editor's Notes   **Editor's Actions**   k) done

| **Comment by:** | Vladimir Yanover | **Membership Status:** Member | **Date:** 2006/06/30 |

Comment # **1007 D**   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 9   **Line** 13   **Fig/Table#**   **Subclause** 5.2.8

The document contains section 5.2.8 Generic Packet Convergence Sublayer (GPCS) that in my view falls out of the scope of "Management Plane Procedures and Services" document. CS features include defiition of format (of encapsulation), calssification, PHS. If one calls this "management" in the sense of 16g, then the scope of 16g must include the whole 802.16 MAC that certainly would not be correct.

Suggested Remedy

Remove section 5.2.8, 11.7.7.1

GroupResolution   **Decision of Group:**   **Rejected**

Reason for Group's Decision/Resolution

The consensus of the group is that the material does indeed fall within the scope of the amendment. The scope of the project has been interpreted as including the interface between the 802.16 entities and the NCMS, including data plane, management plane and control plane. The GPCS is in scope in that it includes the mapping of the classification of the service flows from network connectionless service to 802.16 connection oriented service.

Existing Convergence Sublayers fail to meet the needs of network managed service flows in a critical QoS environment with scarce air interface resources.

Group's Notes

Vote:
For: 4 Against: 16 Abstain: 3

Editor's Notes   **Editor's Actions**

Comment by:	Vladimir Yanover		**Membership Status:**	Member	**Date:**	2006/06/30

Comment # 1026 D   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 13   **Line** 21   **Fig/Table#**   **Subclause** 6.3.25

The document contains section 6.3.25 MIH Handover Function that in my view falls out of the scope of "Management Plane Procedures and Services" document. Though this set of features would be a good thing to cover, including it in 16g document means an unaccetable extension of the scope of this document defined in the reviewed document as

"enhancements to the MAC and PHY management entities of IEEE Standard 802.16-2004, as amended by P802.16e, to create standardized procedures and interfaces for the management of conformant 802.16 devices".

MIH for certain is NOT a feature from 802.16-2004 amended by P802.16e, so related management procedures and messages cannot appear in 16g document.
My recommendation is to remove MIH stuff to another (yet to be created) amendment.

Suggested Remedy

Remove section 6.3.25

GroupResolution   **Decision of Group:**   **Rejected**

Reason for Group's Decision/Resolution

The consensus of the group is that the material does indeed fall within the scope of the amendment. The scope of the project has been interpreted as including the interface between the 802.16 entities and the NCMS, including data plane, management plane and control plane. IEEE 802.21 MIH material is in scope for this project in that it is a known feature of intended networks in which 802.16 will be deployed, the support of which is critical to 802.16 performance in the intended networks. See resolution of comments 1002, 1007, 1007D,1022 and 1023.

Group's Notes

Vote:
For: 1 Against: 9 Abstain: 2

Editor's Notes   **Editor's Actions**

Comment by: Yong   Chang   **Membership Status:**   Member   **Date:**   2006/06/07

Comment # 2013   **Document under Review:**   IEEE 802.16-06/014r3   **Ballot ID:**   20b

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 7   **Line** 23   **Fig/Table#**   **Subclause**   4

GPCS is beyond the scope of 802.16g PAR

Suggested Remedy

Remove 'GPCS - Generic Packet Convergence Sublayer'

GroupResolution   **Decision of Group:**   Rejected

Reason for Group's Decision/Resolution

The consensus of the group is that the material does indeed fall within the scope of the amendment. The scope of the project has been interpreted as including the interface between the 802.16 entities and the NCMS, including data plane, management plane and control plane. The GPCS is in scope in that it includes the mapping of the classification of the service flows from network connectionless service to 802.16 connection oriented service.

Existing Convergence Sublayers fail to meet the needs of network managed service flows in a critical QoS environment with scarce air interface resources.

Group's Notes

Vote on resolution of comments 2013 & 2014:
In Favor: 5 Against: 17 Abstain: 5
Comments Rejected

Editor's Notes   **Editor's Actions**

Comment by: José   Costa   **Membership Status:**   Member   **Date:**   2006/06/07

Comment # **2014**   **Document under Review:**   **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 9   **Line** 10   **Fig/Table#** n/a   **Subclause** 5.2.8

The GPCS feature is out of scope of the 16g standard. Conformant 802.16 devices can be managed and controlled equally well with the existing CS options in the standard. As pictured in Fig. 17c, GPCS concerns the data plane, not the management/control plane and is therefore out of scope. Furthermore, GPCS does not completely solve the needs of network managed service flows in a critical QoS environment with scarce air interface resources.

Suggested Remedy

Remove Section 5.2.8.

GroupResolution   **Decision of Group:**   **Rejected**

Reason for Group's Decision/Resolution

The consensus of the group is that the material does indeed fall within the scope of the amendment. The scope of the project has been interpreted as including the interface between the 802.16 entities and the NCMS, including data plane, management plane and control plane. The GPCS is in scope in that it includes the mapping of the classification of the service flows from network connectionless service to 802.16 connection oriented service.

Existing Convergence Sublayers fail to meet the needs of network managed service flows in a critical QoS environment with scarce air interface resources.

Group's Notes

Vote on resolution of comments 2013 & 2014:
In Favor: 5 Against: 17 Abstain: 5
Comments Rejected

Editor's Notes   **Editor's Actions**

| Comment by: | Lester Eastwood | Membership Status: | Member | Date: | 2006/06/07 |

| Comment # | 2105 | Document under Review: | IEEE 802.16-06/014r3 | Ballot ID: | 20b |

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 136   **Line**   **Fig/Table#**   **Subclause** 14.2.9.3.2

Lack of explanation of the usage of "MIH INFO bitmap" which is mentioned by name only in 14.2.9.3.2 (page 136) and Table 463 (page 137).

Suggested Remedy

Explain the definition and especially the usage of "MIH INFO bitmap".

GroupResolution   **Decision of Group:**   **Accepted-Modified**

On page 136, delete lines 31 and 32.

Reason for Group's Decision/Resolution

Group's Notes
Accepted without opposition

Editor's Notes   **Editor's Actions**

Comment by:	geunhwi lim		**Membership Status:** Member	**Date:** 2006/06/07

Comment # **2046**   **Document under Review:**   **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 29   **Line** 38   **Fig/Table#**   **Subclause** 11.7.26

There is no definition on MOB_MSMIH-REQ, MOB_MSMIH-RSP, MOB_BSMIH-REQ, and MOB_BSMIH-RSP in 16g/D3.

Suggested Remedy

Remove line from 36 to 39

GroupResolution   **Decision of Group:**   **Accepted-Modified**

First paragraph of section 11.7.26 as the following:
The "MIH Capability Supported" TLV indicates if MIH is supported. MS and BS that support the MIH handover function shall identify themselves by inclusion of the MIH capability supported. MS and BS that do not support the 802.21 MIH handover function shall not support the ~~MOB_MSMIH-REQ, MOB_MSMIH-RSP, MOB_BSMIH-REQ, or MOB_BSMIH-RSP~~ MOB_MIH-MSG MAC management messsage~~s~~.

Reason for Group's Decision/Resolution

Group's Notes

Accepted without opposition

Editor's Notes   **Editor's Actions**

| **Comment by:** | soonyoung yoon | | **Membership Status:** Member | **Date:** 2006/06/07 |

Comment # **2097**   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 105   **Line** 12   **Fig/Table#**   **Subclause** 14.2.7.2.1.2.4

C-HO-REQ (Action_Type == HO-Target) primitive may be sent to the candidate target BS(s). Because the target BS receiving the primitive may not be the actual target BS, it may or may not pre-allocate resources to the MS.

Suggested Rememdy

The target BS prepares for the MS handover ~~for pre-allocating resources to the MS~~ and sends response to the NCMS.

GroupResolution   **Decision of Group:**   **Accepted-Modified**

On page 105, line 12, modify text as:
The target BS prepares for the MS handover which may include ~~for~~ pre-allocating resources ~~to~~ for the MS, and sends a response to the NCMS.

Reason for Group's Decision/Resolution

Group's Notes
Accepted without opposition

Editor's Notes   **Editor's Actions**

Comment by: Mi-Young Yoon   **Membership Status:**   Member   **Date:** 2006/06/07

Comment # **2070**   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 52   **Line** 31   **Fig/Table#**   **Subclause** 14.2.2.2

In Section 14.2.2.2, service primitives are defined for accounting management. However, it does not follow service primitive template, which is defined in Section 14.1. Thus, we modify Section 14.2.2.2 based on the defined service primitive template. In addition, we add several attributes for M-ACM-REQ and M-ACM-RSP primitives.

Suggested Remedy

Adopt the text proposed in contribution C80216g-06_039.doc

GroupResolution   **Decision of Group:**   **Accepted-Modified**

Accept contribution C802.16g-06/039r2

Reason for Group's Decision/Resolution

Group's Notes
Accepted without opposition

Editor's Notes   **Editor's Actions**

Comment by: Mi-Young Yoon   **Membership Status:**   Member   **Date:**   2006/06/07

Comment # **2086**   **Document under Review:**   **IEEE 802.16-06/014r3**   **Ballot ID:** **20b**

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 87   **Line** 16   **Fig/Table#**   **Subclause** 14.2.6

In Section 14.2.6, subscriber mode management is described. The subscriber mode consists of idle, normal operation, and sleep at MS and BS. The subscriber mode at NCMS consists of idle and normal operation. In this contribution, we add a new state, called for complete description of subscriber mode management.

Suggested Remedy

Adopt the text proposed in contribution C80216g-06_041.doc

GroupResolution   **Decision of Group:**   **Rejected**

Reason for Group's Decision/Resolution

At commenter's request.
Contribution needs additional work to include changes to Section 6. Premature to accept at this time.

Group's Notes

Vote:
In Favor: 2 Against: 7 Abstain: 5
Comment Rejected

Editor's Notes   **Editor's Actions**

| **Comment by:** | Mi-Young Yoon | | **Membership Status:** | Member | **Date:** | 2006/06/07 |

Comment # 2110   **Document under Review:** **IEEE 802.16-06/014r3**   **Ballot ID:** 20b

Comment   **Type** Technical   **Part of Dis** ☒ **Satisfied** ☐   **Page** 153   **Line** 24   **Fig/Table#**   **Subclause** 14.2.11.2.2

In Section 14.2.11.2, service primitives for location management are defined. However, currently defined service primitives do not distinguish secure location update and unsecure location update, which are defined in IEEE 802.16e standard. Thus, we add Authentication Indicator both in C-PG-REQ and C-PG-RSP primitives in order to decide whether the location update is secure or unsecure.

Suggested Remedy

Adopt the text proposed in contribution C80216g-06_040.doc

GroupResolution   **Decision of Group:**   **Accepted-Modified**

Accept contribution C802.16g-06/040r7

Reason for Group's Decision/Resolution

Group's Notes
Accepted without opposition

Editor's Notes   **Editor's Actions**

Comment by: Mi-Young Yoon   **Membership Status:** Observer   **Date:** 2006/06/17

Comment # 3020   **Document under Review:** IEEE 802.16-06/048   **Ballot ID:** 20b

Comment   **Type** Technical   **Part of Dis** ☐ **Satisfied** ☐   **Page** 39   **Line** 1   **Fig/Table#**   **Subclause** 14.2.2.1

IIn IEEE P802.16g/D3, ACM-REQ/RSP service primitives, are defined to be used in both direction, i.e., from NCMS to BS and from BS to NCMS. In July meeting of IEEE 802.16g, however, it was agreed that ACM-REQ should be sent from NCMS to BS and ACM-RSP should be sent from BS to NCMS for the reply to ACM-REQ. Instead, ACM-IND should be sent from BS to NCMS and ACM-ACK should be sent from NCMS to BS for the reply to ACM-IND. In order to accommodate these changes, we correct attributes in ACM-REQ/RSP primitives and Fig. 474, and redefine attributes for ACM-IND/ACK primitives in IEEE C802.16g-06/053

Suggested Remedy

Adopt the text proposed in contribution IEEE C802.16g-06/053

GroupResolution   **Decision of Group:**   **Accepted-Modified**

Accept contribution 802.16g-06/053r1

Reason for Group's Decision/Resolution

Group's Notes
Accepted without opposition

Editor's Notes   **Editor's Actions**   k) done

Done, except for the requested changes to Figure 474 since these are deviating from the remedy to Figure 474 which was accepted in comment #3021. Editor assumed that cmt#3021 prevails over #3020 since #3021 was dedicated to Fig. 474 while #3020 included many other changes.

| **Comment by:** | Mi-Young Yoon | | **Membership Status:** | Observer | | **Date:** | 2006/06/17 |

| **Comment #** 3023 | | **Document under Review:** | **IEEE 802.16-06/048** | | **Ballot ID:** | **20b** |

Comment   **Type** Technical   **Part of Dis** ☐   **Satisfied** ☐   **Page** 41   **Line** 33   **Fig/Table#**   **Subclause** 14.2.2.2.2.2

In Section 14.2.2.2, service primitives for accounting management are defined, where Accounting Input Packets are defined in order to measure the number of packets sent to the MS from the BS. In practical situation, however, data packets which were sent to the MS from the BS may not be successfully delivered due to errors. Thus, the number of packets that the MS successfully received may be less than the number of packets actually sent to the MS from the MS. Since the accounting should be made for the number of successfully delivered packets to the MS from the BS only, two attributes, i.e., Accounting Wireless Output Octets and Accounting Wireless Output Packets are newly defined in M-ACM-RSP/IND primitives in IEEEC802.16g-06/054.

Note: Comment changed from 'Technical, Binding' to 'Technical, non-Binding' by the Chair because the commenter is not a Member. Only Members can make 'Technical, Binding' comments.

Suggested Remedy

Adopt the text proposed in contribution IEEE C802.16g-06/054

GroupResolution   **Decision of Group:**   **Accepted-Modified**

Adopt contribution C80216g-06_054r1

Reason for Group's Decision/Resolution

Group's Notes

Accepted without opposition

Editor's Notes   **Editor's Actions**   k) done

Moved: *To grant conditional approval, under Clause 20, to forward P802.16k to RevCom*
Moved: Marks/Kerry

Passes: 16/0/0

| 5.06 | ME | Conditional approval of 802.16/COR2 to sponsor ballot | - | Marks | 5 | 01:43 PM |

P802.16-2004/Cor2 to Sponsor Ballot: Conditional Approval

November 11, 2006

WG Letter Ballot #23

- 2006/10/10   Open LB #23
- 2006/11/08   Close LB #23
- 2006/11/13-11/15   Comment resolution for LB #23

Vote Tally

Note: 532 change requests were each balloted separately, so this data represents a kind of average:

Disapprove votes: 1889

Total votes 84583

Approve votes: 76336

$\Rightarrow 76336/78225 = 97.6\%$ Approval

Return: 158/227 members = 69.6%

Change requests balloted: 532

Change requests receiving less than 75% approval: 16

All comments were addressed in comment resolution.

CR's With < 75% Approval

Change Request #	CR by	CR by	Approve	Disapprove	Abstain	Approval Ratio	Decision of the WG after Comment Resolution
19	Cudak	Mark	72	75	12	49.00%	superceded
20	Cudak	Mark	72	75	12	49.00%	superceded
108	Wang	Lei	76	72	11	51.40%	superceded
301	Lim	Geunhwi	71	75	13	48.60%	superceded
343	Cudak	Mark	72	75	12	49.00%	superceded
344	Cudak	Mark	72	75	12	49.00%	superceded
362	Cha	Jaesun	72	75	12	49.00%	rejected
363	Cha	Jaesun	72	76	11	48.60%	superceded
425	Yanover	Vladimir	70	75	14	48.30%	superceded
454	Cudak	Mark	71	76	12	48.30%	superceded
492	Bertorelle	Jerome	72	76	11	48.60%	superceded
517	zhao	John	73	74	12	49.70%	superceded
540	Fwu	JK	71	75	13	48.60%	superceded
618	Cho	Seokheon	72	76	11	48.60%	superceded
642	Barber	Phillip	72	75	12	49.00%	superceded
649	Poulin	Darcy	71	75	13	48.60%	accepted-modified

Schedule for WG Recirc Ballot and Resolution Meeting

- 15-Nov-06   Invitation to join Sponsor Ballot Pool for Cor2 (WG Chair Action)
- 17-Nov-06   Conditional approval from the EC to go to Sponsor Ballot
- 14-Dec-06   P802.16-2004/Cor2/D1 available

- 14-Dec-06   Initiate a 15-day WG Ballot Recirc/Confirmation on P802.16-2004/Cor2/D1
- 29-Dec-06   Close 15-day WG Ballot Recirc/Confirmation

- 15-Jan-07   WG Session #47 starts

802.16 WG Motion

802.16 Closing Plenary: 16 November 2006:

Motion: *To request conditional approval to the 802 EC to forward the P802.16-2004/Cor2 draft containing the Approved CR's to Sponsor Ballot.*

Proposed: Jonathan Labs

Seconded: Shawn Taylor

Approved 68-0-0.

Motion

- To grant conditional approval, under Clause 20, to forward P802.16-2004/Cor2 for Sponsor Ballot.

  Moved: Marks
  Seconded:

  Approve:
  Disapprove:
  Abstain:

Moved: *To grant conditional approval, under Clause 20, to forward P802.16-2004/Cor2 for Sponsor Ballot.*
Moved: Marks/Jeffree
Bob Grow asked if there are editorial changes in the material of the corrigendum. Roger indicated that there are.
Bob pointed out that a corrigendum is supposed to be technical corrections, only.

Geoff expressed concern that there was a low approval rate. Roger indicated he expected nearly unanimous approval on recirculation.

Carl expressed concern that he had insufficient visibility into the results when the ratios are "batched" as it was reported. Roger indicated that this was for purposes of simplifying the presentation.

Passes: 12/0/4

| 5.07 | ME | P802.1av PAR to NesCom | - | Jeffree | 5 | 01:50 PM |

MOTION

- 802.1 requests EC approval to forward the draft PAR/5C for P802.1av, Forwarding and Queuing for Time-Sensitive Streams, to NesCom.

- 802.1: Proposed: teener Second:

  wright For: 34 Against: 0 Abstain: 3

- EC proposed: Jeffree second:

Supporting material – P802.1av

- Comments received and addressed from Bob Grow & 802.11. PAR text updated.
- PAR text:
  http://www.ieee802.org/1/files/public/docs2006/av-p802-1qav-draft-par-1106-v08.pdf
- 5C text:
  http://www.ieee802.org/1/files/public/docs2006/av-p802-1qav-draft-5c-1006-v07.pdf

The PAR Copyright Release and <u>Signature Page</u> must be submitted by FAX to +1-732-875-0695 to the <u>NesCom Administrator</u>.
If you have any questions, please contact the NesCom Administrator.

Once you approve and submit the following information, changes may only be made through the NesCom Administrator.

Draft PAR Confirmation Number: 187132067.12193
Submittal Email: tony@jeffree.co.uk
Type of Project: Amendment to an Existing Standard 802.1Q-2005
1.1 Project Number: P802.1Qav
1.2 Type of Document: Standard for
1.3 Life Cycle: Full
1.4 Is this project in ballot now? No
2.1 Title of Standard: IEEE Standard for Local and Metropolitan Area Networks---Virtual Bridged Local Area Networks - Amendment: Forwarding and Queuing Enhancements for Time-Sensitive Streams
3.1 Name of Working Group: Higher Layer LAN Protocols Working Group
Contact information for Working Group Chair Tony A Jeffree Email: tony@jeffree.co.uk Phone: +44-161-973-4278
Contact Information for Working Group Vice Chair Paul Congdon Email: paul.congdon@hp.com Phone: 916-785-5753
3.2 Sponsoring Society and Committee: IEEE Computer Society/Local and Metropolitan Area Networks (C/LM) **Contact information for Sponsor Chair:** Paul Nikolich Email: p.nikolich@ieee.org Phone: 857-205-0050 **Contact information for Standards Representative:** Email: Phone:
3.3 Joint Sponsor:/ () **Contact information for Sponsor Chair:** Email: Phone: **Contact information for Standards Representative:** Email: Phone:
4.1 Type of Ballot: Individual
4.2 Expected Date of Submission for Initial Sponsor Ballot: 2010-07

4.3 Projected Completion Date for Submittal to RevCom: 2010-12

5.1 Approximate number of people expected to work on this project: 30

5.2 Scope of Proposed Standard: This standard allows bridges to provide guarantees for time-sensitive (i.e. bounded latency and delivery variation), loss-sensitive real-time audio video data transmission. It specifies per priority ingress metering, priority regeneration, and timing-aware queue draining algorithms. This standard uses the timing derived from 802.1AS. VLAN tag encoded priority values are allocated in aggregate to segregate frames among controlled and non-controlled queues, allowing simultaneous support of both AV Bridging and other bridged traffic.	**Old Scope:**

5.3 Is the completion of this standard is dependent upon the completion of another standard: Yes
If yes, please explain: This standard uses Timing and Synchronization in Bridged LANs (P802.1AS), refers to SRP (P802.1Qat), and is dependent on a refision of the Link Layer Discovery Protocol (P802.1AB).

5.4 Purpose of Proposed Standard: Bridges are increasingly used to interconnect devices that support audio and video streaming application. This standard will specify enhancements to bridge relay function to provide performance guarantees to allow for time-sensitive traffic in a local area network.	**Old Purpose:**

5.5 Need for the Project: Most if not all entertainment media going forward is in digital form. Audio and video streaming and interactive applications over bridged LANs need to be enhanced to have comparable real-time performance of legacy out-of-band analog media distribution. There is significant vendor and end-user interest and market opportunity to consolidate layer 2 solution for both computer networking (e.g. internet access) and audio video services (e.g. home consumer electronics, professional A/V applications, etc). The use of such consolidated network will realize operational and equipment costbenefits.
This standard defines a set of enhancements to the Virtual Bridged LAN (802.1Q).This will enable end-to-end quality of service guarantee agreement for audio and video streaming negotiated over SRP protocol to be realized in a bridged LAN, while interoperating with existing 802.1D and Q bridges. There is currently no interoperability among bridges that support Audio and Video streaming, nor generally accepted means of achieving such service guarantees in a bridged LAN.

5.6 Stakeholders for the Standard: Developers and Users of bridged LAN and end-point systems supporting audio video and other latency sensitive applications.

Intellectual Property

6.1.a. Has the IEEE-SA policy on intellectual property been presented to those responsible for preparing/submitting this PAR prior to the PAR submittal to the IEEE-SA Standards Board? Yes
If yes, state date: 2006-09-26
If no, please explain:

6.1.b. Is the Sponsor aware of any copyright permissions needed for this project? No

If yes, please explain:

6.1.c. Is the Sponsor aware of possible registration activity related to this project? No
If yes, please explain:

7.1 Are there other standards or projects with a similar scope? No
If yes, please explain:
and answer the following: Sponsor Organization:
Project/Standard Number:
Project/Standard Date: 0000-00-00
Project/Standard Title:

7.2 Future Adoptions
Is there potential for this standard (in part or in whole) to be adopted by another national, regional, or international organization? No

If Yes, the following questions must be answered:
Technical Committee Name and Number:
Other Organization Contact Information:
Contact person:
Contact Email address:

7.3 Will this project result in any health, safety, security, or environmental guidance that affects or applies to human health or safety? No
If yes, please explain:

7.4 Additional Explanatory Notes: (Item Number and Explanation)

8.1 Sponsor Information:
Is the scope of this project within the approved scope/definition of the Sponsor's Charter? Yes
If no, please explain:

Submit to NesCom		Save and Come Back Later

Contact the NesCom Administrator

Standard for Local and Metropolitan Area Networks – Virtual Bridged Local Area Networks – Amendment 12: Forwarding and Queuing Enhancements for Time-Sensitive Streams

Draft 5 Criteria, v6
(Wordsmithed to align with Draft PAR, v7)
September Interim, 2006

Broad Market Potential

a) Broad sets of applicability.
b) Multiple vendors and numerous users
c) Balanced costs (LAN versus attached stations)

- Provide guarantees for time-sensitive (i.e. bounded latency and delivery variation), loss-sensitive real-time audio video data transmission to interconnect consumer electronics devices such as TVs, PVRs, cable and satellite set-top boxes, residential gateways and professional A/V devices. With the entertainment content moving from analog to digital, LAN interconnect is expected to become the mainstream method.
- Many consumer electronics producers and service providers have expressed their support for this standard. Every household in the world is a potential user of this technology.
- The cost of enhancements is not expected to increase the cost of LAN interfaces and expect to decrease the cost of the connectivity by consolidation of legacy, often analog, interfaces.

Compatibility with IEEE Std. 802.1

802. Overview and Architecture,

802.1D, 802.1Q and parts of 802.1f. If any variances in conformance emerge, they shall be thoroughly disclosed and reviewed with 802.

Each standard in the IEEE 802 family of standards shall include a definition of managed objects which are compatible with systems management standards.

- The proposed standard will be an amendment to 802.1Q and will interoperate and coexist with systems compliant to 802.1Q.

- The proposed amendment defines per priority ingress metering, priority regeneration, and timing-aware queue draining algorithms. These rules only apply to the bridges that are confined to a domain solely of audio video capable bridges and frames that are identified as such. The proposed amendment will not introduce additional requirements to 802.1Q nor affect its services.

Distinct Identity

a) Substantially different from other IEEE 802 standards.

b) One unique solution per problem (not two solutions to a problem)

c) Easy for the document reader to select the relevant specification.

- There is no existing 802 standard or approved project that provide guarantees for time-sensitive (i.e. bounded latency and delivery variation), loss-sensitive real-time audio video data transmission over bridged LAN to meet the comparable real-time performance of legacy out-of-band analog media distribution.

Technical Feasibility

a) Demonstrated system feasibility.

b) Proven technology, reasonable testing.

c) Confidence in reliability.

- Several proprietary methods exist and in use that addresses similar needs.

- There are number of technical papers with specific solutions and satisfactory performance simulations

- Ingress metering, timing-aware forwarding algorithms has been proven and in use, such as in IEEE 1394, proprietary systems, etc.

Economic Feasibility

a) Known cost factors, reliable data.

b) Reasonable cost for performance

c) Consideration of installation costs.

- The proposed amendment does not materially change the cost structure of bridges. It specifies queue handling and forwarding rules to achieve interoperable quality of service. The use of the capabilities introduced by 802.1AS is deemed to have marginal effect in cost.

- This proposed amendment adds new capabilities to bridged LAN without substantially adding cost to the bridges. It will also reduce overall cost of audio video distribution by consolidation of interfaces. Such consolidation would further allow for operational and equipment cost benefits.

- It is expected that solution will require no additional installation nor configuration compared to existing bridges.

Moved: 802.1 requests EC approval to forward the draft PAR/5C for P802.1av, Forwarding and Queuing for Time-Sensitive Streams, to NesCom.

Moved: Jeffree/Kerry

Passes: 15/0/0

5.08   ME   P802.1aw PAR to NesCom   -   Jeffree   5   01:53 PM

MOTION

- 802.1 requests EC approval to forward the draft PAR/5C for P802.1aw, Data dependent CFM, to NesCom.

- 802.1: Proposed: seaman Second: messenger For: 36 Against: 0

    Abstain: 3

- EC proposed: Jeffree second:

Supporting material – P802.1aw

- Comments received and addressed from 802.17 (no changes to PAR or 5C)
- PAR text: http://www.ieee802.org/1/files/public/docs2006/aw-p802-1qaw-draft-par-1006.pdf
- 5C text: http://www.ieee802.org/1/files/public/docs2006/aw-p802-1qaw-draft-5c-1006.doc

Modify this Draft PAR	Submit this Draft PAR to NesCom
Delete this Draft PAR	

Draft PAR Confirmation Number: 187221288.19777

Submittal Email: tony@jeffree.co.uk | Change Submitter Email |

Type of Project: Amendment to an Existing Standard 802.1Q-2005

1.1 Project Number: P802.1Qaw

1.2 Type of Document: Standard for

1.3 Life Cycle: Full

1.4 Is this project in ballot now? No

2.1 Title of Standard: IEEE Standard for Local and Metropolitan Area Networks---Virtual Bridged Local Area Networks - Amendment: Management of data driven and data dependent connectivity faults

3.1 Name of Working Group: Higher Layer LAN Protocols Working Group
| Add/Change Working Group |

Contact information for Working Group Chair
Tony A Jeffree
Email: tony@jeffree.co.uk
Phone: +44-161-973-4278

Contact Information for Working Group Vice Chair
Paul Congdon
Email: paul.congdon@hp.com
Phone: 916-785-5753

3.2 Sponsoring Society and Committee: IEEE Computer Society/Local and Metropolitan Area Networks (C/LM)
Contact information for Sponsor Chair:
Paul Nikolich
Email: p.nikolich@ieee.org
Phone: 857-205-0050
Contact information for Standards Representative:

Email:
Phone:

3.3 Joint Sponsor:/ ()
Contact information for Sponsor Chair:

Email:
Phone:
Contact information for Standards Representative:

Email:
Phone:

4.1 Type of Ballot: Individual

4.2 Expected Date of Submission for Initial Sponsor Ballot: 2010-07

4.3 Projected Completion Date for Submittal to RevCom: 2010-12

5.1 Approximate number of people expected to work on this project: 50

5.2 Scope of Proposed Standard: This standard specifies connectivity fault management protocols, procedures, and managed objects that provide confirmation of successful transmission of frames conveying specified data. This capability supports diagnosis of faults sensitive to, or caused by, particular data patterns, and their isolation to part of the data path. Connectivity verification can be carried out from any single point with bridged connectivity to maintenance points on the data path, can isolate failures to communicate in a specific direction, and can be carried out while service is being provided to other users of the data path. Security considerations are addressed by the use of the mechanisms defined in IEEE Stds 802.1X, 802.1AE, and P802.1af.

Old Scope:

5.3 Is the completion of this standard is dependent upon the completion of another standard: Yes
If yes, please explain: This standard defines extensions to the connectivity fault management mechanisms that are being defined in P802.1ag, which should be approved by mid-2007.

5.4 Purpose of Proposed Standard: While bridged networks are notionally transparent to the users' data, they are often deployed as part of a service offering that selectively filters data frames (e.g. firewall functionality), automatically configures some aspect of service in response to data frames (e.g. IGMP snooping), or is supported by transmission in a data-sensitive way (e.g. IEEE Std 802.3ad Link Aggregation). This standard defines the protocols (including CFM OpCodes) and managed objects required for data-sensitive connectivity verification that is multi-vendor, interoperable, and uses the framework provided by IEEE P802.1ag Connectivity Fault Management.

Old Purpose:

5.5 Need for the Project: There is considerable demand, from the service providers that currently use or plan to use IEEE 802.1 bridging standards, for diagnostic functionality equivalent to that provided by reflecting all data frames (as used by other network technologies) and operates in a broadly similar way. A straight forward application of reflection to IEEE 802.1Q networks is known to cause problems that can be hard to diagnose while not addressing complex fault scenarios, but is likely to be widely implemented in the absence of a better standard solution. The proposed amendment offers that solution, and includes additional capabilities required in bridged networks.

5.6 Stakeholders for the Standard: Developers and users of networking equipment for Bridged LAN environments, including networking IC developers, switch and NIC developers, networking equipment and services vendors, and LAN users.

Intellectual Property

6.1.a. Has the IEEE-SA policy on intellectual property been presented to those responsible for

preparing/submitting this PAR prior to the PAR submittal to the IEEE-SA Standards Board?
Yes
If yes, state date: 2006-09-26
If no, please explain:

6.1.b. Is the Sponsor aware of any copyright permissions needed for this project? No
If yes, please explain:

6.1.c. Is the Sponsor aware of possible registration activity related to this project? No
If yes, please explain:

7.1 Are there other standards or projects with a similar scope? No
If yes, please explain:
and answer the following: Sponsor Organization:
Project/Standard Number:
Project/Standard Date: 0000-00-00
Project/Standard Title:

7.2 Future Adoptions
Is there potential for this standard (in part or in whole) to be adopted by another national, regional, or international organization? No

If Yes, the following questions must be answered:
Technical Committee Name and Number:
Other Organization Contact Information:
Contact person:
Contact Email address:

7.3 Will this project result in any health, safety, security, or environmental guidance that affects or applies to human health or safety? No
If yes, please explain:

7.4 Additional Explanatory Notes: (Item Number and Explanation)

8.1 Sponsor Information:
Is the scope of this project within the approved scope/definition of the Sponsor's Charter? Yes
If no, please explain:

Contact the NesCom Administrator

5 Criteria

1. Broad Market Potential

A standards project authorized by IEEE 802 shall have a broad market potential.
Specifically, it shall have the potential for:
a) Broad sets of applicability.
 IEEE 802.1 bridging standards have been widely adopted by the service provider community. The proposed standard will address their need to operate their new IEEE 802.1/IEEE 802.3 networks while retaining familiar procedures derived from past experience. The connectivity fault management capability provided by the proposed standard can be used with the minimum of management access to the equipment supporting user services, consistent with the approach developed in P802.1ag with joint membership collaboration with ITU-T. As with P802.1ag as a whole, improvements in connectivity fault management and the ability to diagnose connectivity failures with no or little management access to network equipment is expected to be of utility to the broad community of IEEE Std 802.1Q users.
 b) Multiple vendors and numerous users.
 There is broad interest from numerous vendors in IEEE 802.1 in meeting the need expressed by multiple service provider customers needs for a CFM capability equivalent to data reflection.
 c) Balanced costs.
This capability is not expected to materially increase the cost of individual VLAN bridges that are suitable for service provider applications, and in part standardization is required so that specific CFM OpCodes can be defined so they can be ignored by bridges that simply have to forward diagnostic traffic.

2. Compatibility

IEEE 802 defines a family of standards. All standards shall be in conformance with the IEEE 802.1 Architecture, Management and Internetworking documents as follows: 802. Overview and Architecture, 802.1D, 802.1Q and parts of 802.1f. If any variances in conformance emerge, they shall be thoroughly disclosed and reviewed with 802.
Each standard in the IEEE 802 family of standards shall include a definition of managed objects which are compatible with systems management standards.
 This amendment will not change the conformance of IEEE Std 802.1Q to Std 802. Overview and Architecture, or its relationship to that specification.
 Equipment conforming to the proposed amendment to IEEE Std 802.1Q will be compatible and interoperable with bridge implementations that conform to IEEE Std 802.1D and prior revisions of IEEE Std 802.1Q, and support of existing network configurations will be retained in parallel with use of the additional capabilities provided by this amendment. No change to end stations will be required to take advantage of these capabilities.
 This amendment will include extensions to MIBs, existing or under development as part of other 802.1 projects, to allow management of the new capabilities as a natural extension of existing capabilities.

3. Distinct Identity

Each IEEE 802 standard shall have a distinct identity. To achieve this, each authorized project shall be:
a) Substantially different from other IEEE 802 standards
 IEEE Std 802.1Q is the sole and authoritative specification for VLANs and VLAN-aware Bridges, and for Connectivity Fault Management of networks constructed using that technology.
 b) One unique solution per problem (not two solutions to a problem).
 The proposed amendment will extend existing VLAN technology and has not been anticipated by any other standards, in IEEE 802 or elsewhere.
 c) Easy for the document reader to select the relevant specification.
 IEEE Std 802.1Q is the natural reference for VLAN bridging technology, which will make the capabilities added by this amendment easy to locate.

4. Technical Feasibility

For a project to be authorized, it shall be able to show its technical feasibility. At a minimum, the proposed project shall show:
 a) Demonstrated system feasibility.
 The proposed amendment is based on known 802.1Q VLAN technology.
 b) Proven technology, reasonable testing.
 The proposed amendment is based on known 802.1Q VLAN technology.
 c) Confidence in reliability.
 The reliability of this solution is anticipated to be the same as that of others based on existing 802.1Q VLAN technology.
 d) Coexistence of 802 wireless standards specifying devices for unlicensed operation.
 Not applicable.

5. Economic Feasibility

For a project to be authorized, it shall be able to show economic feasibility (so far as can reasonably be estimated), for its intended applications. At a minimum, the proposed project shall show:
 a) Known cost factors, reliable data.
 The proposed technology is no expected to materially alter individual VLAN Bridge equipment costs, while addressing an operational need in service provider networks that use that equipment. Relative to fostering the development of proprietary solutions with differing approaches and concepts the proposed standard will help to contain operational costs.
 b) Reasonable cost for performance.
 The operational practice that requires the development of the proposed standard has a long history, perceived utility, and considerable cost experience by the users of 802.1 standards that want it supported by IEEE 802.1 conformant equipment.
 c) Consideration of installation costs.
 Installation costs of VLAN Bridges are not expected to be affected in any way.

Moved: 802.1 requests EC approval to forward the draft PAR/5C for P802.1aw, Data dependent CFM, to NesCom.

Moved: Jeffree/Grow

Passes: 16/0/0

| 5.09 | ME | P802.1AB Revision PAR to NesCom | - | Jeffree | 5 | 01:56 PM |

MOTION

- 802.1 requests EC approval to forward the draft PAR for revision of 802.1AB to NesCom.

- 802.1: Proposed: congdon Second:

  wright   For: 34 Against: 0 Abstain: 3

- EC proposed: Jeffree second:

Supporting material – P802.1AB

- No comments received
- PAR text:
  http://www.ieee802.org/1/files/public/docs2006/ab-rev-draft-par-0906.pdf
- 5C text:
  Maintenance PAR so no 5C

The PAR Copyright Release and Signature Page must be submitted by FAX to +1-732-875-0695 to the NesCom Administrator.
If you have any questions, please contact the NesCom Administrator.

Once you approve and submit the following information, changes may only be made through the NesCom Administrator.

Draft PAR Confirmation Number: 186696341.23514
Submittal Email: paul.congdon@hp.com
Type of Project: Revision to an Existing Standard 802.1AB-2005
1.1 Project Number: P802.1AB
1.2 Type of Document: Standard for
1.3 Life Cycle: Full
1.4 Is this project in ballot now? No

2.1 Title of Standard: Standard for Local and metropolitan area networks -- Station and Media Access Control Connectivity Discovery	**Old Title:** IEEE Standard for Local and metropolitan area networks -- Station and Media Access Control Connectivity Discovery

3.1 Name of Working Group: Higher Layer LAN Protocols Working Group
Contact information for Working Group Chair Tony A Jeffree Email: tony@jeffree.co.uk Phone: +44-161-973-4278
Contact Information for Working Group Vice Chair Email: Phone:
3.2 Sponsoring Society and Committee:IEEE Computer Society/Local and Metropolitan Area Networks (C/LM) **Contact information for Sponsor Chair:** Paul Nikolich Email: p.nikolich@ieee.org Phone: 857-205-0050 **Contact information for Standards Representative:** Email: Phone:
3.3 Joint Sponsor:/ () **Contact information for Sponsor Chair:** Email: Phone: **Contact information for Standards Representative:** Email: Phone:

4.1 Type of Ballot: Individual

4.2 Expected Date of Submission for Initial Sponsor Ballot: 2008-11

4.3 Projected Completion Date for Submittal to RevCom: 2009-07

5.1 Approximate number of people expected to work on this project: 100

5.2 Scope of Proposed Standard: To define a protocol and management elements, suitable for advertising information to stations attached to the same LAN/MAN, for the purpose of populating physical topology and device discovery management information databases. The protocol will facilitate the identification of stations connected by IEEE 802 LANs/MANs, their points of interconnection and their access points for management protocols.

5.3 Is the completion of this standard is dependent upon the completion of another standard: No
If yes, please explain:

5.4 Purpose of Proposed Standard: An IETF standard MIB (RFC 2922) as well as a number of vendor specific MIBs have been created to describe a network's physical topology and associated devices connected to that topology, however, there is no standard protocol for populating this MIB or communicating this information among stations on the LAN/MAN. This standard will specify the necessary protocol and management elements.

5.5 Need for the Project: New destination addresses and explicit forwarding rules for LLDP frames are needed to accurately determine the toplogy over transparent forwarding devices such as those defined by 802.1ad and 802.1aj. Additionally, new and developing 802 standards, such as 802.3at, 802.1at and 802.1au, have the need to rapidly discover the boundary in the topology for which particular capabilities are operating. New information elements and a more rapid exchange of LLDP frames is necessary to support the timely discovery of this boundary. Users of this standard will be able to accurately exchange information on a greater set of 802.1 topologies and will experience a more rapid convergence of information.

5.6 Stakeholders for the Standard: This standard will be of interest to all current 802 LAN users as well as new use cases such as consumer electronics, telecom and data center networking

Intellectual Property

6.1.a. Has the IEEE-SA policy on intellectual property been presented to those responsible for preparing/submitting this PAR prior to the PAR submittal to the IEEE-SA Standards Board? Yes
If yes, state date: 2006-09-25
If no, please explain:

6.1.b. Is the Sponsor aware of any copyright permissions needed for this project? No
If yes, please explain:

6.1.c. Is the Sponsor aware of possible registration activity related to this project? No
If yes, please explain:

7.1 Are there other standards or projects with a similar scope? No
If yes, please explain:
and answer the following: Sponsor Organization:
Project/Standard Number:
Project/Standard Date: 0000-00-00
Project/Standard Title:

7.2 Future Adoptions
Is there potential for this standard (in part or in whole) to be adopted by another national, regional, or international organization? Do not know at this time

If Yes, the following questions must be answered:
Technical Committee Name and Number:
Other Organization Contact Information:
Contact person:
Contact Email address:

7.3 Will this project result in any health, safety, security, or environmental guidance that affects or applies to human health or safety? No
If yes, please explain:

7.4 Additional Explanatory Notes: (Item Number and Explanation)

8.1 Sponsor Information:
Is the scope of this project within the approved scope/definition of the Sponsor's Charter? Yes
If no, please explain:

[Submit to NesCom]   [Save and Come Back Later]

Contact the NesCom Administrator

Moved: 802.1 requests EC approval to forward the draft PAR for revision of 802.1AB to NesCom.

Moved: Jeffree/Stevenson

Passes: 16/0/0

5.10   ME   P802 Revision PAR to NesCom   -   Jeffree   5   01:58 PM

MOTION

- 802.1 requests EC approval to forward the draft PAR for revision of 802 Overview and Architecture to NesCom.

- 802.1: Proposed: wright Second: patton For: 38 Against: 1 Abstain: 2

- EC proposed: Jeffree second:

Supporting material – P802 O&A

- No comments received
- PAR text:
  http://www.ieee802.org/1/files/public/docs2006/p802-draft-revision-par-1106.htm
- 5C text:
  Maintenance PAR so no 5C

The PAR Copyright Release and Signature Page must be submitted by FAX to +1-732-875-0695 to the NesCom Administrator.
If you have any questions, please contact the NesCom Administrator.

Once you approve and submit the following information, changes may only be made through the NesCom Administrator.

Draft PAR Confirmation Number: 190898228.15272
Submittal Email: tony@jeffree.co.uk
Type of Project: Revision to an Existing Standard 802-2001
1.1 Project Number: P802
1.2 Type of Document: Standard for
1.3 Life Cycle: Full
1.4 Is this project in ballot now? No

2.1 Title of Standard: Standard for Local and Metropolitan Area Networks: Overview and Architecture	**Old Title:** IEEE Standard for LAN/MAN (Local Area Network/Metropolitan Area Network): Overview and Architecture

3.1 Name of Working Group: Higher Layer LAN Protocols Working Group
Contact information for Working Group Chair Tony A Jeffree Email: tony@jeffree.co.uk Phone: +44-161-973-4278
Contact Information for Working Group Vice Chair Paul Congdon Email: paul.congdon@hp.com Phone: 916-785-5753
3.2 Sponsoring Society and Committee:IEEE Computer Society/Local and Metropolitan Area Networks (C/LM) **Contact information for Sponsor Chair:** Paul Nikolich Email: p.nikolich@ieee.org Phone: 857-205-0050 **Contact information for Standards Representative:** Email: Phone:
3.3 Joint Sponsor:/ () **Contact information for Sponsor Chair:** Email: Phone: **Contact information for Standards Representative:** Email: Phone:

4.1 Type of Ballot: Individual

4.2 Expected Date of Submission for Initial Sponsor Ballot: 2010-05

4.3 Projected Completion Date for Submittal to RevCom: 2010-11

5.1 Approximate number of people expected to work on this project: 50

5.2 Scope of Proposed Standard: This standard contains descriptions of the IEEE 802 Standards published by IEEE for Local Area Networks (LANs), Metropolitan Area Networks (MANs), and Personal Area Networks (PANs)networks considered as well as a reference model (RM) for protocol standards. Compliance with the family of IEEE 802 Standards is defined, and a standard for the identification of public, private, and standard protocols is included.	**Old Scope:** An overview and the architecture of the IEEE 802 suite of standards.

5.3 Is the completion of this standard is dependent upon the completion of another standard: No
If yes, please explain:

5.4 Purpose of Proposed Standard: This standard serves as the foundation for the family of IEEE 802 Standards published by IEEE for Local Area Networks (LANs), Metropolitan Area Networks (MANs), and Personal Area Networks (PANs).	**Old Purpose:** Revision of existing IEEE 802-1990 standard to reflect the current IEEE 802 architecture and its suite of standards.

5.5 Need for the Project: Revision of existing IEEE 802-2001 standard is needed to remove redundant material and reflect the current IEEE 802 architecture and its suite of standards.

5.6 Stakeholders for the Standard: Standards developers within IEEE 802. Manufacturers, distributors, and users of products and services that conform to the LAN, MAN, and PAN standards developed by IEEE 802.

Intellectual Property

6.1.a. Has the IEEE-SA policy on intellectual property been presented to those responsible for preparing/submitting this PAR prior to the PAR submittal to the IEEE-SA Standards Board? Yes
If yes, state date: 2006-11-13
If no, please explain:

6.1.b. Is the Sponsor aware of any copyright permissions needed for this project? No
If yes, please explain:

6.1.c. Is the Sponsor aware of possible registration activity related to this project? No
If yes, please explain:

7.1 Are there other standards or projects with a similar scope? No
If yes, please explain:
and answer the following: Sponsor Organization:
Project/Standard Number:
Project/Standard Date: 0000-00-00
Project/Standard Title:

7.2 Future Adoptions
Is there potential for this standard (in part or in whole) to be adopted by another national, regional, or international organization? No

If Yes, the following questions must be answered:
Technical Committee Name and Number:
Other Organization Contact Information:
Contact person:
Contact Email address:

7.3 Will this project result in any health, safety, security, or environmental guidance that affects or applies to human health or safety? No
If yes, please explain:

7.4 Additional Explanatory Notes: (Item Number and Explanation)
Title matches the title on the current standard. Scope and Purpose amended to reflect current practice (there was no Purpose in the 2001 revision of the standard.)

8.1 Sponsor Information:
Is the scope of this project within the approved scope/definition of the Sponsor's Charter? Yes
If no, please explain:

Submit to NesCom   Save and Come Back Later

Contact the NesCom Administrator

Moved: 802.1 requests EC approval to forward the draft PAR for revision of 802 Overview and Architecture to NesCom.

Moved: Jeffree/Stevenson

Passes: 16/0/0

MOTION

- 802.1 requests conditional approval from the EC to submit the IEEE Std 802, Overview and Architecture, reaffirmation to RevCom.

- 802.1 Proposed: wright Second: patton
  - For: 33 Against: 0 Abstain:1

- Exec Proposed: Jeffree   Second:
  - For: Against: Abstain:

Supporting material – P802 Reaff

- Ballot closed 10/11/2006. 171 voters; 92% approval. 54 comments
- Comments indicate need for revision, but timescale for revision could be long, so plan is to reaffirm and also raise revision PAR

Moved: 802.1 requests conditional approval from the EC to submit the IEEE Std 802, Overview and Architecture, reaffirmation to RevCom.

Moved: Jeffree/Hawkins

Passes: 16/0/0

5.11   ME   P802.1ak conditional approval to forward to RevCom   -   Jeffree   10   02:03 PM

MOTION

- 802.1 requests EC conditional approval to forward P802.1ak to RevCom.

- 802.1: Proposed: wright Second: sultan For: 32 Against: 0 Abstain: 2

- EC proposed: Jeffree second:

Moved: 802.1 requests EC conditional approval to forward P802.1ak to RevCom.

Moved: Jeffree/Stevenson

Carl asked for clarification about comments from non-voters. Tony indicated this is a "rogue comment" in the terminology of MyBallot.

Passes: 16/0/0

| 5.12 | ME | Conditional approval of 802.17b to RevCom | - | Takefman | 10 | 02:08 PM |

Request to Conditionally Forward 802.17b to RevCom

- 802.17b Draft 2.0 Sponsor Ballot
  - closed Aug 28, 2006
  - 77% return, 93% approve,12% abstain, (55/4/8)
  - 120 comments, all binding comments accepted or accepted-modified

- 802.17b Draft 2.1 Recirculation Ballot
  - closed October 17, 2006
  - 80% return, 97% approve, 10 % abstain, (61/2/7)
  - 9 comments, all binding comments accepted or accepted-modified

- 802.17b Draft 2.2 Recirculation Ballot
  - closed November 14, 2006
  - 82% return, 97% approve, 11% abstain (61/2/8)
  - 7 comments (from 1 commenter), all binding comments accepted

Plan Moving Forward

- Recirculation P802.17b D2.3
  - teleconference will occur November 28th if required

- Document changes already previewed/accepted by commenter
  - other negative commenter contacted and is satisfied and will flip vote
  - expectation is this is the final recirculation

802.17 WG Motion

- Move to request the 802 EC to conditionally forward 802.17b to RevCom

- M: Leon Bruckman

- S: Marc Holness

- 7/0/0

802.17b EC Motion

- Move to conditionally forward P802.17b to RevCom

- M: Takefman
- S: Hawkins

Moved: to conditionally forward 802.17b to RevCom.

Moved: Takefman/Hawkins

Passes: 16/0/0

5.13   ME   IEEE Std 802.3-2005/Cor2 PAR to NesCom   -   Grow   2   02:09 PM

P802.3-2005/Cor 2

- Fix an error in IEEE Std 802.3an-2006
- Begin WG ballot (prior to PAR approval)
- WG conditional approval for Sponsor ballot upon successful WG ballot
- EC conditional approval will be via electronic ballot

P802.3-2005/Cor 2 content

Change equation 55-55 as follows:

$$Z_{bal}(f) \geq \begin{cases} 48 & 1 \leq f < 30 \\ 44 - 19.2\left(\dfrac{f}{50}\right) & 30 \leq f \leq 500 \end{cases} \qquad (55\text{–}55)$$

$$Z_{bal}(f) \geq \begin{cases} 48 & 1 \leq f < 30 \\ 44 - 19.2\log_{10}\left(\dfrac{f}{50}\right) & 30 \leq f \leq 500 \end{cases} \qquad (55\text{–}55)$$

P802.3-2005/Cor 2 PAR

802.3 MOTION #4

IEEE 802.3 approves the PAR for IEEE P802.3-2005/Cor 2 10GBASE-T Corrigendum

IEEE 802.3 requests the IEEE 802 LMSC Executive Committee to submit the IEEE P802.3-2005/Cor 2 10GBASE-T Corrigendum PAR to NESCOM.

M: D. Law

S: M. Carlson

Tech 75%

Y:67   N:0   A:2   Date: 16-Nov-2006 2:29PM

P802.3-2005/Cor 2 EC Motion

Motion:

The LMSC approves submission of the P802.3-2005/Cor 2 PAR to NesCom.

The PAR Copyright Release and Signature Page must be submitted by FAX to +1-732-875-0695 to the NesCom Administrator.
If you have any questions, please contact the NesCom Administrator.

Once you approve and submit the following information, changes may only be made through the NesCom Administrator.

Draft PAR Confirmation Number: 190938819.27101
Submittal Email: bob.grow@ieee.org
Type of Project: Corrigendum to an Existing Standard 802.3-2005
1.1 Project Number: P802.3-2005/Cor 2
1.2 Type of Document: Standard for
1.3 Life Cycle: Full
1.4 Is this project in ballot now? No

2.1 Title of Standard: IEEE Standard for Information Technology - Telecommunications and Information Exchange Between Systems - Local and Metropolitan Area Networks - Specific Requirements Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications - Corrigendum 2: IEEE Std 802.3an-2006 10GBASE-T Correction	**Old Title:** IEEE Standard for Information Technology - Telecommunications and Information Exchange Between Systems - Local and Metropolitan Area Networks - Specific Requirements Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications

3.1 Name of Working Group: Ethernet Working Group
Contact information for Working Group Chair Robert M Grow Email: bob.grow@ieee.org Phone:
Contact Information for Working Group Vice Chair David J Law Email: david_law@ieee.org Phone: +44-131-665-7264
3.2 Sponsoring Society and Committee: IEEE Computer Society/Local and Metropolitan Area Networks (C/LM) **Contact information for Sponsor Chair:** Paul Nikolich Email: p.nikolich@ieee.org Phone: 857-205-0050 **Contact information for Standards Representative:** Email: Phone:
3.3 Joint Sponsor: / () **Contact information for Sponsor Chair:**

Email:
Phone:
Contact information for Standards Representative:

Email:
Phone:

4.1 Type of Ballot: Individual

4.2 Expected Date of Submission for Initial Sponsor Ballot: 2007-01

4.3 Projected Completion Date for Submittal to RevCom: 2007-03

5.1 Approximate number of people expected to work on this project: 20

5.2 Scope of Proposed Standard: This corrigendum will correct Equation 55-55	**Old Scope:**

5.3 Is the completion of this standard is dependent upon the completion of another standard: No
If yes, please explain:

5.4 Purpose of Proposed Standard: Somehow during the draft development, a Log10 term in the equation was missed. No one in the ballot group commented on it. The change does not qualify as an errata and therefore is being done as a corrigendum.	**Old Purpose:**

5.5 Need for the Project: We made an error.

5.6 Stakeholders for the Standard: Same as P802.3an -- equipment vendors, chip vendors, end users over a wide set of markets.

Intellectual Property

6.1.a. Has the IEEE-SA policy on intellectual property been presented to those responsible for preparing/submitting this PAR prior to the PAR submittal to the IEEE-SA Standards Board?
If yes, state date: 2006-11-13
If no, please explain:

6.1.b. Is the Sponsor aware of any copyright permissions needed for this project? No
If yes, please explain:

6.1.c. Is the Sponsor aware of possible registration activity related to this project? No
If yes, please explain:

7.1 Are there other standards or projects with a similar scope? No
If yes, please explain:
and answer the following: Sponsor Organization:
Project/Standard Number:
Project/Standard Date: 0000-00-00
Project/Standard Title:

7.2 Future Adoptions
Is there potential for this standard (in part or in whole) to be adopted by another national,

regional, or international organization? No

If Yes, the following questions must be answered:
Technical Committee Name and Number: ISO SC6 WG3
Other Organization Contact Information:
Contact person:
Contact Email address:

7.3 Will this project result in any health, safety, security, or environmental guidance that affects or applies to human health or safety? No
If yes, please explain:

7.4 Additional Explanatory Notes: (Item Number and Explanation)
7.2 When Corrigendum 2 is merged into 802.3an or the entire base document, the resulting document might be included in internationalization of the base document.

8.1 Sponsor Information:
Is the scope of this project within the approved scope/definition of the Sponsor's Charter?
If no, please explain:

Submit to NesCom		Save and Come Back Later

Contact the NesCom Administrator

Moved: The LMSC approves submission of the P802.3-2005/Cor 2 PAR to NesCom.

Moved: Grow/Kerry

Passes: 16/0/0

5.14   ME   P802.3ap Conditional to RevCom   -   Grow   5   02:10 PM

P802.3-2005/Cor 2 EC Motion

Motion:

The LMSC approves submission of the P802.3-2005/Cor 2 PAR to NesCom.

P802.3ap SB status

- 80.6% approval after 1st recirculation
  (31 Oct 2006 close)
- Unanimous WG conditional approval for RevCom submittal
- 7 of the 15 negative balloters have no remaining unresolved comments
- 6 of the negative ballots are on making channel recommendations normative (4 the only issue)
- Will meet in January and March if required to address comments

P802.3ap conditional to RevCom

802.3 MOTION #8

    IEEE 802.3 Working Group Chair request the IEEE 802 EC to grant conditional approval, per LMSC P&P Procedure 20, to pre-submit IEEE P802.3ap for the March RevCom meeting.

M: A. Healey on behalf of Task Force

Tech 75%

Y:54   N:0   A:4   Date: 16-Nov-2006 2:15PM

P802.3ap SB ballot results

Initial Sponsor Ballot (Draft 3.0)	
Voters	124
Affirmative	71
Negative	16
Negative w/o Comment	1
Abstention	7
Returns	95
Return Rate (≥ 75%)	76.6%
Approval Rate (≥ 75%)	81.6%
Abstention Rate (< 30%)	7.4%

1st Sponsor Recirculation Ballot (Draft 3.1)	
Voters	124
Affirmative	77
Negative	15*
Negative w/o Comment	1
Abstention	7
Returns	100
Return Rate (≥ 75%)	80.6%
Approval Rate (≥ 75%)	83.7%
Abstention Rate (< 30%)	7.0%

Unsatisfied Negative Comments (1/2)

Balloter	Affiliation	TR/ER/GR	Topics
Barrass, Hugh	Cisco	0/0/0	
Baumer, Howard	Broadcom	6/0/0	▪ Make channel recommendations normative and remove receiver interference tolerance test ▪ Frequency ranges for channel recommendations
Booth, Brad	AMCC	0/0/0	
Dawe, Piers	Avago	2/0/0	▪ Clause 74 FEC block lock state machine
Frazier, Howard	Broadcom	2/0/0	▪ Make channel recommendations normative ▪ Change Clause 70 return loss plot scale
Ghiasi, Ali	Broadcom	3/0/0	▪ Clause 72 jitter test filter ▪ Clause 72 jitter output table ▪ Add Clause 72 low-frequency jitter tolerance test
Grow, Bob	Intel	0/0/0	
Jones, William*	SolarFlare	1/0/0	▪ Make channel recommendations normative
Kim, Yong	Broadcom	1/0/0	▪ Make channel recommendations normative

Unsatisfied Negative Comments (2/2)

Balloter	Affiliation	TR/ER/GR	Topics
Law, David	3Com	0/0/0	
McClellan, Brett	SolarFlare	2/0/0	▪ Make channel recommendations normative
Palm, Stephen	Broadcom	1/0/0	▪ Make channel recommendations normative
Sawyer, Shannon*	Intel	0/0/0	
Thaler, Pat	Broadcom	0/0/0	
Valliappan, Magesh	Broadcom	0/0/0	
	Total	**18/0/0**	

Moved: The LMSC grants conditional approval per LMSC P&P clause 20 for submission of P802.3ap to RevCom.

Moved: Grow/Thaler

Passes: 16/0/0

5.15   ME   IEEE Std 1802.3-2001 Reaffirmation conditional to RevCom   -   Grow   5   02:12 PM

1802.3-2001 reaffirmation

- 98% approval at Sponsor ballot (53, 1, 4)
- WG accepted the negative comment that the standard should be withdrawn
- WG conditional approval to RevCom if recirculation is required
  - Recirculation is required per Mr. Ringle
  - Cover letter would recommend negative vote
- No longer on the administrative withdrawal list

1802.3 EC motion

Motion:

The LMSC grants conditional approval per LMSC P&P clause 20 for submission of P802.3ap to RevCom.

1802.3 EC motion – withdrawal

MOTION #16

    IEEE 802.3 recommends that IEEE Std 1802.3-2001 should be withdrawn and that this recommendation should be provided to the balloters.
The recirculation cover letter and comment database should reflect this recommendation.

M: G. Thompson

S: H. Barrass

Tech >= 75%

Y:33   N:1   A:17   Date: 16-Nov-2006 5:40PM

Moved: The LMSC grants conditional approval per LMSC P&P clause 20 for submission of P802.3ap to RevCom.

Moved: Grow/Thaler

Bob indicated that the working group decided to accept a comment of a negative voter to withdraw the document. Bob indicated that there are a number of administrative issues involved in making this action effective.

Geoff indicated that there is no need to approve conditional forwarding of this document. He recommends that we wait until March and examine the results of the recirculation.

Fails: 0/12/3

5.16	**ME**		-			
5.17	**ME**		-			
5.18	**ME**		-			
6.00		**Executive Committee Study Groups, Working Groups, TAGs**	-			
6.01	**MI**		-			
6.02	**MI***	**802.15.4c Altenrnative PHY for China SG extension**	-	**Heile**		
6.03	**MI***	**802.15.4d alternative PHY for Japan SG extension**	-	**Heile**		
6.04	**MI***	**802.3 HSSG extension**	-	**Grow**		
6.05	**MI***		-			
6.06	**MI**	**Formation of 802.15 Medical Body Area Network SG**	-	**Heile**	**5**	**02:17 PM**

Study Group Agenda Item for Wireless Medical Body Area Networks

Executive Committee Actions- Study Group for Wireless Medical BAN

Scope contained in 15-06-0511/r0:

This project will define a standard or an amendment for short range, wireless communication in the vicinity of, or inside a human body*. It will use frequency bands approved for exclusive use in medical applications. Example of such bands are USA, EU, Japan, and others 402 - 405 MHz frequency band

* Not exclusive to humans but not including giraffes until 15.5 done

Motion in the WG:

- **Move to form an 802.15 study group to draft a PAR and 5C documents, supporting the scope contained in doc 15-06-0511/r0.**

Moved by: Art Astrin

Second by: Ben Rolfe

Vote: 22/0/0

Executive Committee Actions- WMBAN

Move to approve the formation a Study Group in 802.15 to draft a PAR and 5C for short range, wireless communication in the vicinity of, or inside a human body. It will use frequency bands approved for exclusive use in medical applications. Example of such bands are USA, EU, Japan, and others in the 402 - 405 MHz frequency band

Moved: Bob Heile

Second: Bob O'Hara

Moved: to approve the formation a Study Group in 802.15 to draft a PAR and 5C for short range, wireless communication in the vicinity of, or inside a human body. It will use frequency bands approved for exclusive use in medical applications. Example of such bands are USA, EU, Japan, and others in the 402 - 405 MHz frequency band.

Moved: Heile/O'Hara

Passes: 14/0/0

| 6.07 | MI | Formation of 802.17 Protected Inter-Ring Connection SG | - | Takefman | 5 | 02:23 PM |

Request to Form 802.17c Study Group

- Various proposals to form the next 802.17 study group have been discussed over the past several sessions
  - Protected Inter-Ring Connection is a proposed extension to the MAC standard that provides
    - methods to enable resilient connection between rings using at least 2 nodes that are attached to each ring
  - straw poll to approve formation of the group
    - 10/0/0
  - WG motion to request EC approval for formation of the group
    - 6/0/0
    - Mike Takefman stuck as chair

Protected Inter-Ring Connection
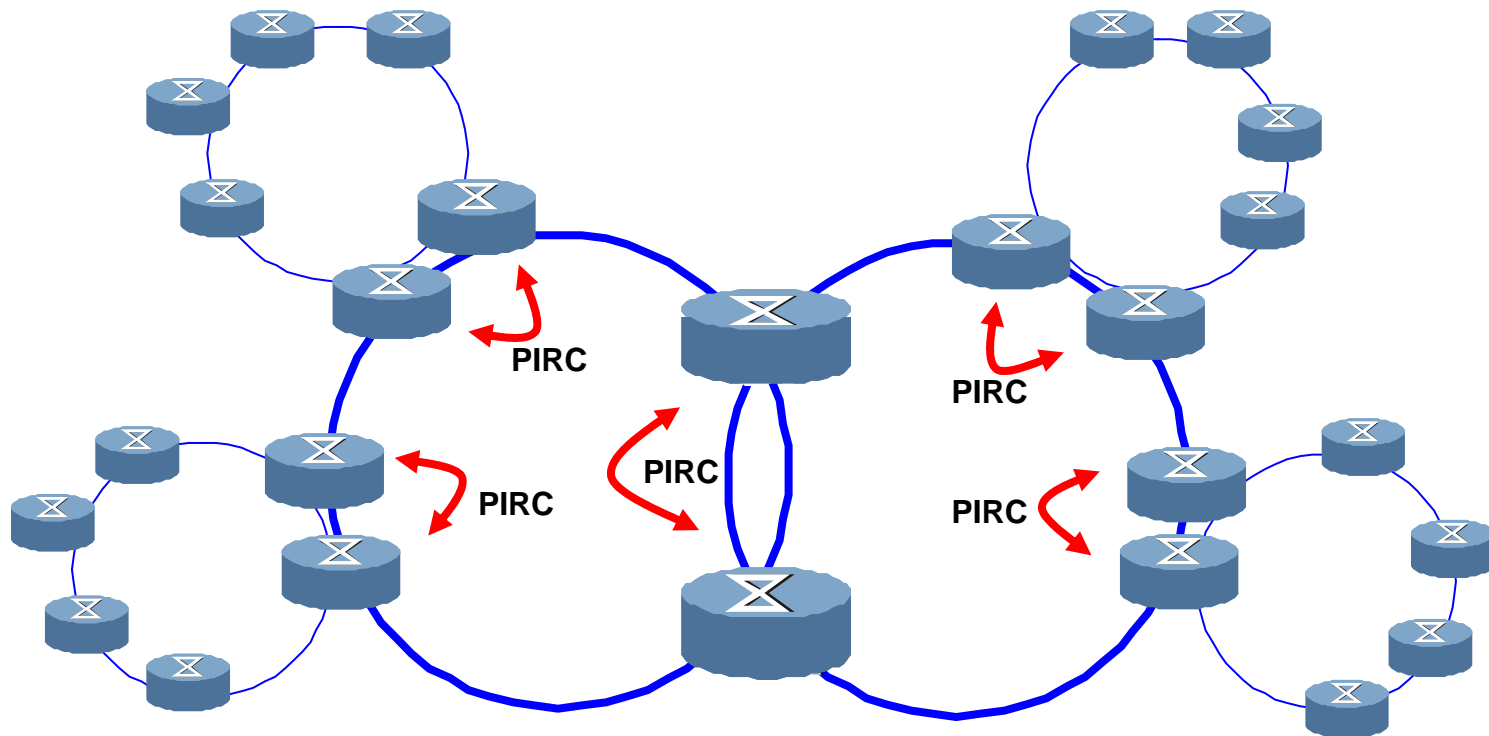
802.17c SG EC Motion

- Move to approve the formation of the 802.17c Protected Inter-Ring Connection SG and appoint Mike Takefman as chair

- M: Takefman
- S: Hawkins

Moved: to approve the formation of the 802.17c Protected Inter-Ring Connection SG and appoint Mike Takefman as chair.

Moved: Takefman/Hawkins

Passes: 15/0/0

| 6.08 | MI | Formation of 802.11 Direct Link Setup SG | - | Kerry | 5 | 02:25 PM |

IEEE 802 LMSC RESOLUTION

Motion By: KERRY   Seconded By: O'HARA

- Move to form an IEEE 802.11 Study Group to examine Direct Link Setup (DLS) operation with non 802.11e APs and to examine power saving extensions to DLS with the intent to create a PAR and five criteria to form a new task group.

  WNG SC Vote (Melbourne Sep.2006 - Interim)

     WNG Mover: Simon Barber
     WNG Second: Menzo Wentnik
     WNG Results: 35/1/11

  WG Original Vote (Melbourne Sep.2006 - Interim)

     WG Mover: TK Tan
     WG Second: Menzo Wentnik
     WG Results: 48/4/15

  WG Reaffirmation Vote (Dallas Nov.2006 - Plenary)

     WG Mover: Al Petrick
     WG Second: Harry Worstell
     WG Results: 71/3/44

"802 EC Consent Agenda"

Moved: To form an 802.11 WG Study Group to examine DLS (Direct Link Setup) operation with non 802.11e APs and to examine power saving extensions to DLS with the intent to create a PAR and five criteria to form a new task group.

Moved: Kerry/Jeffree

Passes: 15/0/0

| 6.09 | MI | Energy Efficient Ethernet 802.3 SG formation | - | Grow | 5 | 02:28 PM |

Energy Efficient Ethernet SG formation

- **802.3 MOTION #15**
- Move that the IEEE 802.3 working group request formation of an *Energy Efficient Ethernet* IEEE 802.3 study group to evaluate methods to reduce energy use by reduction of link speed during periods of low link utilization
- Y:51   N:2   A:6
  MOTION PASSES   Date: 16-Nov-2006 5:13PM

  ~80 CFI attendees, 109 interested in participating

Moved: that the LMSC authorizes the establishment of an 802.3 energy efficient Ethernet SG.
Moved: Grow/Stevenson

Passes: 15/0/0

7.00		**Break**	**-**		**10**	**02:31 PM**
8.00		**IEEE-SA Items**	**-**			
8.01	**II**	**802 Task Force update**	**-**	**Kipness**	**5**	**02:46 PM**

802 Task Force Meeting 15thNovember,2006Dallas,HyattRegency,DallasTexas
  Start of Meeting: 1:00pm
  End of Meeting: 1:58pm

Attendees: Nikolich, Rosdahl, Mills,Parsons, Hawkins, Thompson, Law, Grow, Turner,Labelle, Camp, Kipness,Kenney

1)ITU-T and IEEE - ieee 802.1, .3, .17 and ITU - Will have joint workshop between IEEE and ITU. encourage participation. june 2007 . Being hosted by IEEE/ITU - No meeting fee - Web registration- There they will provide photo id badges for people.

2) Get IEEE 802™ update - Adjusted agreement to reflect extend waiting period and gauranteed income level 377.5k or $75 per head whichever is greater but not to exceed 500k.

 Future funding model- What are actual expenses to IEEE of supporting 802? Revenue generation ideas are still on the table…

3) Attendance Software update - Clyde gave this update at opening Dallas EC presentation. Paul will send copy of spec to EC. IEEE needs to get a go or no go decision by Dec 15, 2006 as to whether or not 802 as a whole wished to work with the IEEE to develop the proposed IMAT system. 802 wants it to be a 802 wide decision on what they decide to do (committee by committee basis)

4)RevCom convention 6 - Visibilty of comments to ballot participants - Comments that are submitted after ballot closed cannot be viewed unless recirc ballot is open - Bob Grow will discuss with Dave Ringle how to get it on RevCom agenda.

5) "Ombudsman" feedback - Nothing new since last report. Will keep it running

8.02	II		-			
8.03			-			
9.00		**LMSC Liaisons & External Interface**	-			
9.01	II	**Get IEEE 802 Program Update**	-	**Kenney**	**5**	**02:53 PM**

Karen reported that there are few details, yet, but details on the MOU will be coming out in March incorporating the new waiting period and other changes. This will be a new, one-year agreement only for calendar 2007. It will replace the old MOU.

9.02	ME	**Liaison to ITU-R CPM regarding WRC-07 AI 1.4**	-	**Lynch**	**10**	**02:55 PM**

802.18 Motion to SEC

Agenda: 9.02
Date: 11/17/2006
Time: 2:28 p.m.

Motion by: Lynch   **Seconded by:** Marks

Moved:

To approve document:

18-06-0079-00-0000_CPM_AI1_4.doc

as an 802 document, authorizing the Chair of 802.18 to do necessary editorial and

formatting changes and, using the document as a "template", create the appropriate

input to ITU-R CPM07-2.

Informative: This document encourages ITU-R to identify additional technology
neutral spectrum at WRC-07 for terrestrial wireless systems.

Approve: 14 **Do Not Approve:** X **Abstain:** X **Motion: Approved**

Received: XX November 2006

Subject: WRC-07 Agenda Item 1.4

*** DRAFT ***
Institute of Electrical and Electronics Engineers (IEEE)

SUPPORT FOR THE ALLOCATION/IDENTIFICATION OF SPECTRUM FOR
TERRESTRIAL SERVICES UNDER WRC-07 AGENDA ITEM 1.4

This contribution was developed by IEEE Project 802, the Local and Metropolitan Area Network Standards Committee ("IEEE 802"), an international standards development committee organized under the IEEE and the IEEE Standards Association ("IEEE-SA").

The content herein was prepared by a group of technical experts in IEEE 802 and industry and was approved for submission by the IEEE 802.16 Working Group on Wireless Metropolitan Area Networks, the IEEE 802.18 Radio Regulatory Technical Advisory Group, and the IEEE 802 Executive Committee, in accordance with the IEEE 802 policies and procedures, and represents the view of IEEE 802.

IEEE 802 is following, with strong interest, the preparations for WRC-07 Agenda Item 1.4, since several standards activities are underway within the IEEE-SA that are expected to contribute significantly to the development of standards for terrestrial systems that will be deployed in spectrum allocated/identified under Agenda Item 1.4.

Therefore, IEEE is very supportive of the allocation/identification of sufficient spectrum for terrestrial systems, on a technology neutral basis, under Agenda Item 1.4. Indeed, in the coming years, radio technologies will enable significant novel wireless applications . These will require significant amounts of spectrum in which to operate and will benefit the end users in both developing and developed economies alike, by enabling advanced applications such as mobile multimedia applications, mobile Internet access, tele-working, tele-education, tele-medicine, providing access for remote communities, and generally bridging the digital divide by interconnecting people.

_____

Formatted: Dutch (Netherlands)

Formatted: Dutch (Netherlands)

Moved: To approve document 18-06-0079-00-0000_CPM_AI1_4.doc as an 802 document, authorizing the Chair of 802.18 to do necessary editorial and formatting changes and, using the document as a "template", create the appropriate input to ITU-R CPM07-2.

Moved: Lynch/Marks

Roger indicated that the letter was drafted by 802.16 and provided to 802.18. He encouraged all participants to support the motion, as it indicates that there is broad interest in 802 in the WRC agenda item 1.4.

Roger asked to amend the document to strike the references to 802.16 approval in the second paragraph. This was accepted without objection.

Jim Ragsdale expressed concern with 802 submitting this document, given the extensive work going on in the national bodies in this area.

Passes: 15/0/1

| 9.03 | ME | Response to ITU-R WP8A Liaison regarding IP over wireless | - | Lynch | 10 | 03:04 PM |

802.18 Motion to SEC

Agenda: 9.03
Date: 11/17/2006
Time: 3:38 p.m.

Motion by: Lynch

Seconded by: Marks

Moved:

To approve document:

18-06-0075-00-0000_IP_Liaison.doc as an 802 document,

authorizing the Chair of 802.18 to do necessary editorial and formatting changes and,

using the document as a "template", create the appropriate input to ITU-R WP-8A.

Informative: This document is part of a response to a liaison from ITU-R WP8A which was circulated to the EC on 30 October.

Approve: 15 **Do Not Approve:** 0 **Abstain:** 1 **Motion: Approved**

*** DRAFT ***
# Institute of Electrical and Electronics Engineers (IEEE)

DEVELOPMENT OF A PDN REPORT ITU-R M.[IP CHAR] "KEY TECHNICAL AND OPERATIONAL CHARACTERISTICS FOR ACCESS TECHNOLOGIES TO SUPPORT IP APPLICATIONS OVER MOBILE SYSTEMS"

This contribution was developed by IEEE Project 802, the Local and Metropolitan Area Network Standards Committee ("IEEE 802"), an international standards development committee organized under the IEEE and the IEEE Standards Association ("IEEE-SA").

The content herein was prepared by a group of technical experts in IEEE 802 and industry and was approved for submission by the IEEE 802.16 Working Group on Wireless Metropolitan Area Networks, the IEEE 802.18 Radio Regulatory Technical Advisory Group, and the IEEE 802 Executive Committee, in accordance with the IEEE 802 policies and procedures, and represents the view of IEEE 802.

The IEEE 802.16 Working Group would like to thank ITU-R Working Parties 8A and 8F for the liaison statement (in Doc. IEEE L802.16-06/030) on the development of a joint WP 8A/8F PDN Report ITU-R M.[IP CHAR] "Key technical and operational characteristics for access technologies to support IP applications over mobile systems". Having contributed technical material in the past (e.g., Documents 8A/350, 8F/671, 8F/763), the IEEE 802.16 Working Group has significant interest in the successful completion of this work. We support the decisions of ITU-R Working Parties 8A and 8F, as announced in your liaison statement, on the progression and completion of the draft report. We have also reviewed the preliminary draft new report and we agree that it is stable and complete; therefore, it should be proposed for final approval.

IEEE 802.16 Working Group looks forward to continue cooperating with ITU-R Working Parties 8A and 8F on other projects.

_____

Moved: To approve document 18-06-0075-00-0000_IP_Liaison.doc as an 802 document, authorizing the Chair of 802.18 to do necessary editorial and formatting changes and, using the document as a "template", create the appropriate input to ITU-R WP-8A.

Moved: Lynch/Marks

Passes: 15/0/1

| 9.04 | ME | Contribution to ITU-R WP8F to modify M.1457 | - | Lynch | 10 | 03:06 PM |

802.18 Motion to SEC	**Agenda:** 9.04 **Date:** 11/17/2006 **Time:** 3:48 p.m.

Motion by: Lynch   **Seconded by:** Marks

Moved:

To approve document

18-06-0076-00-0000_M1457.doc as an 802 document, authorizing

the Chair of 802.18 to do necessary editorial and formatting changes and, using the

document as a "template", create the appropriate input to ITU-R WP-8F.

Informative: This document begins the process of modifying Recommendation
M.1457 to include IP-OFDMA as an additional IMT-2000 RTT.

Approve: 16 **Do Not Approve:** 0 **Abstain:** 0 **Motion: Approved**

2006-11-15

INTERNATIONAL TELECOMMUNICATION UNION

**RADIOCOMMUNICATION
STUDY GROUPS**

18-06-0076-00-0000_M1457.doc
*** DRAFT ***

**Document 8F/IEEE-1-E
14 November 2006
English only**

Received: 14 November 2006

Subject: Question ITU-R 229-1/8

TECHNOLOGY

*** DRAFT ***
Institute of Electrical and Electronics Engineers (IEEE)

PROPOSED NEW IMT-2000 TERRESTRIAL RADIO INTERFACE INTENDED FOR INCLUSION IN RECOMMENDATION ITU-R M.1457

This contribution was developed by IEEE Project 802, the Local and Metropolitan Area Network Standards Committee ("IEEE 802"), an international standards development committee organized under the IEEE and the IEEE Standards Association ("IEEE-SA").

The content herein was prepared by a group of technical experts in IEEE 802 and industry and was approved for submission by the IEEE 802.16 Working Group on Wireless Metropolitan Area Networks, the IEEE 802.18 Radio Regulatory Technical Advisory Group, and the IEEE 802 Executive Committee, in accordance with the IEEE 802 policies and procedures, and represents the view of IEEE 802.

IEEE notes that WP 8F intends to produce Revision 7 of Rec. ITU-R M.1457 by its meeting #22 - Japan, 23-31 May 2007 - and submit it to Study Group 8 in June 2007. Therefore, based on the WP 8F work plan, IEEE makes this proposal for the addition of a sixth terrestrial IMT-2000 radio interface in the draft Revision to Recommendation ITU-R M.1457-6.

Attachments 1-3 contain the details of the proposal, according to the requirements in Circular Letters 8/LCCE/95 and 8/LCCE/47. Attachment 1 provides the required cover sheet. Attachment 2 proposes edits to M.1457 in line with this submission. Attachment 3 provides the information requested in the RTT description template. It should be noted that Attachment 3 does not contain all the information required, since it is expected that other organizations will provide the complementary material, including the evaluation. If further information is required, please let us know and we will provide it for the May 2007 meeting of WP 8F.

Proposal

IEEE herewith proposes a new terrestrial radio interface for inclusion in the draft revision to Recommendation ITU-R M.1457-6.

Attachments:
1. Cover sheet
2. Proposed Edits to M.1457
3. Description template A1 and A2 only:
A1.1   Test environment support
A1.2   Technical parameters

Attachment 1

Cover Sheet for Submission of proposed radio transmission technologies for IMT-2000 to ITU

(ATTACHMENT 2 of Circular-letter 8/LCCE/47)

The information listed below will be used for cataloguing radio transmission technologies for IMT-2000 by the ITU and will be posted electronically.

This cover sheet (and additional information, if applicable) should be attached when an evaluation group submits a proposal on radio transmission technologies for IMT-2000.

1. Proponent

a) Name of proponent: IEEE 802.16 Working Group on Broadband Wireless Access

b) Proponent category:

ITU-R membership: Yes _x_ No ___

Regional/National standards body: Yes _x_ (Name: IEEE)   No ___

Industry group: Yes __ (Name: _____)No _x_

Other: (Name:_____)   No _x_

c) Contact point

Name: Roger B. Marks
Organization: NextWave Broadband, Inc.
Address:
Tel: +1 303 725 4626
Fax: none
Email: r.b.marks@ieee.org

2. Proposal identification

a) Name of the proposed RTT   IP-OFDMA

b) Status of proposal:

Revision   ___ (former proposed RTTs name:_____)

New proposal   _x_

3. Proposed RTT(s) service environment (check as many as appropriate)

Indoor   _x_   Outdoor to indoor pedestrian _x_

Vehicular   _x_   Satellite ___

4. Attachments

Technology template for each test environment (partial)

Requirements and objectives template ___

IPR statement ___

Other: Proposed edits to M.1457

(any additional inputs which the proponent may consider relevant to the evaluation) ___

5. Has the proposal already been submitted to an evaluation group registered with ITU?

Yes ___

(Name of evaluation group: _____, Date of submission:_____)

No _x_

6. Other information

Name of person submitting form: _Michael Lynch_

Date: _24 November 2006_

Attachment 2

Proposed edits to M.1457

Baseline document for the proposed edits: Draft revision of Recommendation ITU-R M.1457-5 (Doc. 8/BL/35), Administrative Circular CAR/218.

1 Introduction *[no edits]*

2 Scope *[no edits]*

3 Related Recommendations

[add at the end:]

These existing Recommendations are not part of IMT-2000 but are relevant to this particular Recommendation:

Recommendation ITU-R F.1763: Radio interface standards for broadband wireless access systems in the fixed service operating below 66 GHz

Draft New Recommendation ITU-R M.[8A/BWA]: Radio interface standards for broadband wireless access systems, including mobile and nomadic applications, in the mobile service operating below 6 GHz

4 Considerations

4.1 Radio interfaces for IMT-2000

[edit as shown below:]

IMT-2000 consists of both terrestrial component and satellite component radio interfaces. All of the radio interfaces for IMT-2000 both terrestrial and satellite are fully encompassed by this Recommendation. In particular, the terrestrial radio interfaces are fully defined by information supplied within this Recommendation and by information incorporated by reference to external materials. The satellite radio interfaces are fully defined by information supplied with this Recommendation.

Recommendation ITU-R M.1455 lists the original key characteristics of all radio interface for the terrestrial component of IMT-2000. The organization of terrestrial radio interfaces within that Recommendation ~~continues~~ follows the philosophy that IMT-2000 should comprise a single terrestrial standard encompassing ~~two~~ three high-level groupings: code division multiple access (CDMA), time division multiple access (TDMA), orthogonal frequency division multiple access (OFDMA), or a combination thereof. The CDMA grouping accommodates frequency division duplex (FDD) direct spread, FDD multi-carrier and time division duplex (TDD). The TDMA grouping accommodates FDD and TDD, single carrier and multi-carrier. The OFDMA radio interface accommodates TDD. These groupings satisfy the needs expressed by the global community.

Recommendation ITU-R M.1455 also lists the key characteristics of six radio interfaces for the satellite component of IMT-2000. As highlighted in that Recommendation, due to the constraints on

satellite system design and deployment, several satellite radio interfaces will be required for IMT-2000 (see Recommendation ITU-R M.1167 for further considerations).

A satellite system is severely resource limited (e.g. power and spectrum limited), its radio interfaces are therefore specified primarily based on a whole system optimization process, driven by the market needs and business objectives. It is generally not technically feasible or viable from a business point-of-view to have a radio interface common to satellite and terrestrial IMT-2000 components. Nevertheless, it is desirable to achieve as much commonality as possible with the terrestrial component when designing and developing an IMT-2000 satellite system.

The strong dependency between technical design and business objectives of an IMT-2000 satellite system requires a large scope of flexibility in the satellite radio interface specifications. Future modifications and updates of these specifications may nevertheless be needed in order to adapt to changes in market demands, business objectives, technology developments, and operational needs, as well as to maximize the commonality with terrestrial IMT-2000 systems as appropriate.

The radio interfaces for the terrestrial and satellite components are described in detail in § 5 and 6, respectively.

4.2 Incorporation of externally developed specification material *[no edits]*

4.2 Satellite component interfaces *[no edits]*

5 Recommendations (terrestrial component)

[edit as shown below:]

The Radiocommunication Assembly recommends that the radio interfaces given in § 5.1 to 5.~~5~~ 6 should be those of the terrestrial component of IMT-2000.

The organization of terrestrial radio interfaces within this Recommendation ~~continues~~ follows the philosophy that IMT-2000 should comprise a single terrestrial standard encompassing ~~two~~ three high-level groupings: CDMA, TDMA, OFDMA, or a combination thereof. The CDMA grouping accommodates FDD direct spread, FDD multi-carrier and TDD. The TDMA grouping accommodates FDD and TDD, single carrier and multi-carrier. The OFDMA grouping includes the IP-OFDMA radio interface. These groupings satisfy the needs expressed by the global community.

The terrestrial radio interface sections are identified as:

– IMT-2000 CDMA Direct Spread

– IMT-2000 CDMA Multi-Carrier

– IMT-2000 CDMA TDD

– IMT-2000 TDMA Single-Carrier

– IMT-2000 FDMA/TDMA

– IMT-2000 IP-OFDMA.

An overview of each radio interface is provided in § 5.1.1, 5.2.1, 5.3.1, 5.4.1, ~~and~~ 5.5.1, and 5.6.1.

The detailed information provided and/or referenced in § 5.1.2, 5.2.2, 5.3.2, 5.4.2, ~~and~~ 5.5.2<u>. and 5.6.2</u> is recommended as the complete definition of the radio interfaces of the terrestrial component of IMT-2000.

5.6 IMT-2000 IP-OFDMA *[new subclause]*

5.6.1 Overview of the radio interface

5.6.1.1 Introduction

The IMT-2000 radio interface specification described in this subclause is designated as IP-OFDMA, for Broadband Wireless – Orthogonal Frequency Division Multiple Access. The core standards specifying IP-OFDMA are overseen and published by the IEEE Standards Association (IEEE-SA) of the global Institute of Electrical and Electronics Engineers (IEEE). The IEEE is a "recognized organization" per Note 1 of § 4.2 and is a Sector Member of ITU-R and ITU-T in the category CV231 ("Regional and other International Organizations.") The relevant IEEE standard, designated as IEEE Std 802.16, is developed and maintained by the IEEE 802.16 Working Group on Broadband Wireless Access.

An earlier and more limited version of IEEE Standard 802.16, specified for fixed services only, is the basis of ITU-R Rec. F.1763 ("Radio interface standards for broadband wireless access systems in the fixed service operating below 66 GHz"). The version as enhanced (by the amendment IEEE Std 802.16e) for the mobile service is recommended in [Draft] Recommendation ITU-R M.[8A/BWA]. Both of these ITU-R Recommendations also reference the ETSI HiperMAN standards (ETSI TS 102 177 v1.3.2, ETSI TS 102 178 v1.3.2, and ETSI TS 102 210 v1.2.1), which are fully harmonized with IEEE Standard 802.16.

The radio access network specified in IEEE Standard 802.16 is flexible, for use in a wide variety of applications, operating frequencies, and regulatory environments. IEEE 802.16 includes multiple physical layer specifications, one of which is known as WirelessMAN-OFDMA. The IP-OFDMA specification in this Recommendation is a special case of WirelessMAN-OFDMA specifying a particular interoperable radio interface.

The IP-OFDMA radio interface comprises the two lowest network layers – the physical layer (PHY) and the data link control layer (DLC). The lower element of the DLC is the medium access control layer (MAC); the higher element in the DLC is the logical link control layer (LLC). The PHY is based on orthogonal frequency division multiple access (OFDMA) suitable for use in either a 5 MHz or a 10 MHz channel allocation. The MAC is based a connection-oriented protocol designed for use in a point-to-multipoint configuration. It is designed to carry a wide range of packet-switched (typically IP-based) services while permitting fine and instantaneous control of resource allocation to allow full carrier-class Quality of Service (QoS) differentiation. This allows for support of a differentiated services network simultaneously carrying multiple multimedia services, including multimedia broadcast and multicast services, with varying demands.

IP-OFDMA is specified and suitable for all IMT-2000 frequency bands. Although the WirelessMAN-OFDMA specification includes both TDD and FDD alternatives, IP-OFDMA as defined here operates only in TDD mode.

5.6.1.2 Radio access network architecture

The IP-OFDMA radio interface is designed to carry packet-based traffic, including IP. It is flexible enough to support a variety of higher-layer network architectures for fixed, nomadic, or fully mobile use, with handover support. It can readily support functionality suitable for generic data as well as time-critical voice and multimedia services, broadcast and multicast services, and mandated regulatory services.

The IP-OFDMA radio interface standard specifies Layers 1 and 2; the specification of the higher network layers is not included. It offers the advantage of flexibility and openness at the interface

between Layers 2 and 3 and it supports a variety of network infrastructures. The radio interface is compatible with the network architectures defined in ITU-T Recommendation Q.1701. In particular, a network architecture design to make optimum use of IEEE Standard 802.16 and the IP-OFDMA radio interface is specified in the "Mobile WiMAX End-to-End System Architecture", available from the WiMAX Forum[1].

The IP-OFDMA protocol layering is illustrated in Fig. 1. The core radio interface is defined in the data/control plane. Layer 1 comprises the PHY, which interfaces with the MAC at Layer 2 through the PHY service access point (SAP). The MAC includes three separate sublayers. The lowest of these is the security sublayer, which provides security mechanisms providing authentication, encryption, and key exchange for data privacy and to limit service to authorized use. Above the security sublayer is the core MAC functionality, known as the MAC Common Part Sublayer (MAC CPS). This interfaces, via the MAC SAP, with the Service-Specific Convergence Sublayer (CS), which provides an interface to the IP network via the CS SAP.

FIGURE 1

IP-OFDMA protocol layering, showing service access points (SAPs)
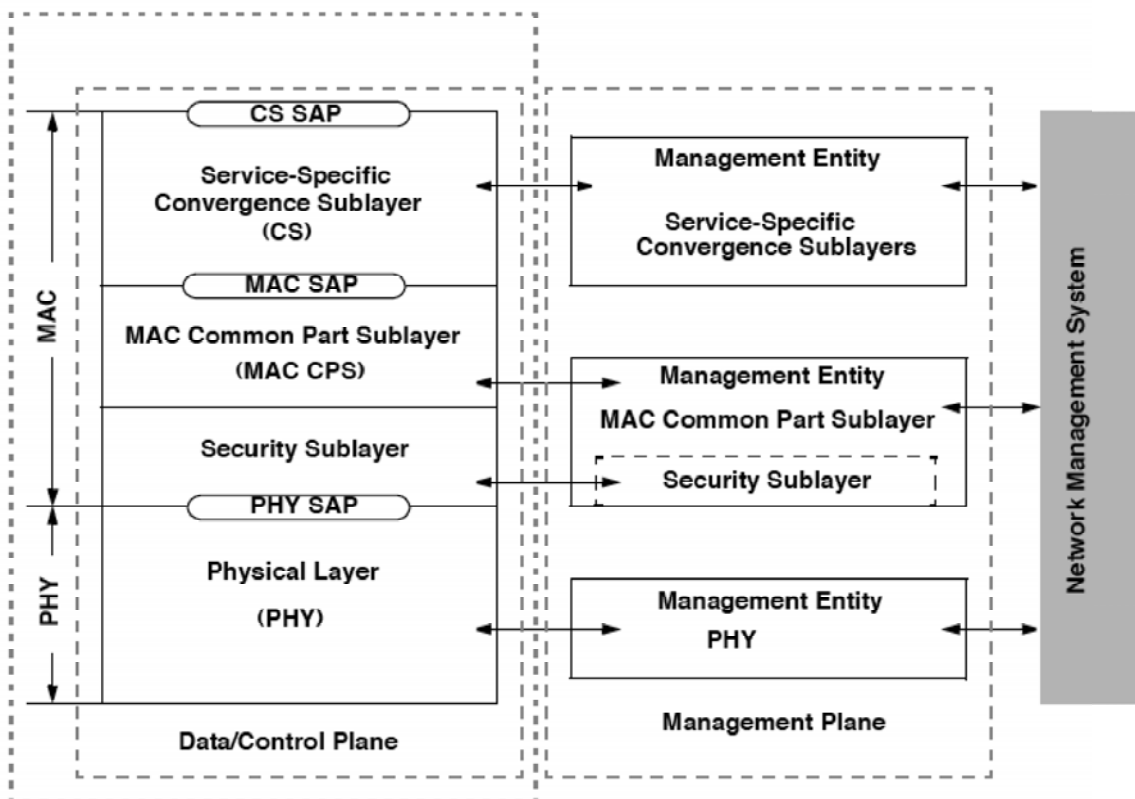
The IP-OFDMA MAC is connection-oriented. Each service, including inherently connectionless services, is mapped to a connection. Various mechanisms, known as scheduling services, are available for the SS to communicate to the BS the resource requirements of its connections. Each connection is assigned a specific scheduling service. The BS is required to manage a variety of simultaneous connections with disparate QoS requirements.

---

[1] http://www.wimaxforum.org/technology/documents/WiMAX_End_to_End_Network_Systems_Architecture.zip.

5.6.1.2.1 BS and SS Functionality

The IP-OFDMA system architecture consists of two logical entities, the base station (BS) and the subscriber station (SS). The basic architectural assumption of IP-OFDMA is of a base station (BS) communicating in point-to-multipoint fashion with a number of fixed or mobile subscriber stations (SSs). The BS is connected to an IP-based backhaul network. It controls and allocates the resources in spectrum and time. Transmissions on the downlink (BS to SS) are divided in both time and frequency (using the multiple subcarriers provide by OFDMA) for assigning communications to individual SSs. Transmissions on the uplink (from SS to BS) take place according to the schedule and in the subchannels assigned by the BS.

In brief, the BS is responsible for:

- configuring and updating basic parameters

- performing bandwidth allocation for DL (per connection) and UL traffic (per SS) and performing centralized QoS scheduling, based on the QoS/service parameters and the active resource requests from the SS

- communicating to all SSs, through the maps, the schedule of each frame and supporting other data and management broadcast and multicast services

- Transmitting/receiving traffic data and control information as MAC protocol data units (PDUs)

- Performing connection admission control and other connection management functions

- Providing other SS support services such as ranging, clock synchronization, power control, and handover.

The SS is responsible for:

- Identifying the BS, obtaining MAC parameters, and joining the network

- Establishing basic connectivity, setting up additional data and management connections, and negotiating any optional parameters as needed

- Generating resource requests for connections that require them, based on the connection profiles and traffic

- Receiving broadcast/multicast PDUs and unicast PDUs and forwarding them appropriately

- Making local scheduling decisions based on the current demand and history of resource requests/grants

- Transmitting only when instructed by the BS to do so or the SS has some information that qualifies for transmission in one of the allowed contention slots

- Unless in sleep mode, receiving all schedule and channel information broadcast by the BS and obeying all medium access rules

- Performing initial ranging, maintenance ranging, power control, and other housekeeping functions

Fig. 1 is limited to describing a system including a BS and the SSs with which it communicates. However, the IP-OFDMA radio interface also provides specifications to allow handover of an SS

from one BS to another. Such handover would typically occur as a mobile device moves toward an adjacent cell. However, it might also occur due to system-wide efforts at load balancing.

5.6.1.3 Layer 1: Physical Layer (PHY)

The IP-OFDMA radio interface is a special case of the WirelessMAN-OFDMA air interface specified in § 8.4 of IEEE Standard 802.16. It uses orthogonal frequency-division multiple access (OFDMA), which is an extension of orthogonal frequency-division multiplexing (OFDM).

5.6.1.3.1 OFDMA Technology Overview

OFDM divides the channel by frequency into orthogonal subcarriers. Data to be transmitted is divided into parallel streams of reduced data rate (and therefore longer symbol duration) and each stream is modulated and transmitted on a separate subcarrier. The lengthened symbol duration improves the robustness of OFDM to delay spread. Furthermore, the introduction of a cyclic prefix (CP) eliminates intersymbol interference if the CP duration is longer than the channel delay spread.

In a typical OFDM implementation, all of the transmitter's subcarriers are, at any given time, addressed to a single receiver; multiple access is provided solely by TDMA time slotting. OFDMA, however, divides the subcarrier set into subsets, known as subchannels. Each subchannel can address a different receiver at any given time. In the downlink, each subchannel may be intended for a different receiver or group of receivers. In the uplink, multiple SSs may transmit simultaneously as long as they are assigned different subchannels.
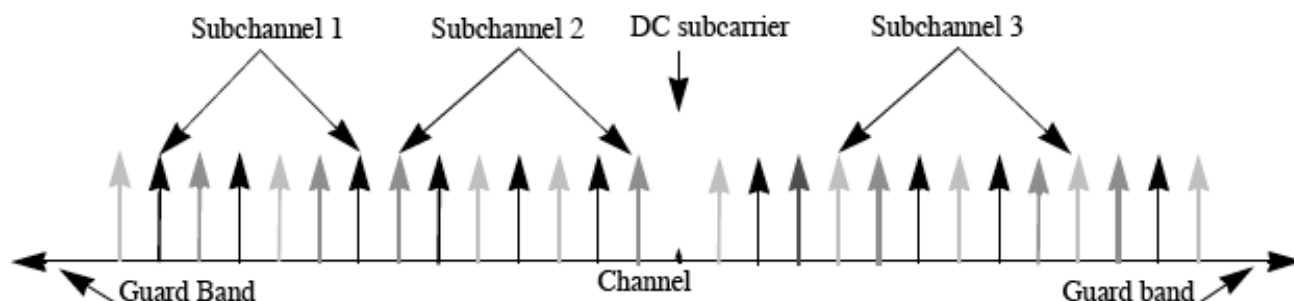
Subcarriers are used for three purposes:

— Data transmission

— Pilot transmission, for various estimation purposes

— Null transmission, for guard bands and at DC

The concept is illustrated in Fig. 2. As indicated, the subcarriers forming one subchannel need not be adjacent.

FIGURE 2

OFDMA frequency description, schematically showing three subchannels

Subchannelization is a multiple access technique. It provides OFDMA systems increased scheduling flexibility and a number of performance advantages, including enhanced scalability and advanced antenna array processing capabilities.

5.6.1.3.2 IP-OFDMA Physical Layer Details

The IP-OFDMA PHY utilizes OFDMA with either 512 subcarriers in a 5 MHz channel or 1024 subcarriers in a 10 MHz channel. The primitive PHY parameters are listed in Table 1.

TABLE 1

IP-OFDMA Primitive PHY Parameters

FFT Size (N_{FFT})	512	1024
System Channel Bandwidth (BW)	5 MHz	10 MHz
Sampling Frequency (F_s)	5.6 MHz	11.2 MHz
Subcarrier Frequency Spacing ($\Delta f = F_s / N_{FFT}$)	10.9375 kHz	
Useful Symbol Time ($T_b = 1 / \Delta f$)	~91.43 µs	
Guard (CP) Time ($T_g = T_b / 8$)	~11.43 µs	
OFDMA Symbol Duration ($T_s = T_b + T_g$)	~102.9 µs	
Frame Duration	5 ms	
OFDMA Symbols per frame	48	

5.6.1.3.3 Framing and Subchannelization

IP-OFDMA PHY utilizes a 5 ms TDD frame. The frame includes first downlink and then uplink subframes, divided by a time gaps to allow the transceivers to switch between receive and transmit. The two gaps (TTG and RTG) are both included in the 5 ms duration. The asymmetry between the uplink and downlink subframe durations is configurable on a systemwide basis.

The frame structure is illustrated schematically in Fig. 3.

FIGURE 3

Schematic illustration of frame structure
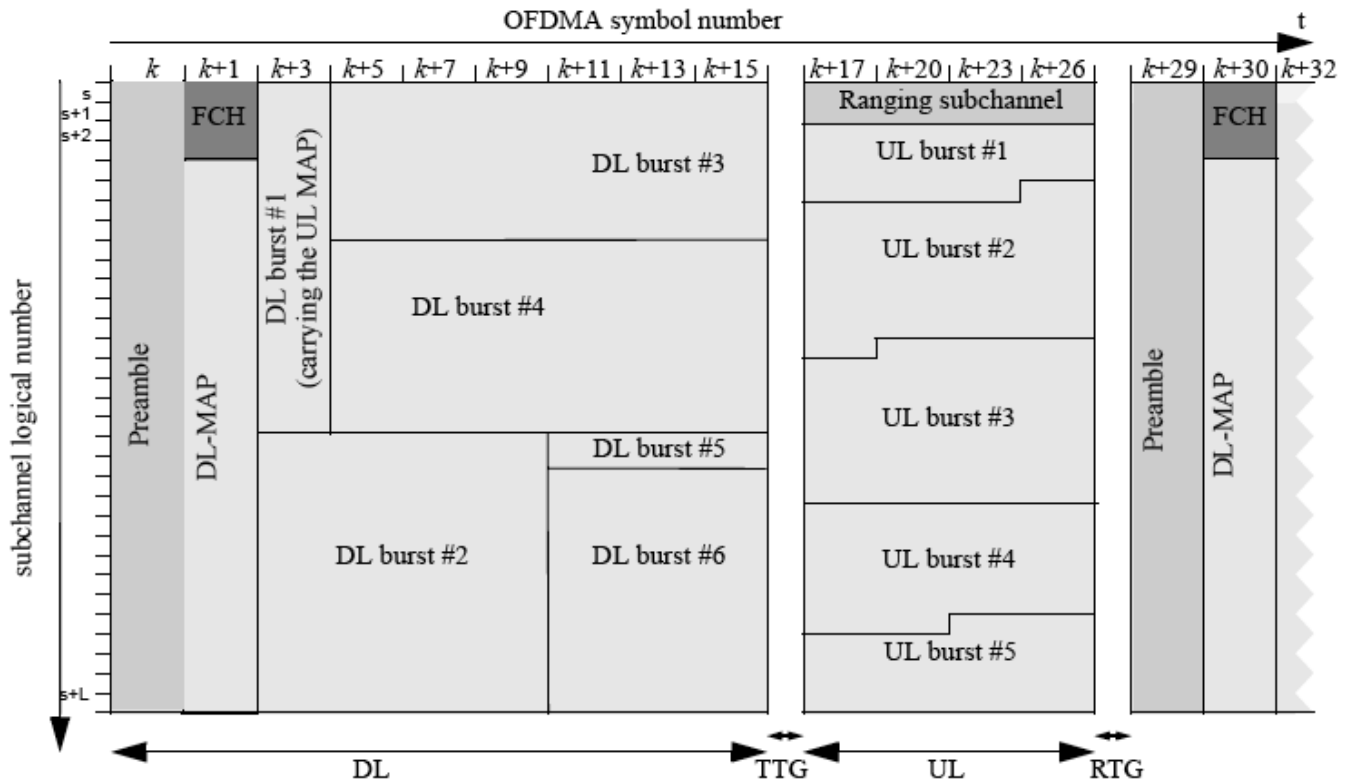
The frame is shown in two dimensions. The horizontal dimension represents time, which maps directly into the OFDM symbol sequence. The vertical dimension represents the list of available logical subchannels. This maps into frequency, although only indirectly, since the subcarriers in a given logical channel are not arranged in sequential order.

The frame begins with a preamble for synchronization. The following OFDM symbol contains the frame control header (FCH) and the downlink map (DL_MAP), transmitted simultaneously on different subchannels. The FCH includes frame configuration data. The DL-MAP indicates the use of the DL subframe, in time and subchannel allocation. The UL-MAP that follows provides similar information for the uplink, though the allocation is relevant not to the current frame but to a subsequent one, in order to allow the SS time to prepare an appropriate transmission er in accordance with the UL-MAP.

The construction of the subchannel from individual subcarriers is called the permutation. IP-OFDMA provides a number of possible permutations. The optimal choice depends on the deployment scenario and instantaneous circumstances; therefore, the permutation may differ from one ODFM symbol to the next. The specification supports a sequence of permutation zones in the frame, so that different subscriber stations can be served with different permutations.

5.6.1.3.4 Adaptive Modulation and Coding

IP-OFDMA supports a variety of modulation and coding alternatives. The control is adaptive and dynamic, so that the BS may select different options for communicating with different SSs and may order the SS to alter the choices in order to optimize the tradeoff of robustness versus capacity.

The BS selects the modulation from among QPSK, 16QAM, and 64QAM. For forward error correction, Convolutional Coding and Convolutional Turbo Coding with variable code rate and

repetition coding are specified. Block Turbo Code and Low Density Parity Check Code (LDPC) are supported as optional features.

Data randomization is specified in order to reduce the peak-to-average power ratio. Interleaving is specified to increase frequency diversity.

5.6.1.3.5 Fast feedback and Hybrid ARQ

IP-OFDMA specifies an uplink fast-feedback channel to provide time-critical PHY parameter data to the BS. Parameters include signal-to-noise ratio, MIMO coefficients, and MIMO configuration parameters.

Additional UL acknowledgment channels may be allocated by the BS to support hybrid automatic repeat request (HARQ).

5.6.1.4 Layer 2: Medium Access Control Layer (MAC)

The medium access control layer (MAC) functionality controls access to the medium, which in this case is the radio spectrum. The MAC is also responsible for basic functions such as data encapsulation, fragmentation, radio resource control, radio link control, error detection and retransmission, QoS, security, sleep mode, and handover.

Although the IP-OFDMA radio interface is designed primarily to support a connectionless network layer, such as IP, the IP-OFDMA MAC is connection-oriented. All services, including inherently connectionless services, are mapped to a connection. The connection provides a mechanism for requesting resource allocation, associating QoS and traffic parameters, transporting and routing data, and all other actions associated with the terms of the service. A 16-bit connection identifier (CID) is assigned to designate each connection. The MAC uses the CID to identify all information exchanged between BS and SS, including management and broadcast data. The CID provides a simple and direct way to differentiate traffic. All MAC-level QoS functions, such as the classifier and QoS scheduler, use the CID to identify and differentiate traffic in order to maintain the service level and fairness among connections.

5.6.1.4.1 Convergence Sublayer (CS)

At the transmitter side, the Convergence Sublayer is responsible for transforming packet-based protocol data units from the higher layer protocol into MAC service data unit (SDUs), possibly using payload header suppression (PHS) to suppress some of the packet headers and reduce the burden of carrying them over the air. The CS then classifies each MAC SDU, assigning it to a particular connection, and passes it to the MAC CPS. At the receiver side, the CS is responsible for the inverse operations, including reassembly of packets into their original format with complete headers.

The CS contains a classification function that determines on which connection a particular packet shall be carried and which PHS rule applies for that packet. The operation is illustrated in Figure 4, which shows the downlink case. Classifier parameters are configured during dynamic service signaling.

FIGURE 4

Classification and CID mapping (downlink)
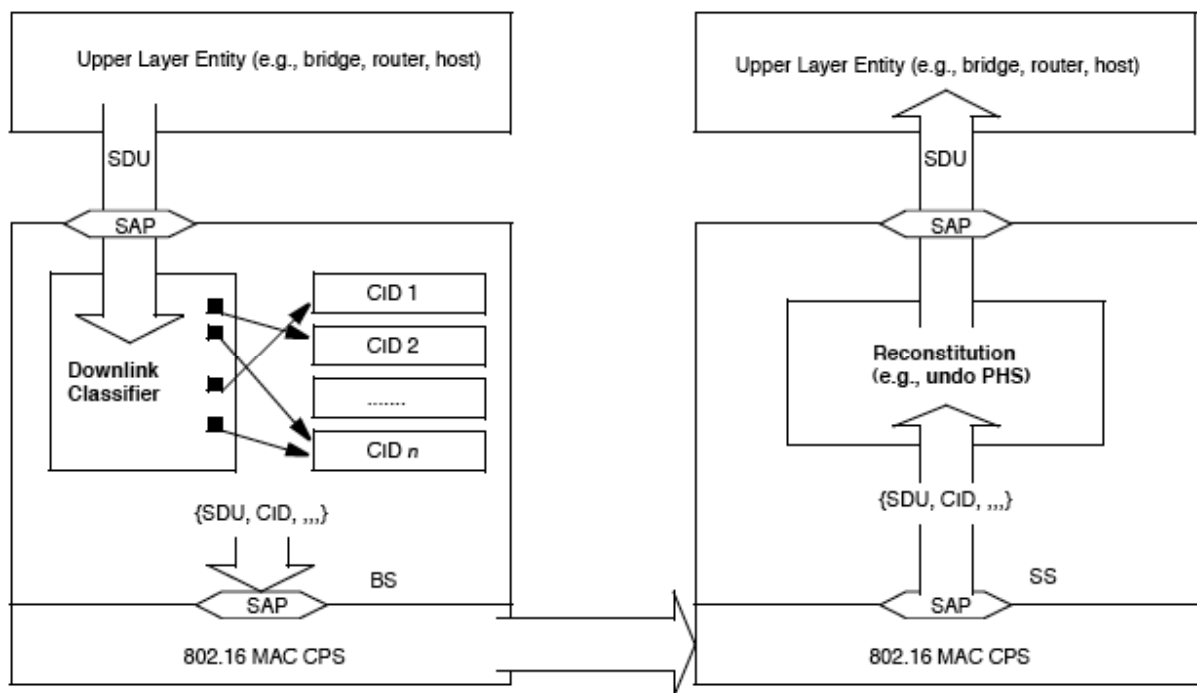
5.6.1.4.2 MAC Common Part Sublayer (CPS)

The MAC CPS is responsible for performing the core MAC functions. It receives MAC service data units (SDUs) from the CS and encapsulates them in its native MAC PDU format for transmission over the PHY. The MAC CPS also manages the transport connections and QoS, controlling access to the radio spectrum by the SSs.

Encapsulation may be as simple as adding necessary information to the SDU. However, the MAC CPS also has the possibility of dividing a single SDU into multiple fragments before transmission, for reassembly at the receiving MAC CPS. Fragmentation allows more efficient support of higher layer protocols with variable-size SDUs, given that the underlying PHY used a fixed frame size. The MAC CPS also has the complementary option to pack multiple higher layer payloads into a single PDU. Since MAC encapsulation introduces some fixed overhead per PDU, this can improve the efficiency of carrying small SDUs.

A MAC PDU consists of a six-byte MAC header, a variable-length payload, and an optional cyclic redundancy check. Four header formats, distinguished by the HT field, are defined. The generic header is shown in Fig. 5.

FIGURE 5

Generic MAC header format
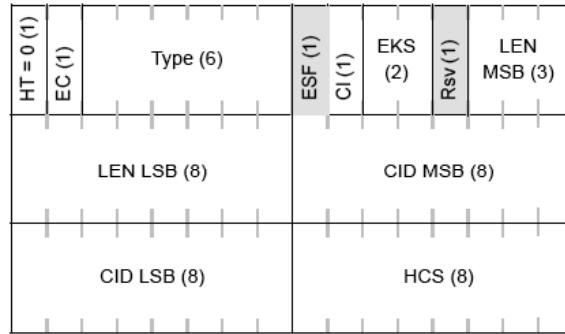
MAC PDUs generally contain either MAC management messages or convergence sublayer data. However, one header type is reserved for uplink PDUs that contain no payload, conveying their information (such as a resource request) in the content of the header itself. Additional subheaders are also defined. For example, the SS can use the grant management subheader to convey bandwidth management needs to the BS. The fragmentation subheader contains information that indicates the presence and orientation in the payload of any fragments of SDUs. The packing subheader is used to indicate the packing of multiple SDUs into a single PDU. The grant management and fragmentation subheaders may be inserted in MAC PDUs immediately following the generic header if so indicated by the Type field. The packing subheader may be inserted before each MAC SDU if so indicated by the Type field.

5.6.1.4.2.1 Uplink scheduling services

The scheduling algorithm is not specified in the standard but is critical to efficient multimedia delivery when the BS supports a variety of disparate connections. The BS is presumed capable of scheduling its own downlink transmissions based on QoS information developed in the CS. Uplink scheduling is more complicated because, while resource allocation is under the control of the BS, only the SSs know in real time their immediate transmission demands.

In order to allow efficient QoS-based scheduling, a number of uplink scheduling services are defined, with a specific service assigned to each connection. The QoS categories are summarized in Table 2.

TABLE 2

IP-OFDMA Uplink scheduling services

QoS Category	Typical Applications	QoS Specifications
UGS Unsolicited Grant Service	VoIP	• Maximum Sustained Rate • Maximum Latency Tolerance • Jitter Tolerance
rtPS Real-Time Packet Service	Streaming Audio or Video	• Minimum Reserved Rate • Maximum Sustained Rate • Maximum Latency Tolerance • Traffic Priority

QoS Category	Typical Applications	QoS Specifications
ErtPS Extended Real-Time Packet Service	Voice with Activity Detection (VoIP)	• Minimum Reserved Rate • Maximum Sustained Rate • Maximum Latency Tolerance • Jitter Tolerance • Traffic Priority
nrtPS Non-Real-Time Packet Service	File Transfer Protocol (FTP)	• Minimum Reserved Rate • Maximum Sustained Rate • Traffic Priority
BE Best-Effort Service	Data Transfer, Web Browsing, etc.	• Maximum Sustained Rate • Traffic Priority

Resource requests, for transmission slots, are initiated by a specific connection at the SS. However, grants are allocated not to the connection but to the supporting SS. The SS is required to manage the slots allocated to it, assigning them to the multiple connections it supports. By distributing the management and permitting local resource allocation, over-the-air negotiation is minimized and rescheduling decisions are made more quickly and effectively.

5.6.1.4.2.2 Radio Link Control

As noted in Section 5.6.1.3.2, IP-OFDMA supports adaptive modulation and coding. The MAC CPS is responsible for radio link control. This involves managing the modulation and coding selection at the SS through interactive message exchange based on monitoring the ratio of carrier signal to noise and interference.

5.6.1.4.2.3 Energy conservation in the mobile SS

The IP-OFDMA MAC CPS controls two energy-saving modes –Sleep Mode and Idle Mode – to conserve energy in the mobile SS. During Sleep Mode, the SS observes pre-negotiated periods without transmission. Idle Mode is intended as a mechanism to allow the SS to become periodically available for DL broadcast messaging without registration at a specific BS as the SS traverses an air link environment populated by multiple BSs, typically over a large geographic area.

5.6.1.4.2.4 Handover

The IP-OFDMA MAC CPS supports three handover methods – Hard Handover (HHO), Fast Base Station Switching (FBSS) and Macro Diversity Handover (MDHO).

5.6.1.4.3 Security sublayer

The security sublayer, which operates between the PHY and the MAC CPS, is responsible for providing strong encryption, decryption, mutual authentication, and secure key exchange. Security is maintained as a separate sublayer so that it may be upgraded as necessary. Also, the key functionality internal to the sublayer is also modular, to provide easy maintenance upgrade. For example, the protocol provides a means of identifying one from a set of supported cryptographic suites, each of which specifies data encryption and authentication algorithms, and the rules for applying those algorithms to a MAC PDU payload.

The IP-OFDMA security sublayer utilizes a security association (SA), which is a set of information shared between the transmitter and receiver. Each SA contains information on the cryptographic suite used for that SA and may also contain keys, such as the traffic encryption keys (TEKs), along with the key lifetimes and other associated state information. Prior to transmission, the MAC PDUs are mapped to an SA. The receiver uses the CID to determine the correct SA and applies the corresponding processing to the received PDU.

Device and user authentication use the IETF EAP protocol. IP-OFDMA encrypts user data using the AES-CCM cryptographic suite, with the Advanced Encryption Standard (AES) algorithm in the counter with CBC-MAC (CCM) mode, with 128-bit keys. The keys are generated using EAP authentication and managed by a Traffic Encryption Key (TEK) state machine. MAC management messages are AES encrypted and authenticated. A three-way handshake scheme is supported to optimize re-authentication during handover.

5.6.1.5 Smart antennas

IP-OFDMA specifies the use of smart antenna technologies, including antenna beamforming, space-time coding, and spatial multiplexing, which increase the cell size, data throughput, and spectral efficiency. These techniques reduce the sensitivity of the system to fading and multipath transmission effects.

5.6.2 Detailed specification of the radio interface

The standards contained in this section are derived from IEEE Standard 802.16. The global core specifications for IMT-2000 IP-OFDMA are contained at http://ties.itu.int/u/itu-r/ede/rsg8/wp8f/wp8f-tech/GCSrev5/5-6/.

5.6.2.1 IEEE Standard 802.16

IEEE Standard 802.16 describes the IP-OFDMA radio interface.

SDO	Document No.	Status	Issued date	Location
IEEE	802.16-2004 http://standards.ieee.org/getieee802/802.16.html	Published	01/10/2004	
IEEE	802.16e-2005 & Cor1 http://standards.ieee.org/getieee802/802.16.html	Published	28/02/2006	
IEEE	802.16f-2005 http://standards.ieee.org/getieee802/802.16.html	Published	01/12/2005	

6 Recommendations (satellite component) *[no edits]*

7 Recommendations on unwanted emission limits *[no edits]*

Attachment 3

Description Template: A1 and A2

A1.1	Test environment support	
A1.1.1	In what test environments will the RTT operate?	- indoor - outdoor to indoor and pedestrian, - vehicular - mixed
A1.1.2	If the RTT supports more than one test environment, what test environment does this technology description template address?	One template for all
A1.1.3	Does the RTT include any features in support of FWA application? Provide detail about the impact of those features on the technical parameters provided in this template, stating whether the technical parameters provided apply for mobile as well as for FWA applications.	Yes (cf. Recommendation ITU-R F.1763). Flexible mixed fixed and mobile design. - QoS - Dynamic bandwidth allocation - Continuous and variable bit rate support - Support of nomadic operation - Support of fixed wireless voice, image, video and data services.
A1.2	Technical parameters NOTE 1 – Parameters for both forward link and reverse link should be described separately, if necessary.	
A1.2.1	What is the minimum frequency band required to deploy the system (MHz)?	5 MHz or 10 MHz (10 MHz provides better performance).
A1.2.2	What is the duplex method: TDD or FDD?	TDD
A1.2.2.1	What is the minimum up/down frequency separation for FDD?	N/A
A1.2.2.2	What is requirement of transmit/receive isolation? Does the proposal require a duplexer in either the mobile station (MS) or BS?	Does not require a duplexer.
A1.2.3	Does the RTT allow asymmetric transmission to use the available spectrum? Characterize.	Yes. The ratio of uplink to downlink transmission can be reconfigured on a system-wide basis.
A1.2.4	What is the RF channel spacing (kHz)? In addition, does the RTT use an interleaved frequency plan? NOTE 1 – The use of the second adjacent channel instead of the adjacent channel at a neighbouring cluster cell is called "interleaved frequency planning". If a proponent is going to employ an interleaved frequency plan, the proponent should state so in § A1.2.4 and complete § A1.2.15 with the protection ratio for both the adjacent and second adjacent channel.	5000 kHz or 10000 kHz The RTT does not use an interleaved frequency plan

A1.2.5	What is the bandwidth per duplex RF channel (MHz) measured at the 3 dB down points? It is given by (bandwidth per RF channel) × (1 for TDD and 2 for FDD). Provide detail.	For 5 MHz (TDD): about 4.7 MHz, depending on the permutation used. For 10 MHz (TDD): about 9.4 MHz, depending on the permutation used.
A1.2.5.1	Does the proposal offer multiple or variable RF channel bandwidth capability? If so, are multiple bandwidths or variable bandwidths provided for the purposes of compensating the transmission medium for impairments but intended to be feature transparent to the end user?	The RTT offers variable RF channel bandwidth capability through the use of OFDMA subchannelization.
A1.2.6	What is the RF channel bit rate (kbit/s)? NOTE 1 – The maximum modulation rate of RF (after channel encoding, adding of in-band control signalling and any overhead signalling) possible to transmit carrier over an RF channel, i.e. independent of access technology and of modulation schemes.	DOWNLINK For the 10 MHz case this is the calculation: Distributed permutation of subcarriers Assumptions: 32 data symbols per frame (35 symbols in subframe, 1 symbol for preamble, 2 symbols for control information), 5 ms frame duration, 64 QAM 5/6 code rate, 30 slots for 2 symbols, 48 data tones per slot. Maximum data rate: 23040 kbit/s UPLINK Distributed permutation of subcarriers Assumptions: 18 data symbols per frame (21 symbols in UL subframe, 3 symbols for control channels), 5 ms frame duration, 16 QAM 3/4 code rate, 35 slots for 3 symbols, 48 data tones per slot. Maximum data rate: 6048 kbit/s

A1.2.7	*Frame structure*: describe the frame structure to give sufficient information such as: – frame length, – the number of time slots per frame, – guard time or the number of guard bits, – user information bit rate for each time slot, – channel bit rate (after channel coding), – channel symbol rate (after modulation), – associated control channel (ACCH) bit rate, – power control bit rate. NOTE 1 – Channel coding may include forward error correction (FEC), cyclic redundancy checking (CRC), ACCH, power control bits and guard bits. Provide detail. NOTE 2 – Describe the frame structure for forward link and reverse link, respectively. NOTE 3 – Describe the frame structure for each user information rate.	Frame length: 5 ms The number of time slots per frame: N/A The number of time symbols per frame: 48 symbols (including TTG and RTG gaps) The number of subcarriers per each symbol: 1024 FFT Resource allocation: 2 dimensional structure for frequency and time (see section 2.4 of the RTT System Description for more details) Subchannel structure: see Section 2.2 of the RTT System Description for details Ratio of DL and UL subframe: Ranging from 35 symbols: 12 symbols to 26 symbols: 21 symbols (DL:UL) TTG / RTG : 105.7 μs / 60 μs Common control overhead : 1 symbol per frame for preamble (see section 2.4 of the RTT System Description for more details) DOWNLINK (See A1.2.5.1) Distributed permutation of subcarriers The number of subcarriers per slot : 48 (data) + 8 (pilots) Guard subcarrier: 184 (including DC subcarrier) The channel bit or symbol rate is variable, depending on the number of allocated slots, and the modulation and coding rate. Power control rate: no power control Adjacent permutation of subcarriers The number of subcarriers per slot : 48 (data) + 6 (pilots) Guard subcarrier : 160 (including DC subcarrier) UPLINK Distributed permutation of subcarriers The number of subcarriers per slot : 48 (data) + 24 (pilots) Guard subcarrier : 184 (including DC subcarrier)

A1.2.8	Does the RTT use frequency hopping? If so, characterize and explain particularly the impact (e.g. improvements) on system performance.	No
A1.2.8.1	What is the hopping rate?	N/A
A1.2.8.2	What is the number of the hopping frequency sets?	N/A
A1.2.8.3	Are BSs synchronized or non-synchronized?	Synchronized in frequency and in time for TDD operation, even though frequency hopping is not used.
A1.2.9	Does the RTT use a spreading scheme?	No
A1.2.9.1	What is the chip rate (Mchip/s)? Rate at input to modulator.	N/A
A1.2.9.2	What is the processing gain? 10 log (chip rate/information rate).	N/A
A1.2.9.3	Explain the uplink and downlink code structures and provide the details about the types (e.g. personal numbering (PN) code, Walsh code) and purposes (e.g. spreading, identification, etc.) of the codes.	N/A
A1.2.10	Which access technology does the proposal use: TDMA, FDMA, CDMA, hybrid, or a new technology? In the case of CDMA, which type of CDMA is used: frequency hopping (FH) or direct sequence (DS) or hybrid? Characterize.	OFDMA
A1.2.11	What is the baseband modulation technique? If both the data modulation and spreading modulation are required, describe in detail. What is the peak to average power ratio after baseband filtering (dB)?	DOWNLINK QPSK, 16 QAM, 64 QAM for data modulation. Spreading modulation does not apply. UPLINK QPSK, 16 QAM for data modulation. Spreading modulation does not apply. PAPR is about 12 dB without any PAPR reduction scheme.
A1.2.12	What are the channel coding (error handling) rate and form for both the forward and reverse links? E.g., does the RTT adopt: – FEC or other schemes? – Unequal error protection? Provide details. – Soft decision decoding or hard decision decoding? Provide details. – Iterative decoding (e.g. turbo codes)? Provide details. – Other schemes?	Convolutional Coding and Convolutional Turbo Coding are supported Modulation schemes: QPSK, 16 QAM and 64 QAM for downlink, QPSK and 16 QAM for uplink. Coding rates: QPSK 1/2, QPSK 3/4, 16 QAM 1/2, 16 QAM 3/4, 64 QAM 1/2, 64 QAM 2/3, 64 QAM 3/4, 64 QAM 5/6. Coding repetition rates: 1x, 2x, 4x and 6x. Unequal error protection: None Soft decision decoding and iterative decoding: It is an implementation issue not covered by the description.

A1.2.13	What is the bit interleaving scheme? Provide detailed description for both uplink and downlink.	The bit interleaving scheme is the same for both uplink and downlink.
		All encoded data bits shall be interleaved by a block interleaver with a block size corresponding to the number of coded bits per the encoded block size.
A1.2.14	Describe the approach taken for the receives (MS and BS) to cope with multipath propagation effects (e.g. via equalizer, Rake receiver, etc.).	To cope with the multipath propagation effect, the cyclic prefix and 1-tap equalizer are employed. The length of cyclic prefix is 1/8 of symbol duration thus 11.4 μs.
A1.2.14.1	Describe the robustness to intersymbol interference and the specific delay spread profiles that are best or worst for the proposal.	The intersymbol interference can be removed by the use of sufficiently longer cyclic prefix than delay spread.
A1.2.14.2	Can rapidly changing delay spread profile be accommodated? Describe.	Yes, delay spread variation within the length of cyclic prefix does not cause the intersymbol interference.
A1.2.15	What is the adjacent channel protection ratio? NOTE 1 – In order to maintain robustness to adjacent channel interference, the RTT should have some receiver characteristics that can withstand higher power adjacent channel interference. Specify the maximum allowed relative level of adjacent RF channel power (dBc). Provide detail how this figure is assumed.	Min adjacent channel rejection at BER=10-6 for 3 dB degradation C/I 11 dB – 16 QAM, 3/4 coding rate 4 dB - 64 QAM, 2/3 coding rate Min non-adjacent channel rejection at BER=10-6 for 3 dB degradation C/I 30 dB – 16 QAM, 3/4 coding rate 23 dB - 64 QAM, 2/3 coding rate
A1.2.16	Power classes	Transmit power (dBm) for 16QAM 1. 18 <= Ptx,max < 21 2. 21 <= Ptx,max < 25 3. 25 <= Ptx,max < 30 4. 30 <= Ptx,max Transmit power (dBm) for QPSK 1. 20 <= Ptx,max < 23 2. 23 <= Ptx,max < 27 3. 27 <= Ptx,max < 30 4. 30 <= Ptx,max

A1.2.16.1	*Mobile terminal emitted power* : what is the radiated antenna power measured at the antenna? For terrestrial component, give (dBm). For satellite component, the mobile terminal emitted power should be given in e.i.r.p. (effective isotropic radiated power) (dBm).	See A.1.2.16
A1.2.16.1.1	What is the maximum peak power transmitted while in active or busy state?	See A.1.2.16
A1.2.16.1.2	What is the time average power transmitted while in active or busy state? Provide detailed explanation used to calculate this time average power.	See A.1.2.16
A1.2.16.2	Base station transmit power per RF carrier for terrestrial component	See A.1.2.16
A1.2.16.2.1	What is the maximum peak transmitted power per RF carrier radiated from antenna?	Not limited by RTT
A1.2.16.2.2	What is the average transmitted power per RF carrier radiated from antenna?	Not limited by RTT
A1.2.17	What is the maximum number of voice channels available per RF channel that can be supported at one BS with 1 RF channel (TDD systems) or 1 duplex RF channel pair (FDD systems), while still meeting ITU-T Recommendation G.726 performance requirements?	The maximum number of voice channels per 1 RF channel depends on the bit rate and sampling rate supported by the codecs defined in the G.726. For instance, in case of the bit rate of 16 kbps with 20 msec sampling rate, up to 256 users can be supported simultaneously by a 10 MHz RF channel, while meeting the delay requirements of VoIP. In the case of a 5 MHz channel up to 120 users can be supported.
A1.2.18	*Variable bit rate capabilities* : describe the ways the proposal is able to handle variable baseband transmission rates. For example, does the RTT use: – adaptive source and channel coding as a function of RF signal quality? – Variable data rate as a function of user application? – Variable voice/data channel utilization as a function of traffic mix requirements? Characterize how the bit rate modification is performed. In addition, what are the advantages of your system proposal associated with variable bit rate capabilities?	Variable bit rate is supported by the flexible resource allocation. By assigning the variable number of subchannels and using various modulations and coding rates frame by frame, the bit rate for each user can be variable frame by frame. Modulation and coding rate is usually defined by user's RF signal quality (CQI). For higher data rates, the bit rate information is provided to the receiver via scheduling mechanisms and associated control signalling every frame.

A1.2.18.1	What are the user information bit rates in each variable bit rate mode?	The user information bit rates are variable according to the number of subchannels assigned and modulation and coding rate used. For 10 MHz: DOWNLINK Modulation : QPSK, 16 QAM, 64 QAM Coding rate : 1/2, 2/3, 3/4, 5/6 3312 kbit/s (1/2, QPSK, (DL:UL)=(26:21) symbols) ~ 23040 kbit/s (5/6, 64 QAM, (DL:UL)=(35:12) symbols). See equation below. UPLINK Modulation : QPSK, 16 QAM Coding rate : 1/2, 3/4 1008 kbit/s (1/2, QPSK, (DL:UL)=(35:12) symbols) ~ 6048 kbit/s (3/4, 16 QAM, (DL:UL)=(26:21) symbols). See equation below. *Equation used:* PHY Data Rate=(Data sub-carriers/Symbol period) × (information bits per symbol)
A1.2.19	What kind of voice coding scheme or codec is assumed to be used in proposed RTT? If the existing specific voice coding scheme or codec is to be used, give the name of it. If a special voice coding scheme or codec (e.g. those not standardized in standardization bodies such as ITU) is indispensable for the proposed RTT, provide detail, e.g. scheme, algorithm, coding rates, coding delays and the number of stochastic code books.	Due to the IP-based characteristics of the radio interface it can utilize any speech codec.
A1.2.19.1	Does the proposal offer multiple voice coding rate capability? Provide detail.	Yes. The RTT supports flexible data rate for each user and also provide variety scheduling services. A constant bit rate is provided by UGS service, while a variable bit rate is provided by ErtPS service. See A.1.2.18, A1.2.20.1 and A1.2.20.2
A1.2.20	*Data services* : are there particular aspects of the proposed technologies which are applicable for the provision of circuit-switched, packet-switched or other data services like asymmetric data services? For each service class (A, B, C and D) a description of RTT services should be provided, at least in terms of bit rate, delay and BER/frame error rate (FER).	Yes, a wide range of data services and applications with varied QoS requirements are supported. These are summarized in Table 2 of Attachment 2 in this submission.

	NOTE 1 – See Recommendation ITU-R M.1224 for the definition of: – "circuit transfer mode", – "packet transfer mode", – "connectionless service", and for the aid of understanding "circuit switched" and "packet switched" data services. NOTE 2 – See ITU-T Recommendation I.362 for details about the service classes A, B, C and D.	
A1.2.20.1	For delay constrained, connection oriented (Class A).	The RTT provides UGS (unsolicited grant service), corresponding to the Class A. UGS is characterized as constant and low data rates and low delay data service.
A1.2.20.2	For delay constrained, connection oriented, variable bit rate (Class B).	The RTT provides rtPS (real-time polling service), corresponding to the Class B. rtPS is utilized for low to high data rate services. The RTT provides ErtPS (extended real-time polling service) as well. ErtPS is utilized for low data rate and low delay data services.
A1.2.20.3	For delay unconstrained, connection oriented (Class C).	The RTT provides nrtPS (non-real-time polling service), corresponding to the Class C. nrtPS is utilized for high data rate services.
A1.2.20.4	For delay unconstrained, connectionless (Class D).	The RTT provides BE (best effort service) corresponding to the Class D. BE is utilized for moderate data rate services.
A1.2.21	Simultaneous voice/data services: is the proposal capable of providing multiple user services simultaneously with appropriate channel capacity assignment?	Yes, multiple parallel services are supported with different QoS requirements. Each service is associated with a set of QoS parameters that quantify aspects of its behavior. These parameters are managed using the dynamic service provisions, represented by the DSA and DSC message dialog.

	NOTE 1 – The following describes the different techniques that are inherent or improve to a great extent the technology described above to be presented. Description for both BS and MS are required in attributes from § A1.2.22 through § A1.2.23.2.	
A1.2.22	*Power control characteristics* : is a power control scheme included in the proposal? Characterize the impact (e.g. improvements) of supported power control schemes on system performance.	Yes. A closed loop power control scheme and an open loop power control scheme are included. By means of these power control schemes, the interference level is reduced and the uplink system level throughput is increased.
A1.2.22.1	What is the power control step size (dB)?	Power control step size is variable ranging from 0.25 dB to 32 dB. An 8-bit signed integer in power control information element indicates the power control step size in 0.25 dB units. Normally implemented in 1 dB increments.
A1.2.22.2	What are the number of power control cycles per second?	The power control cycle of closed-loop power control is dependent on the rate of power control information element transmission, but less than 200 Hz. Due to TDD nature, the open loop power control cycle is inherently identical to the number of frames per seconds, thus 200 Hz.
A1.2.22.3	What is the power control dynamic range (dB)?	The minimum power control dynamic range is 45 dB.
A1.2.22.4	What is the minimum transmit power level with power control?	The RTT supports 45 dB under the full power assumption
A1.2.22.5	What is the residual power variation after power control when RTT is operating? Provide details about the circumstances (e.g. in terms of system characteristics, environment, deployment, MS-speed, etc.) under which this residual power variation appears and which impact it has on the system performance.	The accuracy for power level control can vary from +/-0.5 dB to +/-2 dB depending on the power control step size. +/- 0.5 dB for step size +/-1 dB +/- 1.0 dB for step size +/-2 dB +/- 1.5 dB for step size +/-3 dB +/- 2.0 dB for otherwise
A1.2.23	*Diversity combining in MS and BS* : are diversity combining schemes incorporated in the design of the RTT?	Yes.

| A1.2.23.1 | Describe the diversity techniques applied in the MS and at the BS, including micro diversity and macro diversity, characterizing the type of diversity used, for example:

– time diversity: repetition, Rake-receiver, etc.,

– space diversity: multiple sectors, multiple satellite, etc.,

– frequency diversity: FH, wideband transmission, etc.,

– code diversity: multiple PN codes, multiple FH code, etc.,

– other scheme.

Characterize the diversity combining algorithm, for example, switch diversity, maximal ratio combining, equal gain combining. Additionally, provide supporting values for the number of receivers (or demodulators) per cell per mobile user. State the dB of performance improvement introduced by the use of diversity.

For the MS: what is the minimum number of RF receivers (or demodulators) per mobile unit and what is the minimum number of antennas per mobile unit required for the purpose of diversity reception?

These numbers should be consistent to that assumed in the link budget template of Annex 2 and that assumed in the calculation of the "capacity" defined at § A1.3.1.5. | The standard supports beamforming, transmit/receive diversity and MIMO. The receiver also supports maximal ratio combining. There is no need for a Rake receiver because it is an OFDM system. |
| A1.2.23.2 | What is the degree of improvement expected (dB)? Also indicate the assumed conditions such as BER and FER. | |

A1.2.24	*Handover/automatic radio link transfer (ALT)* : do the radio transmission technologies support handover? Characterize the type of handover strategy (or strategies) which may be supported, e.g. MS assisted handover. Give explanations on potential advantages, e.g. possible choice of handover algorithms. Provide evidence whenever possible.	Yes. The RTT supports handover and also provides means for expediting handover. Each base station broadcasts the information on the list of neighboring base stations and their channel information such as the operating center frequency, preamble index and synchronization periodically. The channel information in this broadcasting is used for a mobile station to synchronize with the neighboring base station. After a mobile station monitors the signal strength of a neighboring base station and seeks suitable base station(s) for handover, the mobile station or its serving base station can initiate handover by handover request message. But only the mobile station can transmit handover indication message to the its serving base station. After transmitting handover indication message, the mobile station stops monitoring the downlink frame of its serving base station and performs network re-entry to target base station. To reduce the handover latency further, the serving base station provides the target base station with network entry information on a mobile station to be handed over the target base station. Further information is available in the IEEE 802.16 standard; Section 6.3.22 MAC layer handover procedures.
A1.2.24.1	What is the break duration (s) when a handover is executed? In this evaluation, a detailed description of the impact of the handover on the service performance should also be given. Explain how the estimate was derived.	

A1.2.24.2	For the proposed RTT, can handover cope with rapid decrease in signal strength (e.g. street corner effect)? Give a detailed description of: – the way the handover detected, initiated and executed, – how long each of this action lasts (minimum/maximum time (ms)), – the time-out periods for these actions.	Yes. A base station broadcasts the criterion which is being used for mobile station to request handover. The mobile station issues handover request message whenever the criterion is met. The handover criterion depends on the implementation but usually the received signal strength by a mobile station is used. Further information is available in the IEEE 802.16 standard; Section 11.1.7 MOB-NBR-ADV message encodings.
A1.2.25	Characterize how the proposed RTT reacts to the system deployment (e.g. necessity to add new cells and/or new carriers) particularly in terms of frequency planning.	All base stations can use the same frequency or different frequency depending on the frequency reuse deployment scenario. OFDMA subchannelization allows various permutations of subcarriers. A distributed permutation of subcarriers, e.g., PUSC (partial usage of sub-carrier) in this RTT, minimizes interferences from neighboring cells and/or sectors in case of the frequency reuse of 1. Different operators usually use different frequencies.
A1.2.26	*Sharing frequency band capabilities* : to what degree is the proposal able to deal with spectrum sharing among IMT-2000 systems as well as with all other systems: – spectrum sharing between operators, – spectrum sharing between terrestrial and satellite IMT-2000 systems, – spectrum sharing between IMT-2000 and non-IMT-2000 systems, – other sharing schemes.	The proposed RTT utilizes OFDMA which has inherent interference protection capabilities due to allocation of a varying subset of available sub-carriers to different users. This capability, complemented by interference mitigation techniques described in ITU-R Report M.2045 such as use of appropriate filters and linear power amplifiers would ensure excellent potential for optimum spectrum sharing between the proposed RTT and other IMT-2000 systems. ITU-R WP 8F is in the process of performing sharing studies between fixed/nomadic and mobile IEEE 802.16 and IMT-2000. Preliminary results show similarities with the case of coexistence between IMT-2000 TDD and FDD technologies as captured in Reports ITU-R M.2030 and M.2045.

A1.2.27	*Dynamic channel allocation* : characterize the dynamic channel allocation (DCA) schemes which may be supported and characterize their impact on system performance (e.g. in terms of adaptability to varying interference conditions, adaptability to varying traffic conditions, capability to avoid frequency planning, impact on the reuse distance, etc.).	Various permutations of OFDMA subcarriers enable dynamic usage of the spectrum among cells to balance the load and/or average interferences.
A1.2.28	*Mixed cell architecture* : how well does the RTT accommodate mixed cell architectures (pico, micro and macrocells)? Does the proposal provide pico, micro and macro cell user service in a single licensed spectrum assignment, with handoff as required between them? (terrestrial component only). NOTE 1 – Cell definitions are as follows: – pico – cell hex radius: $r < 100$ m – micro: 100 m $< r < 1\,000$ m – macro: r $>$ $1\,000$ m.	The proposed RTT can support flexible frequency reuse operation thus mixed cell architecture is supported well on the same or different frequencies depending on the implementation.
A1.2.29	Describe any battery saver/intermittent reception capability.	
A1.2.29.1	*Ability of the MS to conserve standby battery power* : provide details about how the proposal conserves standby battery power.	The battery power saving of mobile station is supported by the sleep mode and the idle mode operations. Since the RTT basically provides packet-based transmission, both two modes operate in a slotted mode. In those modes, a mobile station communicates to its serving base station only in a listening interval and saves its power consumption otherwise. The information on listening, sleep and idle intervals are determined by the negotiation between the base station and the mobile station before the mobile station transits to either of two modes. A mobile station maintains the connection to its serving base station even in the sleep mode, while a mobile station in the idle mode returns system resources relevant to the existing connection to a base station. In latter case, the mobile station is managed by the multiple base stations grouped in a paging zone. Further information can be found in the IEEE 802.16 standard Sections 6.3.21, Sleep Mode, and 6.3.24, Idle Mode.
A1.2.30	*Signalling transmission scheme* : if the proposed system will use RTTs for signalling transmission different from those for user data transmission, describe the details of the signalling transmission scheme over the radio interface between terminals and base (satellite) stations.	The same RTT is used for both user data and signalling transmission.

A1.2.30.1	Describe the different signalling transfer schemes which may be supported, e.g. in connection with a call, outside a call. Does the RTT support: – new techniques? Characterize. – Signalling enhancements for the delivery of multimedia services? Characterize.	Flexible message-based signalling scheme is used.
A1.2.31	Does the RTT support a bandwidth on demand (BOD) capability? BOD refers specifically to the ability of an end-user to request multi-bearer services. Typically, this is given as the capacity in the form of bits per second of throughput. Multi-bearer services can be implemented by using such technologies as multi-carrier, multi-time slot or multi-codes. If so, characterize these capabilities. NOTE 1 – BOD does not refer to the self-adaptive feature of the radio channel to cope with changes in the transmission quality (see § A1.2.5.1).	Yes. The scheduling service is provided for both downlink and uplink traffic. In order for the scheduler to make an efficient resource allocation and provide the desired QoS and data rate in the uplink, mobile stations must feedback accurate and timely information as to the traffic conditions and QoS requirements. To this end, multiple uplink bandwidth request mechanisms, such as bandwidth request through ranging channel, piggyback request and polling are provided to support uplink bandwidth requests. Frequency and time resource allocation in both downlink and uplink is on a per frame basis to duly react to the traffic and channel conditions. Additionally, the amount of resource in each allocation can range from one slot to the entire frame. Further information can be found in the IEEE 802.16 standard, Sections 6.3.6 Bandwidth Allocation and Request mechanism, 6.3.7.3 DL-MAP, 6.3.7.4 UL-MAP, and 8.4.4 Frame Structure.
A1.2.32	Does the RTT support channel aggregation capability to achieve higher user bit rates?	No.

―――――――――――

Moved: To approve document 18-06-0076-00-0000_M1457.doc as an 802 document, authorizing the Chair of 802.18 to do necessary editorial and formatting changes and, using the document as a "template", create the appropriate input to ITU-R WP-8F.

Moved: Lynch/Marks

Carl asked if this document imply that 802.16 is the only possible technology from 802 to be submitted? Mike indicated that this only submits a single technology.

Passes: 16/0/0

9.05	II	802.20 report			-	**Greenspan**	**10**	**03:08 PM**

IEEE 802.20
Report to the 802 EC

Arnie Greenspan

November 17, 2006
Dallas, TX

802.20 Meeting Overview

- **Met Monday through Thursday**
  - **Agreed to place 802.20 attendance on AZGARD system**
  - **Some transition problems with system that will be investigated and addressed**
- **Reviewed and discussed all existing 802.20 documents**
- **Took roll call straw polls to assess the views of the working group with regard to**
  - **Existing documents**
  - **Future direction of 802.20**
  - **Seven straw polls taken**

◈IEEE

802.20 Meeting Overview

- **Reviewed disclosure of affiliations for all members**
  - **Identified and interviewed working group attendees whose disclosure of affiliation seemed incomplete**
  - **Made affiliations available for public review by meeting attendees**
- **Evaluated results of data collected as a result of all straw polls as an attempt to arrive at potential solutions to achieve efficient progress in the future**

◆IEEE

802.20 Meeting Overview

- **Reviewed P802.16m PAR and submitted concerns to 802.16 Chair**

- **Determined that an interim 802.20 meeting will take place in January**

  - **Large number of attendees indicated that they intend to attend**

  - **Working on agenda**

◆IEEE

Questions?

Arnie Greenspan
a.greenspan@ieee.org

◆IEEE

Steve asked if there will be a more detailed agenda for the January meeting. Arnie indicated there would be a more detailed agenda available. He indicated that he had terrific support from the committee to accomplish all his goals for the week.

Pat asked if a more collapsed form of the votes and straw polls would be sent to the EC reflector than is available in the minutes. Arnie indicated he would make it available.

Tony asked if the interviews to clarify affiliations were helpful. Arnie indicated that clarification of one sort or another was obtained in all cases.

Paul thanked Arnie for stepping into this position, as he can think if no one more qualified.

| 9.06 | ME | 802.17b press release | - | Takefman | 5 | 03:16 PM |

802.17b Press Release

- Move to approve the press release on IEEE approval of 802.17b conditional on the actual approval of the standard (document PR_802_17b_V0.doc).

- M: Takefman
- S: Hawkins

Contact: Michael Takefman, Chair of the Resilient
                  Packet Ring Working Group
        +1 613-271-3399; tak@cisco.com
                  or
        Karen McCabe, IEEE Senior Marketing Manager
        +1 732-562-3824; k.mccabe@ieee.org

IEEE APPROVES ENHANCED RESILIENT PACKET RING STANDARD

IEEE 802.17b Optimizes Packet Transmission for bridged and multi-cast traffic on Local, Metropolitan and Wide Area Networks

PISCATAWAY, N.J., USA, February 16, 2007 – The IEEE has approved a new

networking standard for high-speed packet transmission in local, metro, and regional

optical fiber ring topologies. The standard, IEEE 802.17b™, "Local and Metropolitan

Area Networks-Specific Requirements-Part 17: Resilient Packet Ring (RPR) Access

Method & Physical Layer Specifications, Amendment 1 Spatially Aware Sublayer,"

enhances the operation of an 802.17 network for bridged and multicast traffic.

       The 802.17 standard enables the fiber optic rings widely deployed in local,

municipal and wide area networks to carry more data, voice, and video content with

greater reliability, efficiency, and economy. The 802.17b standard enhances the

efficiency of 802.17 by defining the "Spatially Aware Sublayer", which provides spatial

reuse for transmission of frames in bridged networks and methods for scoping

transmission of multicast traffic.

IEEE 802.17 Working Group is sponsored by the IEEE Computer Society, LAN/MAN Standards Committee. Development of the standard involved participants from nearly all aspects of the industry, such as carriers, service providers, systems vendors, semiconductor vendors, public network providers, and academic and nonprofit organizations.   For information on the Resilient Packet Ring Working Group and its activities, visit: http://www.ieee802.org/17/.

About the IEEE Standards Association

The IEEE Standards Association, a globally recognized standards-setting body, develops consensus standards through an open process that brings diverse parts of an industry together. These standards set specifications and procedures based on current scientific consensus. The IEEE-SA has a portfolio of more than 870 completed standards and more than 400 standards in development. Over 15,000 IEEE members worldwide belong to IEEE-SA and voluntarily participate in standards activities. For further information on IEEE-SA see: http://www.standards.ieee.org/.

About the IEEE

The IEEE has more than 360,000 members in approximately 150 countries. Through its members, the organization is a leading authority on areas ranging from aerospace, computers and telecommunications to biomedicine, electric power and consumer electronics. The IEEE produces nearly 30 percent of the world's literature in the electrical and electronics engineering, computing and control technology fields. This nonprofit organization also sponsors or cosponsors more than 300 technical conferences

each year. Additional information about the IEEE can be found at http://www.ieee.org.

# # #

Moved: to approve the press release on IEEE approval of 802.17b conditional on the actual approval of the standard (document PR_802_17b_V0.doc).

Moved: Takefman/Hawkins

Passes: 15/0/0

| 9.07 | ME | 802.17c press release | - | Takefman | 5 | 03:18 PM |

802.17c Press Release

- Move to approve the press release on formation of 802.17c (document PR_802_17c_V0.doc).

- M: Takefman
- S: Hawkins

Contact: Michael Takefman, Chair of the Resilient
                      Packet Ring Working Group
                 +1 613-271-3399; tak@cisco.com
                                 or
                 Karen McCabe, IEEE Senior Marketing Manager
                 +1 732-562-3824; k.mccabe@ieee.org

IEEE 802.17 FORMS PROTECTED INTER-RING CONNECTION STUDY GROUP

IEEE 802.17 begins work on resilient inter-ring connections

Dallas, TX., USA, 17 November 2006 – The IEEE 802 Executive Committee has

approved the creation of the 802.17c Protected Inter-Ring Connection (PIRC) Study

Group. The study group will create a Project Authorization Request (PAR) that defines a

project to standardize the protection and load balancing of inter-ring connections for the

802.17 MAC. The group will meet from January 16th to 18th in London, England to begin

the work of determining the scope and requirements of the project and drafting the PAR.

IEEE 802.17 Working Group is sponsored by the IEEE Computer Society,

LAN/MAN Standards Committee. Development of 802.17 standards involve participants

from nearly all aspects of the industry, such as carriers, semiconductor vendors, service

providers, systems vendors, public network providers, and academic and nonprofit

organizations.   For information on the Resilient Packet Ring Working Group and its

activities, visit: http://www.ieee802.org/17/.

About the IEEE Standards Association

The IEEE Standards Association, a globally recognized standards-setting body, develops consensus standards through an open process that brings diverse parts of an industry together. These standards set specifications and procedures based on current scientific consensus. The IEEE-SA has a portfolio of more than 870 completed standards and more than 400 standards in development. Over 15,000 IEEE members worldwide belong to IEEE-SA and voluntarily participate in standards activities. For further information on IEEE-SA see: http://www.standards.ieee.org/.

About the IEEE

The IEEE has more than 360,000 members in approximately 150 countries. Through its members, the organization is a leading authority on areas ranging from aerospace, computers and telecommunications to biomedicine, electric power and consumer electronics. The IEEE produces nearly 30 percent of the world's literature in the electrical and electronics engineering, computing and control technology fields. This nonprofit organization also sponsors or cosponsors more than 300 technical conferences each year. Additional information about the IEEE can be found at http://www.ieee.org.

# # #

Moved: to approve the press release on formation of 802.17c (document PR_802_17c_V0.doc).

Moved: Takefman/Hawkins

Steve asked why announcement of this study group needs an announcement. Mike indicated that it is hoped that this will attract more attendees in London. He said there was also an intent to make the existence of this study group widely known.

Passes: 16/0/0

| 9.08 | ME | Letter to NIST from 802.16 WG | - | Marks | 1 | 03:23 PM |

IEEE 802.16 Working Group on Broadband Wireless Access
http://WirelessMAN.org

<div align="right">

Roger B. Marks
r.b.marks@ieee.org
16 November 2006

</div>

Lily Chen
National Institute of Standards and Technology
100 Bureau Drive, Stop 8930
Gaithersburg, MD 20899-8930
lily.chen@nist.gov

Dear Ms. Chen:

Discussions between Tim Polk of NIST and the 802.16 Working Group's IETF Liaison Officer, David Johnston, during the IETF meeting of 5 November 2006, resulted in the suggestion that 802.16 discuss with you a forthcoming key hierarchy NIST standard and its relationship to the IEEE 802.16 standard.

The IEEE 802.16 Working Group has developed standards for fixed and mobile broadband wireless access systems. The published standards IEEE 802.16-2004 and the amendment IEEE 802.16e-2005 (+Corrigendum 1) define the Privacy and Key Management version 2 (PKMv2) protocol that includes a Key Derivation Function (KDF) and a Key Hierarchy. This is a part of the security sublayer of IEEE 802.16 that provides link security for 802.16 connections. The IEEE 802.16 standards are available at <http://standards.ieee.org/getieee802/802.16.html>.

We would like to explore the opportunities to ensure compliance of IEEE 802.16 with a future NIST standard on Key Hierarchies.

We greatly appreciate your help and input in this matter.

Sincerely,

Roger B. Marks
Chair, IEEE 802.16 Working Group on Broadband Wireless Access

cc: Tim Polk, NIST
    David Johnston

Moved: To approve the Letter to NIST from IEEE 802.16 WG (IEEE L802.16-06/036).
Moved: Marks/Stevenson

Passes: 14/0/0

9.09	**ME**	**802.16 Letter to ITU-R**	-	**Marks**	**5**	**03:24 PM**

This item moved to the last item on the agenda.

9.10	**II**	**802.17 Liaison letter to ITU-T SG 15 Q9**	-	**Takefman**	**5**	**03:27 PM**

It was sent to the EC reflector. The letter is an announcement of the Geneva meeting and invitation to participate.

9.11	**II**	**802.1/802.17 liaison response to ITU-T on protection and restoration**	-	**Jeffree**	**5**	**03:24 PM**

Tony indicated that this is one of several requests for liaison.

9.12	**II**	**802.1 liaison response to MEF re their 10038 - implementers agreements**	-	**Jeffree**	**5**	**03:25 PM**

No further information provided on this or any of items 9.13-9.16.

9.13	**II**	**802.1 liaison response to MEF re their 10036 - protocol filtering at UNIs**	-	**Jeffree**	**5**	
9.14	**II**	**802.1 liaison response to IETF CCAMP**	-	**Jeffree**	**5**	
9.15	**II**	**802.1 liaison response to the NGN Management Focus Group**	-	**Jeffree**	**5**	
9.16	**II**	**802.1 liaison response to ITU-T regarding linktrace**	-	**Jeffree**	**5**	
9.17	**ME**	**confirm Geoff Thompson and Floyd Backes as 802 RAC representatives**	-	**Nikolich**	**2**	**03:28 PM**

Moved: to confirm Geoff Thompson and Floyd Backes to the RAC for a new term.
Moved: Jeffree/Stevenson

Passes: 15/0/0

10.00		**LMSC Internal Business**	-			
10.01	**MI**	**TREASURER'S REPORT**	-	**Hawkins**	**5**	**03:31 PM**

DRAFT

IEEE Project 802
Statement of Operations
July 2006 Plenary Session
San Diego, CA
As of Nov 14, 2006

Session Income					Est/*Act*	Budget	Deviation
Net Registrations					**1,350**	1,200	150
71%	**962 Early Registrations**	@	$400	$ 384,800			
	42 Early cancellations	@	$400	-16,800			
	25 Cancellations	@	$350	-8,750			
29%	**388 Registrations**	@	$500	194,000			
	3 Cancellation	@	$450	-1,350			
	0 Special Cancellation	@	$500	0			
	0 On-site registrations	@	$500	0			
	0 Student	@	$100	0			
	0 Special Registration	@	$400	0			
	3 Other credits	@	$100	-300			
	Registraion Subtotal				551,600	497,465	54,135
	0 Deadbeat Payment	@	$500	551,600	**0**	0	0
	Interest				**139**	60	79
	Other (Hotel comps and commission)				**103,667**	0	103,667
TOTAL Session Income					**$ 655,406**	497,525	157,881

Session Expenses	Actual	Budget	
Audio Visual Rentals	**27,107**	15,000	(12,107)
Audit		8,000	8,000
Bank Charges	**106**	500	395
Copying	**3,312**	3,500	188
Credit Card Discounts & Fees	**16,846**	14,515	(2,331)
Equipment Expenses	**12,926**	9,000	(3,926)
Get IEEE 802 Conttribution	**96,000**	90,000	(6,000)
Insurance		0	0
Meeting Administration	**80,726**	75,064	(5,662)
Misc Expenses	**3,977** *	500	(3,477)
Networking	**59,675**	65,000	5,325
Phone & Electrical	**1,676**	2,100	424
Refreshments	**150,381**	96,000	(54,381)
Shipping	**12,631**	6,500	(6,131)
Social	**65,989**	42,000	(23,989)
Supplies	**349**	500	151
TOTAL Session Expense	**$ 531,701**	428,179	(103,522)
Other Income/Expense	**0**		
NET Session Surplus/(Deficit)	**$ 123,705**	69,346	54,360

Analysis			
Refreshments per registration	**111**	80	(31)
Social per registration	**49**	35	(14)
Meeting Admin per registration	**60**	62.55	3
Surplus/(Loss) per registration	**92**	58	34
Pre-Registration ratio	**0.71**	0.85	

Cash on hand as of Nov 1, 2006	**$ 419,141**
Reserve for uninvoiced expenses for prior sessions	**0**
Reserve for other outstanding commitments	
Income received for current session	**(8,000)**
Expenses prepaid for current session	**28,280**
Expenses prepaid for future sessions	**7,209**
Operating Reserve following this session	**$ 446,630**

* Misc items: Hotel gratuity $1,500 + registration counter rentals: $2,477

IEEE Project 802
Estimated Statement of Operations
Nov 2006 Plenary Session
Dallas, TX
As of Nov 17, 2006

DRAFT

Meeting Income	Budget	Estimate
Registrations	1,200	1,347
Registration income	**528,000**	**578,800**
Cancellation refunds	**(10,560)**	**(18,100)**
Deadbeat collections	0	0
Bank interest	60	60
Other income	0	61,770
TOTAL Meeting Income	517,500	622,530

Meeting Expenses	Budget	Estimate
Audio Visual Rentals	22,000	24,254
Audit	6,000	6,000
Bank Charges	500	500
Copying	3,750	4,135
Credit Card Discount	14,784	17,364
Equipment Expenses	11,000	11,000
Get IEEE 802 Contribution	90,000	101,025
Insurance	0	0
Meeting Administration	75,064	75,000
Misc Expenses	2,000	2,000
Network	60,000	67,750
Phone & Electrical	2,500	600
Refreshments	158,000	125,000
Shipping	4,500	20,000
Social	45,000	50,000
Supplies	800	500
TOTAL Meeting Expense	495,898	505,128

	Budget	Estimate
NET Meeting Income/Expense	21,602	117,402

Analysis		
Refreshments per registration	**132**	93
Social per registration	**38**	37
Meeting Administration per registration	**63**	56
Networking per registration	**50**	50
Get IEEE 802 Contribution per registration	**75**	**75**
Surplus/Deficit per registration	**18**	87
Pre-registration rate	**0.600**	**0.703**

Previous operating reserve	446,630	
NET Meeting Income/Expense	117,402	
Projected operating reserve	564,032	

John indicated that he is concerned about the high expense for shipping at this meeting. He is investigating.

10.02   MI   Approval of WG Voting P&P Revision   **-   Sherman   5   03:37 PM**

Deferral of WG Voting P&P Rev

- Comments on this ballot were never resolved
  - See WG_Voting_Procedures-Ballot_results.pdf
- Informally defer the following motion to the next session
- Give time for the original author's to respond to comments
- Will make motion at next session regardless

Sherman, Matthew J. (US SSA)

From:	Sherman, Matthew J. (US SSA)
Posted At:	Sunday, October 10, 2004 9:43 AM
Conversation:	+++ LMSC P&P Revision Ballot Results +++ compliance with IEEE-SA and IEEE CS Governance
Posted To:	WG Voting Procedures
Subject:	+++ LMSC P&P Revision Ballot Results +++ WG Voting Procedures

```
Voters                    DNV  DIS  APP  ABS  Comments Provided?
---------------------------------------------------------------
00 Paul Nikolich                    APP       Yes
01 Mat Sherman             DNV
02 Pat Thaler                   DIS            Yes
03 Buzz Rigsbee            DNV
04 Bob O'Hara                   DIS            Yes
05 John Hawkins            DNV
06 Tony Jeffree                 DIS            Yes
07 Bob Grow                     DIS            Yes
08 Stuart Kerry            DNV
09 Bob Heile               DNV
10 Roger Marks                  DIS            Yes
11 Mike Takefman                DIS            Yes
12 Mike Lynch              DNV
13 Steve Shellhammer            DIS            Yes
14 Vivek Gupta             DNV
15 Carl Stevenson               DIS            Yes
---+++---+++---+++---+++---+++---+++---+++---+++---+++---
TOTALS                    DNV  DIS  APP  ABS
total:                    -07- -08- -01- -00-


Ballot Comments:
-----------------------------------------------------------------------------
---------------------
-----------------------------------------------------------------------------
---------------------
Paul Nikolich [paul.nikolich@att.net]                     Tue 9/5/2006 11:20 AM

I vote approve.

My editorial non-binding comments on the ballot:

1) 7.2.3.4.g Rights--upon reading this one could take the interpretation that the combined
membership of the WGs (exclusive of TAGs) could force resolution implementation. What is
meant, I believe, is the combined membership of WGs and TAGs.  This doesn't require a
change--I am just alerting you to a change that may be needed in the future.

2) 7.2.4.2.2 -- I would remove the specific sub-clause reference to the IEEE-SA SBOM -
leave it general so we don't have to worry about how SBOM may be restructured

3) 7.2.4.4 -- I would remove the specific sub-clause reference to the IEEE CS SAB P&P--
leave it general, or better yet, refer to the appropriate IEEE SA document to eliminate
the dependancy on CS SAB.

-----------------------------------------------------------------------------
---------------------
Shellhammer, Steve [sshellha@qualcomm.com]                 Wed 9/6/2006 3:26 PM

     I vote NO but will change my vote to YES if the following changes are made.
```

1.   In Section 7.2.4.3 (Chair's Function) change "output documents
of the Working Group" to "either a PAR or a draft." The phrase "output documents" is too
vague for my taste. Since those are the two output documents of a working group I think
it is better to list them than to use such a vague phrase.

2.   In Section 7.2.4.2.1 drop the sentence "Non-technical motions,
when allowed, are determined in accordance with parliamentary procedure." Once again the
phrase "parliamentary procedure" is way too vague. If the working groups want to describe
how they hold these non-technical motions using specific language that would be fine, but
this vague statement does not work.

3.   In Section 7.2.4.2.1 drop the phrase "at least." A majority is
well defined and does not require that phrase, since it is included within the definition.

        Just one observation. In this document the section entitled "Chair's Function" is
numbered 7.2.4.3, but that section number is also used later. I thin there is a small
typo in the section number.

Mike Takefman (tak) [tak@CISCO.COM]   Wed 9/6/2006 4:46 PM

I also vote NO and I'll come up with a list of my concerns. But reading Steve's comments
made me think and I feel it necessary to comment immediately.

While I agree with Steve that "output document" seems vague, the set "PAR and Draft" is
merely a subset of useful documents that a WG or TAG could produce that require 75%
approval (IMO).

WG's produce liaisons both internal to 802 and external to IEEE, press releases etc. So an
output document (to me, and I'd think the majority of people), means anything that leaves
the WG, and I see that as the minimum acceptable set.

WGs produce documents for their own internal use that are technical in nature and affect a
draft and so I'd personnaly want to see the bar set at 75% for those documents too.

For example, in 802.17 there was a lot of discussion on simulation requirements and
methods for benchmarking proposals. The phrase output document doesn't include a document
that would specify how simulations should be run, nor the minimum acceptable performance,
yet it is clearly an important document, technical in nature as it will affect the draft.

Imagine the host of appeals that would insue if such a document was classified as
procedural as it wasn't an output document and then someone objects to the draft moving
forward when its technical content was based on simulation requirements that couldn't
achieve 75% concensus.

Our old language was much more open, but that might not be a bad thing since once you try
to restrict things, you end up risking creating the wrong set of limitations.

I'll think some more about a better phrase then merely output document but I think a more
inclusive term would be better.

Shellhammer, Steve [sshellha@QUALCOMM.COM]   Wed 9/6/2006 5:15 PM

Mike,

        Thanks for thinking of other "output documents" the only ones I could think of were
the PAR and draft. Those were the technical ones I could think of.

        I think you bring up some other good points about the problems with attempting to
define "what is technical." Before we left it to the chair to make the determination on
whether something is technical or not. If we attempt to give a precise definition of what
is technical we may have difficulty in generating such a definition. But a phase like

those issues that "can impact the substance of an output document" may not work. We have
in essence replaced "technical" with "substance."
And of course what we my by "substance" is something technical.

Al Petrick [apetrick@WIDEFI.COM]   Thu 9/7/2006 6:07 AM

Mike/Steve

Both of you have very good questions!

Let me try to help clarify the issues that were raised by Steve and yourself, as I was
worked with a small Ad-Hoc group inside 802.11 that came up with the suggested recommended
changes. This should help clarify your concerns.

Clarification: Clause 7.2.4.3;

*   The WG Chair (as well as the TG,SC,SG Chairs) decides what is
technical and non-technical wrt issues and motions on the floor. This is the first
determination. Procedure is the next step.

o   It was recommended to change "procedural" to "non-technical"
because the chair then applies parliamentary rulings to motions on the floor to seek
proper "procedure". Some motions under parliamentary procedure require 50% approval, while
others require, 2/3 or a majority approval.

*   Sentence: "Technical issues are those that can impact the
substance of "output documents" of the Working Group.

o   "Output documents" are those that leave the WG and passed on to
the IEEE 802 hierarchy seeking approval or to bodies (liaisons, stds organizations, or
other entities) outside the IEEE. Such output documents include specifically PARs,
Drafts, but may include for example letters to outside bodies that has technical content
(substance). For this reason, "Output documents" was specified.

Tony Jeffree [tony@JEFFREE.CO.UK]   Thu 9/7/2006 7:12 AM

Steve -

PARs and drafts are NOT the only output documents of a WG. We also generate liaisons and
position papers to other organizations, and meeting minutes, for example; I believe that
motions approving these are rightly considered to be technical motions also.

I agree that "output documents" is vague, but the way to fix that is to add a definition
of what the list of things that constitute "output documents"
actually is, and then use the term. However, the list of things that need to be decided by
a "technical" (75% approval) vote of the WG is ABSOLUTELY NOT IMHO restricted to output
documents; for example, a motion to impose a directed position on a Chair, or a motion to
remove a Chair from office, should very definitely be considered to be "technical" votes
as opposed to procedural (decided by the Chair) matters! So I think the fundamental
problem with this change to defining the "procedural/technical" distinction only in terms
of output documents is that in doing so, there is a class of decisions that must be made
by the WG that fall outside the (current) definition of "Technical" and that should have
been included.

Mike Takefman (tak) [tak@CISCO.COM]   Thu 9/7/2006 9:37 AM

Al,

Was there a specific problem or concern that prompted the Ad-Hoc group to go about
suggesting these changes?

Tony Jeffree [tony@jeffree.co.uk]   Thu 9/7/2006 10:49 AM

I vote Disapprove.

Nits:

There is something screwed up about the subclause numbering (there are two instances of
7.2.4.3 and one of them precedes 7.2.4.2).

Substantive issues:

As Steve Shellhammer has pointed out, and as amplified in my response to his comments, the
whole issue of Technical vs Procedural in this set of rules is somewhat screwed up.

Firstly, it makes no sense at all to say that the Chair decides procedural (sorry, non-
technical) issues, and then to go on to say that when the Chair decides to use the WG's
help in determining a procedural issue by taking a vote of the WG, that it should be done
in a particular way. For example, if I decide that an issue is procedural (choosing the
venue for the next interim, maybe), but that I want the WG to assist me in that decision
by running a straw poll, I don't want the P&P to impose rules on how that straw poll is
conducted, and I absolutely DO NOT want that informal mechanism suddenly to be subject to
parliamentary procedure. That is just plain nuts. Either an issue is procedural, and the
Chair gets to decide the outcome (including taking advice/help from the WG, if he/she
feels it appropriate, and in any way that he/she may choose), or it is not procedural, and
the WG gets to vote, and with the outcome subject to 75% approval. So introducing the
concept of some other kind of "non-technical motion" into the vocabulary, surrounded with
wooly words about them being subject to parliamentary procedure, isn't helpful and simply
allows us to continue to get wrapped around this particular axle.

Secondly, as I pointed out in response to Steve, the set of issues that require a 75%
approval certainly include drafts and PARs, but is very much NOT restricted to those two
items.

So, what I would like to see an alternative approach along these lines:

- That we only ever talk about one form of "Voting in meetings" - and that one form
requires 75% approval to pass.

- That the set of things that we absolutely require to be decided by a WG vote (75%
approval) gets clearly stated, along with the principle that lies behind it, so that if
we've missed anything from the set then it is as clear as possible how the set would be
populated.

- That the question of how the Chair might run a non-technical "motion", or any other kind
of procedure for that matter, in order to assist in the determination of a procedural
issue, doesn't get discussed in the P&P at all, as it is all covered under the blanket
statement that "The Chair decides procedural issues".

If I get time in the next few days I will propose some wording changes.

Tony Jeffree [tony@JEFFREE.CO.UK]   Thu 9/7/2006 10:48 AM

Roger -

At 15:30 07/09/2006, Roger B. Marks wrote:
>Tony,
>
>Of the items you suggested should be on the 75% list, several of them
>are already addressed by existing P&P clauses that specify 75%:
>   9.1 Procedure for Establishing a Directed Position
>   7.2.4.4 Removal of Working Group Chairs or Vice Chairs
>   14.2 Procedure for Communication with Government Bodies

That's fine - what I suggested doesn't contradict that. However (and I have fleshed this
out a bit in my comments - you will see them shortly) we could very easily make this all a
lot clearer just by saying that there is only one type of "voting in (WG) meetings" and
that it requires 75%. Then there would be no need to re-state the 75% threshold
everywhere.

>The procedure for liaisons does not specify 75%:
>   14.1 Procedure for Coordination with Other Standards Bodies

I believe that should be 75%.

>I don't think the threshold for meeting minutes is currently
>established.

Similarly, I think that should be 75%. If 49% of my WG (or even 95% come to
that) didn't want to approve the minutes, then I would suspect that there might just be
something wrong with them.

Roger B. Marks [r.b.marks@IEEE.ORG]   Thu 9/7/2006 11:26 AM

Tony,

I agree 100%.

I'd just like to add a note. You propose that the rules should be such:

-That we only ever talk about one form of "Voting in meetings" - and that one form
requires 75% approval to pass.

The point I'd like to make is that this is exactly what the rules say and have always said
(since I've been around).

Tony Jeffree [tony@JEFFREE.CO.UK]   Thu 9/7/2006 11:38 AM

Roger -

Absolutely. I can see no good reason to move away from that, other than to clarify and
reinforce what that actually means.

Pat Thaler [pthaler@broadcom.com]   Thu 9/7/2006 5:57 PM

I vote disapprove primarily due to 7.2.4.3

7.2.4.3 I agree with Mike Takefman's comments on the attempt to define "technical
issues." I don't think that the definition of "technical issues" clarifies the boundary
between technical and procedure much. Is adoption of a down select process a technical or
non-technical vote?
With no definition some say it is and some say it isn't. With this definition, some would

say that it does not impact the substance of output documents because it doesn't directly say what goes into the draft, others would say that in defining how the material to go into the draft is selected it does impact the substance of the draft. Grey area remains grey. I don't understand why "procedural" became "non-technical."

I think the section was better before we touched it. Chair's discretion included the choice on the chair's part to put a procedural issue to a 50% vote.

The one problem I see with the section is that there are various things that aren't technical like directed positions or waiving of term limits that are required to have votes. WGs may also have Working Group rules that require votes on some non-technical issues. Perhaps "non-technical issues" should be "non-technical issues that are not covered by other voting rules in the LMSC or Working Group P&P." (substitute what ever you usually use for self-refering ot the P&P.)

Some picky points:
7.2.4.3 1st sentence might read better: "The Chair of the Working Group may decide non-technical issues or may allow a non-technical issue to be decided by a motion.
7.2.4.2.1 increases the quorum requirement for any group with an even number of members by one member (changes a greater than or equal to half requirement to majority which is greater than one half).

The text of 7.2.4.2.3 says the WG chair has discretion on what can be decided by electronic ballot which isn't quite consistant with other parts of the rules that require certain votes to take place at a plenary. Text of 7.2.4.2.3:
"7.2.4.2.3 Voting by Electronic Ballots
Other matters may also be decided by an electronic ballot at the discretion of the Working Group Chair.
The response time for these ballots shall be at least fifteen days."
For example, 7.2.2 says that WG chairs are elected at plenary sessions.
Possibly we should add: "Except for votes that are explicitly required to take place at a meeting,"

Grow, Bob [bob.grow@intel.com]   Tue 9/19/2006 8:21 PM

Colleagues:

I opted to eliminate all of the previous discussion from this message, but I may reference some of it.

Though I support much in this ballot, I vote Disapprove.

The primary textual problems are 7.4.2.3 and one issue related to 7.4.2.1. I also vote disapprove because changes in this area are premature based on active work at the IEEE-SA and IEEE levels.

1. Disapprove, General -- There is currently a Voting ad-hoc committee working to refine IEEE requirements for IEEE-SA standards development needs. One item of discussion is if our letter ballot process is consistent with IEEE Bylaws. LMSC representatives at the Standards Board have argued that it is because it really isn't a "vote". The action is taken by the LMSC EC which is consistent with IEEE Bylaws requirements for electronic process.

This work also could also affect quorum and "voting in a meeting" requirements. Though the major issue is with electronic voting which includes our "letter ballots".

We should wait to see what is resolve here before we start fixing language about what votes are required, the process required for those votes and the language used to describe them.

2. Disapprove, p.2, l.4 -- I agree with others that 7.4.2.3 is totally messed up. The

lack of parallel construction (issues v. motions) is very broken. Should use parallel construction.

3. p.2, l.3 -- While these changes attempt to remove the non-parallel procedural and technical, the use of procedural was useful in refining what is appropriately considered non-technical.

4. Disapprove, p.2, l.4 -- I agree with others that attempting to define "technical" is an ill-advised "rat hole". I could live with language that is inclusive rather than definitive "(e.g., actions that affect the content of a draft)".

5. Disapprove, p.2, l.3 -- The old language allowed the Chair to decide a procedural issue, to put a procedural issue to some kind of decision process consistent with open, fair and democratic process, or even (as some might wish to be the only alternative) to be decided via motion and Robert's Rules of Order.

6. Disapprove, p.2, l.15 -- The added second sentence to 7.2.4.2.1 give far too much weight to RROR as it is now the recommend guide for parliamentary procedure. Remove it.

7. p.2, l.28 -- Inconsistent capitalization of Voter. Make consistent.

8. p.4, l.4 -- With changes, should also include electronic ballots.

Bob O'Hara (boohara) [boohara@cisco.com]   Tue 9/19/2006 10:05 PM

 I disapprove on this motion.

Comments that must be satisfied for my vote to change to approve:

7.2.4.3: I think that the change of the chair deciding procedural issues to deciding non-technical issues is wrong. In particular for those groups operating with treasury, expending money from the treasury should be decided by the group and not the chair alone.

7.2.4.3: The rest of this clause is a hash. I would prefer the
following:
"The Chair of the Working Group decides procedural issues. The Chair decides which issue are procedural. The Chair may seek the guidance of the Working Group before deciding procedural issues. The method and choice of seeking guidance on a procedural issue is solely at the discretion of the Chair."

7.2.4.2: There needs to be a statement here on what must be voted upon.
I would suggest:
"Decisions on all issues that are not procedural are decided by a vote of the Working Group."

7.2.4.2.1: Delete "technical" from the first sentence. Delete the sentence beginning "Non-technical motions".

7.2.4.2.2: Delete the two paragraphs beginning "The Working Group Chair determines if and how negative votes...". Replace them with the
following:
"The processing of the comments received from a letter ballot shall be done in accordance with the procedures for Sponsor Ballots, as described in the IEEE-SA Operations Manual."

Carl R. Stevenson [wk3C@WK3C.COM]   Fri 9/22/2006 1:27 PM

I agree with Bob's comments and also vote Disapprove.

Geoff asked if Mat would try to stir up interest on the reflector to get people prepared for the meeting in March. No motion was proffered.

10.03   MI   Approval of ballot for AudCom P&P Revision   -   Sherman   5   03:39 PM

Changes in Response to AudCom

- Circulated draft of revision to EC Saturday
- Reviewed with EC at Sunday P&P review
  - Modified draft in response to comment
- Recirculated on EC reflector
  - Received no further comment
- Forwarded to AudCom reviewer
  - Have received no comment
  - Can make adjustments for comments received during ballot

EC Motion

To approve for distribution and executive committee ballot the P&P Revision titled "AudCom" as described in the file named:

➢802.0-AudCom_-_Proposed_LMSC_P&P_Revision_Ballot_061112_r1.pdf

Moved: Matthew Sherman

2nd: Steve Shellhamer

For:

Against:

Abstain:

Moved: To approve for distribution and executive committee ballot the P&P Revision titled "AudCom" as described in the file named:

> **802.0-AudCom_-_Proposed_LMSC_P&P_Revision_Ballot_061112_r1.pdf**

Moved: Sherman/Shellhammer

John asked what happens if we don't update the P&P. Mat indicated that he is not clear on the consequences. Bob Grow indicated that this is going into the Operations Manual. AudCom only makes recommendations to the Standards Board. If there are irreconcilable differences, we can go the Standards Board.

Passes: 16/0/0

| 10.04 | MI | Reciprocal voting rights in TAGs and WGs | - | Lynch | 5 | 03:45 PM |

<table>
<tr><td>

802.18 Motion to SEC

</td><td>

Agenda: 10.04
Date: 11/17/2006
Time: 5:15 p.m.

</td></tr>
</table>

Motion by: Lynch   **Seconded by:** Shellhammer

Moved:

That all IEEE 802 WG chairs shall have voting rights in both IEEE 802 TAGs (IEEE 802.18 and IEEE 802.19)

That the IEEE 802 TAG chairs shall have voting rights in all IEEE 802 WGs

That this reciprocal voting arrangement be included in the next revision of the LMSC P&P

That unless otherwise extended this motion serves as the basis for the reciprocal voting through the closing of the November, 2007 IEEE 802 Plenary.

Informative: This is to codify the previous informal arrangement regarding reciprocal voting between the IEEE 802 TAGs and WGs chairs.

Approve: X **Do Not Approve:** X **Abstain:** X **Motion:**

Moved: That all IEEE 802 WG chairs shall have voting rights in both IEEE 802 TAGs (IEEE 802.18 and IEEE 802.19)
That the IEEE 802 TAG chairs shall have voting rights in all IEEE 802 WGs
That this reciprocal voting arrangement be included in the next revision of the LMSC P&P
That unless otherwise extended this motion serves as the basis for the reciprocal voting through the closing of the November, 2007 IEEE 802 Plenary.
Informative: This is to codify the previous informal arrangement regarding reciprocal voting between the IEEE 802 TAGs and WGs chairs.

Moved: Lynch/Shellhammer

Mat indicated that he would initiate a rules change if this is approved.

Pat asked if this affects quorum for a TAG? Are the chairs counted toward the quorum threshold?

Mat indicated that he would be reluctant to count the chairs against the quorum requirement.

Roger thinks that this is out of order as it is making a rules change without using the procedure for making a rules change.

The parliamentarian was asked for an opinion. The opinion offered was that the motion could be in order if it requires a threshold for passage that is no less than that required to approve a rules change.

Carl shares the concern that this introduces to determining the presence of a quorum. He supports the distinction between membership and voting rights.

Bob Grow indicated that he believes this should be in the P&P of the individual TAGs.

Geoff expressed that this requires "heavy tweaking". He would preferred to work on this offline, requesting that the result is that all chairs have reciprocal rights in all working groups and TAGs.

Bob O'Hara expressed concern about making a new distinction between voting rights and membership, believing this would have unintended consequences when the terms are used synonymously in the P&P of the LMSC or WGs and TAGs.

Steve believes that this issue must be resolved.

Pat expressed that she is aware of groups that allow ex officio members to vote, but not affect quorum. She also expressed that there are instances where specific groups have been granted voting rights as part of a PAR.

Roger indicated he would prefer that the membership be granted on request, allowing those not interested in a particular group to not affect quorum.

Carl suggested a number of changes to the motion.

Bob Grow cautioned to watch the model P&P that this will be judged against.

Paul suggested sending this to an EC email ballot.

The motion was withdrawn.

10.05   MI   Affirm Chair's decision on CA documents   -   Sherman   10   04:04 PM

Motion to affirm the decision of the Chair

Concerns on requirements for Coexistence Documents

- In e-mail of January 26, 2005 to EC reflector LMSC Chair decided
  - 'to require any project that had not entered the WG ballot at the time the new Coexistence P&P took effect (the end of the Nov2004 plenary session) to produce a Coexistence Assurance document'
  - http://www.ieee802.org/secmail/msg06274.html
- Questions have been raised on the validity of this decision
- Personally believe that it is within the rights of a sponsor chair to require certain documentation in support of specific standards
- Would be better if EC made the decision rather than the LMSC Chair
- Asking EC to ratify (confirm) the decision of the LMSC chair in this regard

EC Motion

To ratify the decisions of the LMSC Chair as expressed in his e-mail to the EC reflector of January 26, 2005 concerning Coexistence Documents

Moved: Matthew Sherman

2nd: Steve Shellhamer

For:
Against:
Abstain:

Moved: To ratify the decisions of the LMSC Chair as expressed in his e-mail to the EC reflector of January 26, 2005 concerning Coexistence Documents.

Moved: Sherman/Shellhammer

Steve speaks in favor of the motion. He related a conversation he had with the chair of 802.16 regarding it sharing the 3650 band with 802.11y, where he was told they did not intend file the coexistence document. Roger strongly objected to this characterization of the conversation, where he said that the chair said "It is not in our PAR".

Carl indicates the P&P requirements are clear and that the chair does not have the authority to require any additional documents.

The chair was asked what procedure would be used to conduct the vote on this matter. He indicated he would require a 2/3 majority, the same as for a rules change.

Mat indicated that he believes that the P&P does not say anything about which PARs are not required to submit the CA document, only which ones must meet the requirement.

Bob Grow indicated the Paul's email would require every project, including non-wireless projects, to submit a CA document.

Steve indicated while some groups are voluntarily submitting the CA document, others are not, even though it might be required if the PAR would be approved today.

Fails: 5/8/3

10.06	MI		-			
10.07	MI	contract updates (meeting planner, network services, hotel)	-	Rigsbee	15	04:22 PM

Network Services Contract

- Basic contract circulated to the EC

- IEEE review generated several "boilerplate changes"
  - Venue for disputes
  - Method of resolution for disputes

- Further negotiation yielded one change to T&Cs
  - Schedule B would add: "Up to two session registration fees will be reimbursed by IEEE 802 as a legitimate business expense. Any VeriLAN staff who chose to participate in WG meetings would be expected to do so outside of their official duties."

- Agreement is restructured to run 2007-08. Will be dated Dec 1st, 2006. Dallas - Nov 2006 is covered under interim agreement.

- We will post all but T&Cs to EC web page.

Carl asked why Schedule B was changed. Buzz indicated that this was negotiated in exchange for the change of venue for dispute resolution. He indicated that this would be only a reimbursed expense.

| 10.08 | MI | Attendance automation plan | - | Nikolich | 5 | 05:46 PM |

Paul reported that Clyde Camp has developed a specification for the attendance automation software. He will distribute it to the EC. The intent is to try to get to a single means of gather attendance information automatically. He believes this would be a great benefit, should we standardize on a single system.

Paul asked that everyone review the specification and provide comments within three weeks.

| 10.09 | MI | Approval of T&E funding for 802.20 chair (non-conflicted EC vote) | - | Nikolich | 5 | 04:36 PM |

Moved: In order to meet the requirements imposed on us by the SASB, and without creating precedent: to cover the SASB appointed 802.20 chair's reasonable and customary expenses (e.g. registration, travel, hotel, meals) using 802 resources until the end of the November 2007 plenary, or until the chair is replaced, whichever is sooner.
- **includes 2007 Jan, Mar, May, Jul, Sep, Nov sessions**
- **Estimated not to exceed $3.5k per session, averaged over the year**

Moved: Jeffree/Takefman

The vote will be by the non-conflicted members of the EC (Nikolich, Rigsbee, Thaler, Hawkins, O'Hara, Jeffree, Heile, Takefman, Lynch, Greenspan), 10 in number.

Messrs. Greenspan and Heile recuse themselves from the vote.

Passes: 7/0/0

| 10.10 | MI | Coordination of input to ITU | - | Lynch | 5 | 05:04 PM |

Mike indicated that a discussion is needed to allow 802 to coordinate our input to ITU on IMT-Advanced. Roger indicated that it is up to individuals to provide contributions and believes that 802.18 is the focal point for this work.

Jim Ragsdale asked that there be announced and scheduled times on the 802.18 agenda for this topic.

| 11.00 | | **Information Items** | - | | | |
| 11.01 | II | **Status on impact of improper editing of P&P change** | - | Sherman | 5 | 05:09 PM |

Status on Impact of Improper Editing of P&P Revision

Summary of Issue

- Errors were made editing P&P revision titled 'SEC Electronic Ballots' approved on 14 March 2003
  - http://www.ieee802.org/secmail/msg08051.html
  - http://www.ieee802.org/secmail/msg08033.html
- Caused Ambiguity in threshold required to approve a P&P Revision
- LMSC chair interpreted P&P in e-mail dated 09 April 2004
  - Ruled in conflict to the original intent of the March 2003 P&P Rev
  - LMSC operated under Chairs interpretation for a period of time
- 'Error' was corrected in P&P revision titled 'P&P Revision Process' approved 18 March 2005

Summary of Issue (Cont)

- Two P&P revisions were impacted
  - Roll Call P&P Rev - March 19, 2004
  - Coexistence P&P Rev - November 19 2004
- Impact was that ballots passed when they would have failed (if correct editing)
- Plan informal discussion with Paul, Roger, and Bob O. to determine a course of action

Paul asked Mat to schedule a teleconference to discuss this issue and determine a recommendation to the EC.

11.02   II   Open office hours feedback   **-   Nikolich   5   05:14 PM**

Open Office Hours

- Nikolich, Mills, Kenney available Wed 5-6pm
  - 4 attendees (AMyles, Darwin?, Shlomo?, Stephen?)
  - Topics:
    - anonymous letter
    - stds development processs is too long
    - non-NA meetings may cause attendance drop
    - social is a waste of time
  - Should we continue Open Office Hours?
    - YES, but
    - Improve signage and information regarding this item

11.03   II   Network Services Report   -   Rigsbee   5   05:32 PM

Rick Alfvin reported that 22.4Mbps down and 10.4Mbps up was the peak usage on the DS3 during the week. There were only a few glitches, several where the power was interrupted to an Ethernet switch and one AP that failed. Verilan also provided projector placement and pickup services, providing a web site for chairs to arrange pickup at the end of a meeting.

Moved: to amend the agenda to place the approval of the 802.16m PAR, as approved by the 802.16 working group, at 5:50PM as a special order, or sooner, if possible.
Moved: Marks/Rigsbee

Passes: 10/2/2

11.04   II   Future meeting sites   -   Rigsbee   10   05:39 PM

Bob Heile reported that there are prospects in Sydney at the Hilton for January 2008 interim are good. The property is at the low end of the cost for a Pacific venue. Bob indicated that for a 600-person break even attendance figure, would result in approximately $800 registration fee. Room rates are ~$150 per night.

Moved: to proceed with developing a detailed budget for a Sydney interim in January 2008.
Moved: Heile/Rigsbee

Fails: 2/4/9

Moved: *To forward the P802.16m PAR (IEEE 802.16-06/054r2), as approved by the IEEE 802.16 Working Group, to NesCom.*
See also the Five Criteria *(IEEE 802.16-06/055r3), as approved by the IEEE 802.16 Working Group*.
Moved: Marks/O'Hara

Submittal Email: r.b.marks@ieee.org	
Type of Project: Amendment to an Existing Standard 802.16-2004	
1.1 Project Number: P802.16m	
1.2 Type of Document: Standard for	
1.3 Life Cycle: Full	
1.4 Is this project in ballot now? No	
2.1 Title of Standard: IEEE Standard for Local and metropolitan area networks - Part 16: Air Interface for Fixed Broadband Wireless Access Systems - Amendment: IEEE Standard for Local and metropolitan area networks - Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access Systems Advanced Air Interface	
3.1 Name of Working Group: Broadband Wireless Access Working Group	
Contact information for Working Group Chair Roger B Marks Email: r.b.marks@ieee.org Phone: 1-303-725-4626	
Contact Information for Working Group Vice Chair Email: Phone:	
3.2 Sponsoring Society and Committee:IEEE Computer Society/Local and Metropolitan Area Networks (C/LM) **Contact information for Sponsor Chair:** Paul Nikolich Email: p.nikolich@ieee.org Phone: 857-205-0050 **Contact information for Standards Representative:** Email: Phone:	
3.3 Joint Sponsor:/ () **Contact information for Sponsor Chair:** Email: Phone: **Contact information for Standards Representative:** Email: Phone:	
4.1 Type of Ballot: Individual	
4.2 Expected Date of Submission for Initial Sponsor Ballot: 2009-03	
4.3 Projected Completion Date for Submittal to RevCom: 2009-11	
5.1 Approximate number of people expected to work on this project: 300	
5.2 Scope of Proposed Standard: This standard	**Old Scope:**

amends the WirelessMAN-OFDMA specification to provide an advanced air interface for operation in licensed bands. It addresses the cellular layer requirements of IMT-Advanced next generation mobile networks as specified in Rec. ITU-R M.1645. This amendment provides continuing support for legacy OFDMA equipment.	

5.3 Is the completion of this standard is dependent upon the completion of another standard: Yes
If yes, please explain: The project is dependent on the completion of IMT-Advanced requirements on a timely basis.

5.4 Purpose of Proposed Standard: The purpose of this standard is to provide performance improvements necessary to support future advanced services and applications, such as those described by the ITU in Report ITU-R M.2072.	**Old Purpose:**

5.5 Need for the Project: The International Telecommunications Union Radiocommunications Sector (ITU-R) is developing the IMT-Advanced radio interface standards to provide advanced air interface specifications for mobile telecommunications. Under the current schedule, initial proposals for IMT-Advanced are anticipated to be solicited for mid-2008, and standardization is expected to continue through 2009. This project will develop an advanced IEEE 802.16 air interface by working cooperatively with ITU-R and its members.

5.6 Stakeholders for the Standard: Vendors developing IEEE 802.16 products, licensed carriers using IEEE 802.16 products, members of the WiMAX Forum™ and members of ITU-R.

Intellectual Property

6.1.a. Has the IEEE-SA policy on intellectual property been presented to those responsible for preparing/submitting this PAR prior to the PAR submittal to the IEEE-SA Standards Board? Yes
If yes, state date: 2006-11-13
If no, please explain:

6.1.b. Is the Sponsor aware of any copyright permissions needed for this project? No
If yes, please explain:

6.1.c. Is the Sponsor aware of possible registration activity related to this project? No
If yes, please explain:

7.1 Are there other standards or projects with a similar scope? No
If yes, please explain: It is anticipated that other standards will also be submitted to the ITU-R for IMT-Advanced. At this time, there is no indication about the number of standards that may be proposed or the number of standards that may be adopted by the ITU-R for IMT-Advanced.

Other IEEE 802 projects may target aspects of IMT-Advanced, but the scope of this standard is expected to be unique within IEEE 802.

and answer the following: Sponsor Organization:
Project/Standard Number:
Project/Standard Date: 0000-00-00
Project/Standard Title:

7.2 Future Adoptions
Is there potential for this standard (in part or in whole) to be adopted by another national,

regional, or international organization? Yes

If Yes, the following questions must be answered:
Technical Committee Name and Number: ITU-R
Other Organization Contact Information:
Contact person: Jose Costa
Contact Email address: costa@nortel.com

7.3 Will this project result in any health, safety, security, or environmental guidance that affects or applies to human health or safety? No
If yes, please explain:

7.4 Additional Explanatory Notes: (Item Number and Explanation)
The title of this PAR should be:
"IEEE Standard for Local and metropolitan area networks - Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access Systems Advanced Air Interface"

However, the automatic PAR titling system does not permit the assignment of this name.

Note that the base of the title must contain the words "and Mobile". These words are not in the title of IEEE 802.16-2006, but the title was modified by IEEE 802.16e-2005.

3.3 Joint Sponsor:

The PAR submittal form does not allow for the entry of Joint Sponsor information. The Joint Sponsor is as follows:

Joint Sponsor: IEEE Microwave Theory and Techniques Society
Contact information for Sponsor Chair: Richard Snyder
Email: r.snyder@ieee.org
Phone: +1-201-492-1207

5.2 Scope
Some of the requirements specified in Rec. ITU-R M.1645 that this amendment will target are:

- 100 Mbits/s - high mobility, as defined in Recommendation ITU-R M.1645
- Frequency bands - licensed bands as identified in Report ITU-R M.2079
- Target cell size: Micro and Macro-cells as defined in Table 7-15 of Report ITU-R M.2078

8.1 Sponsor Information:
Is the scope of this project within the approved scope/definition of the Sponsor's Charter? Yes
If no, please explain:

Contact the NesCom Administrator

Five Criteria Statement for P802.16m PAR Proposal

CRITERIA FOR STANDARDS DEVELOPMENT (FIVE CRITERIA)

Broad Market Potential

A standards project authorized by IEEE 802 shall have a broad market potential. Specifically, it shall have the potential for:
a) Broad sets of applicability.
b) Multiple vendors and numerous users.
c) Balanced costs (LAN versus attached stations).

a) IMT-Advanced radio interface standardization is being developed by the ITU-R, based on global user and technology trends for next generation mobile networks and on the needs of developing countries. Common technical, operational and spectrum-related parameters of systems will maximize the commonality between IMT-Advanced air interfaces. By updating IEEE Std 802.16 to meet the requirements of next generation mobile networks targeted by the cellular layer of IMT-Advanced, this amendment will ensure that IEEE Std 802.16 fulfills a broad and globally defined set of use cases.

b) The internationally harmonized requirements of IMT-Advanced and the consensus building process used to develop those radio interface standards will ensure wide industry support. This wide support is anticipated to lead to multiple vendor sources to meet the needs and requirements of ~2 billion users [ITU-R Rec. M.1645] utilizing the globally harmonized spectrum identified for IMT-Advanced.

c) Implementation complexity will be balanced between the mobile station (MS) and the base station (BS).

Compatibility

IEEE 802 defines a family of standards. All standards shall be in conformance with the IEEE 802.1 Architecture, Management and Interworking documents as follows: If any variances in conformance emerge, they shall be thoroughly disclosed and reviewed with 802.
Each standard in the IEEE 802 family of standards shall include a definition of managed objects which are compatible with systems management standards.
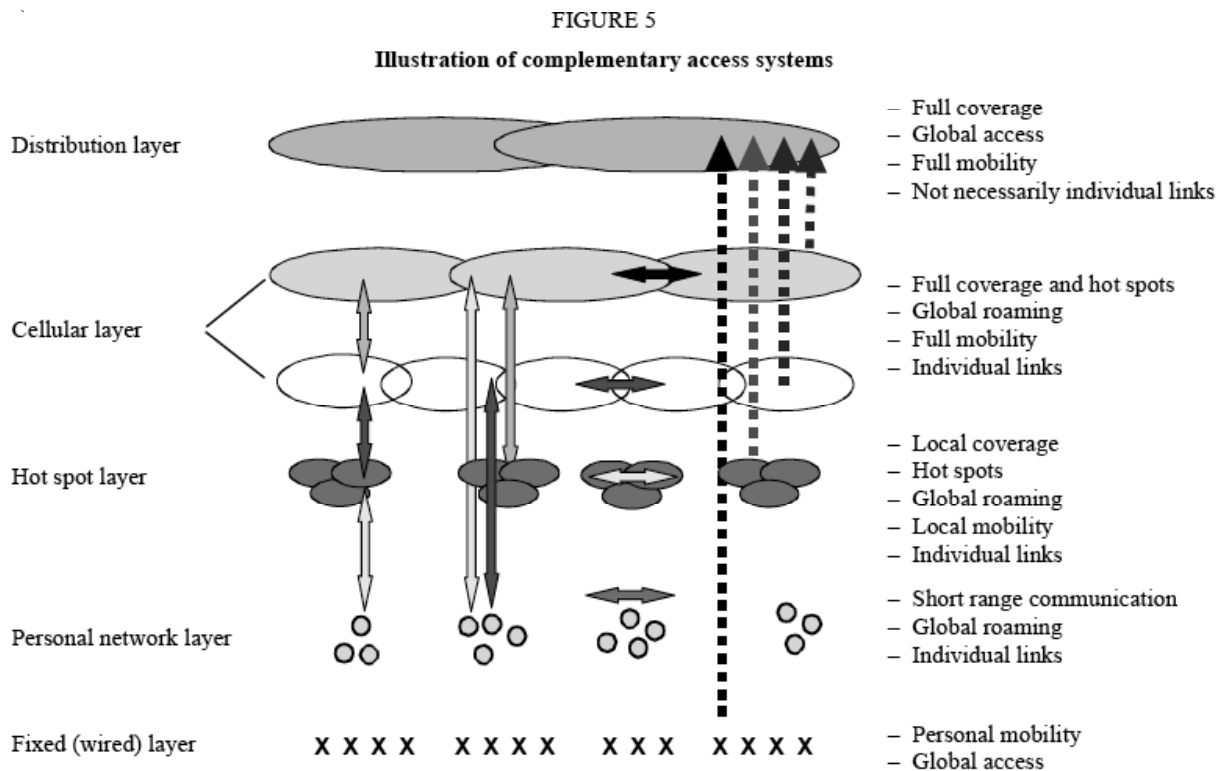

This amendment to IEEE Std 802.16 to meet the IMT-Advanced requirements will conform with the 802.Overview and Architecture, 802.1D, 802.1Q and parts of 802.1F . IEEE 802.16 will thoroughly disclose and review with 802 any variance that emerges.
Managed objects defined will be consistent with existing policies and practices for 802.1 standards

Distinct Identity

Each IEEE 802 standard shall have a distinct identity. To achieve this, each authorized project shall be:
a) Substantially different from other IEEE 802 standards.
b) One unique solution per problem (not two solutions to a problem).
c) Easy for the document reader to select the relevant specification.

ITU-R Recommendation M.1645 (Framework and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000) discusses a multi-layer structure as described in Figure 5 of M.1645(reproduced below)

FIGURE 5

Illustration of complementary access systems

Distribution layer	– Full coverage – Global access – Full mobility – Not necessarily individual links
Cellular layer	– Full coverage and hot spots – Global roaming – Full mobility – Individual links
Hot spot layer	– Local coverage – Hot spots – Global roaming – Local mobility – Individual links
Personal network layer	– Short range communication – Global roaming – Individual links
Fixed (wired) layer	– Personal mobility – Global access

No existing IEEE 802 standards or projects meet the preliminary cellular layer IMT-Advanced target requirements, such as 100 Mbit/s in high-speed mobility applications. In order to address this and other ITU-R M.1645 elements, such as the distribution layer, the hotspot layer, the personal network layer and the fixed (wired) layer, other IEEE 802 groups have the opportunity to develop their own submissions for the ITU-R. M.1645 envisions the use of multiple coordinated technologies, therefore other IEEE 802 media and interworking standards may be suited to address specific parts of the M.1645 structure.
The project will produce an interoperable and distinguishable extension to the IEEE Std 802.16 so that users can easily distinguish the enhancements from the original standard

.Technical Feasibility

For a project to be authorized, it shall be able to show its technical feasibility. At a minimum, the proposed project shall show:
a) Demonstrated system feasibility.
b) Proven technology, reasonable testing.
c) Confidence in reliability
d) Coexistence of 802 wireless standards specifying devices for unlicensed operation

a) Initial deployments of 802.16 technology provide confidence that the necessary enhancements to meet the cellular layer requirements of IMT-Advanced are feasible. As part of the ITU-R process, there will be opportunity to submit input to the development of these requirements, ensuring a good match between the 802.16 amendment capabilities and the specified IMT-Advanced requirements.
b) Existing deployments of 802.16 have proven the technology, including testing and certification.
c) IEEE Std 802.16 technologies are now mature, with industry confidence in their reliability
d) A Coexistence Assurance (CA) is not applicable since the project is only for licensed operation.

Economic Feasibility

For a project to be authorized, it shall be able to show economic feasibility (so far as can reasonably be estimated), for its intended applications. At a minimum, the proposed project shall show:
a) Known cost factors, reliable data.
b) Reasonable cost for performance.
c) Consideration of installation costs.

a) *The economic viability of IEEE 802.16 systems has been analyzed within the industry and a number of development efforts are ongoing. The existence of these development efforts indicates that IEEE 802.16 systems are expected to have a cost that is consistent with reasonable business strategies. The proposed amendment is done within the framework of international standardization, which will further enhance the economic viability of the standard. The deployment costs of IEEE Std 802.16, such as radio and baseband architecture, are well known.*

b) *Because IMT-Advanced is intended to be a globally deployed system, it is expected that cost effective performance can be achieved through large economies of scale.*

c) *The anticipated installation costs for this type of technology are in line with current industry practices for cellular systems.*

Moved to amend the PAR as shown in the file IEEE 802.16-06/078.pdf
Moved: Greenspan/Marks

Proposed edits to IEEE 802.16m PAR

5.2 Scope of Proposed Standard:
This standard amends the IEEE 802.16 WirelessMAN-OFDMA specification to provide an advanced air interface for operation in licensed bands. It addresses the cellular layer requirements of IMT-Advanced next generation mobile networks ~~as specified in Rec. ITU-R M.1645~~. This amendment provides continuing support for legacy WirelessMAN-OFDMA equipment.

7.1 Are there other standards or projects with a similar scope? No
If yes, please explain: It is anticipated that other standards will also be submitted to the ITU-R for IMT-Advanced. At this time, there is no indication about the number of standards that may be proposed or the number of standards that may be adopted by the ITU-R for IMT-Advanced.

~~Other IEEE 802 projects may target aspects of IMT-Advanced, but the scope of this standard is expected to be unique within IEEE 802.~~ Other IEEE 802 groups have the opportunity to target aspects of IMT-Advanced.

7.4 Additional Explanatory Notes: (Item Number and Explanation)

5.2 Scope
Some of the requirements ~~specified in Rec. ITU-R M.1645~~ that this amendment will target are:
• 100 Mbit~~s~~/s - high mobility~~, as defined in Recommendation ITU-R M.1645~~
• Frequency bands - licensed mobile bands ~~as identified in Report ITU-R M.2079~~below 6 GHz
• Target cell size: Micro and Macro-cells as defined in Table 7-15 of Report ITU-R M.2078

Amendment Passes: 14/1/1

Steve and Carl object that this motion is not being handled as a motion to reconsider.

John asked Roger to address the broad scope and exclusivity in the PAR. Roger said that specific changes have been made in response to comments from Steve Shellhammer and Paul Nikolich to address these points.

Move the previous question: Grow/O'Hara
Tally: 12/1

The chair recognized Carl Stevenson, who made a point of order to call the orders of the day.

The chair ruled that the time for adjournment having arrived, the meeting is adjourned.

ADJOURN SEC MEETING	-	Nikolich	06:00 PM
ME - Motion, External	**MI - Motion, Internal**		
DT- Discussion Topic	**II - Information Item**		
Special Orders			

Respectfully submitted,

Bob O'Hara
Recording Secretary, 802 LMSC