

AGENDA & MINUTES (Unconfirmed) - IEEE 802 LMSC EXECUTIVE COMMITTEE MEETING (updated July 24, 2006)

Friday July 21, 2006 1:00 PM – 6:00 PM

San Diego, CA

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
- Jerry Upton - 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

**r04 AGENDA - IEEE 802 LMSC EXECUTIVE COMMITTEE MEETING
Friday, July 21, 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	TREASURER'S REPORT	-	Hawkins	10	01:10 PM
4.01	II	Announcements from the Chair	-	Nikolich	5	01:20 PM
		Category (* = consent agenda)	-			
5.00		IEEE Standards Board Items	-			01:25 PM
5.01	ME	802.1at PAR to NESCOM	-	Jeffree	3	01:25 PM
5.02	ME	802.1au PAR to NESCOM	-	Jeffree	3	01:28 PM
5.03	ME	802.1HREV PAR to NESCOM	-	Jeffree	3	01:31 PM
5.04	ME	Reaffirmation ballot for IEEE Std 802	-	Jeffree	3	01:34 PM
5.05	ME		-			01:37 PM
5.06	ME	802.3av PAR to NESCOM	-	Grow	3	01:37 PM
5.07	ME	802.11k PAR extension to NESCOM	-	Kerry	1	01:40 PM

5.08	ME		-			01:41 PM
5.09	ME	802.16/cor2 PAR to NESCOM	-	Marks	3	01:41 PM
5.10	ME	802.22.2 PAR to NESCOM	-	Stevenson		01:44 PM
5.11	ME		-			01:44 PM
5.12	ME		-			01:44 PM
5.13	ME	802.3aq to REVCOM	-	Grow	5	01:44 PM
5.14	ME	802.3as conditional to REVCOM	-	Grow	5	01:49 PM
5.15	ME	802.11REV-ma conditional to REVCOM	-	Kerry	5	01:54 PM
5.16	ME		-			01:59 PM
5.17	ME	802.1ag approval for sponsor ballot	-	Jeffree	5	01:59 PM
5.18	ME	802.3ap approval for sponsor ballot	-	Grow	5	02:04 PM
5.19	ME	802.17b conditional approval for sponsor ballot	-	Takefman	5	02:09 PM
5.20	ME	802.15.4a conditional approval for sponsor ballot	-	Heile	5	02:14 PM
5.21	ME	802.16k conditional approval for sponsor ballot	-	Marks	5	02:19 PM
5.22	ME	802.16g conditional approval for sponsor ballot	-	Marks	5	02:24 PM
6.00		Executive Committee Study Groups, Working Groups, TAGs	-			02:29 PM
6.01	MI	confirmation of election of Jose Puthenkulam as vice chair of 802.16	-	Marks	3	02:29 PM
6.02	MI		-			02:32 PM
6.03	MI		-			02:32 PM
6.04	MI		-			02:32 PM
6.05	MI		-			02:32 PM
6.06	MI*	Continuation of 802.1 Congestion Management SG	-	Jeffree		02:32 PM
6.07	MI*		-			02:32 PM
6.08	MI*		-			02:32 PM
6.09	MI*		-			02:32 PM
6.10	MI	Formation of 802.15 study group 4c	-	Heile	3	02:32 PM
6.11	MI	Formation of 802.15 study group 4d	-	Heile	3	02:35 PM
6.12	MI	Formation of 802.11 study group on A/V extensions	-	Kerry	3	02:38 PM
6.13	MI	Formation of 802.3 Higher Speed study Group	-	Grow	3	02:41 PM
6.14			-			02:44 PM
6.15			-			02:44 PM
6.16			-			02:44 PM
7.00		Break	-		10	02:44 PM
8.00		IEEE-SA Items	-			02:54 PM
8.01	II	802 Task Force update	-	Nikolich/Kipness	5	02:54 PM
8.02	II		-			02:59 PM
8.03			-			02:59 PM
9.00		LMSC Liaisons & External Interface	-			02:59 PM
9.01	II	Get IEEE 802 Program Update	-	Hawkins	5	02:59 PM
9.02	ME	Revised proposal to revise M.1450-2	-	Lynch	5	03:04 PM
9.03	ME	Response to questions fro clarification from WP8A	-	Lynch	5	03:09 PM
9.04	ME	802.16 ITU-R BWA Liaison Response	-	Lynch	5	03:14 PM
9.05	II	ITU-T/IEEE joint conference/workshop	-	Parsons	5	03:19 PM
9.06	II	RAC update	-	Jeffree	5	03:24 PM
9.07	ME	Letter to China	-	Kerry	5	03:29 PM
9.08			-			03:34 PM
9.09			-			03:34 PM
10.00		LMSC Internal Business	-			03:34 PM
10.01	MI	P&P "Editorial 2" revision approval	-	Sherman	5	03:34 PM
10.02	MI	P&P "Document numbers" revision approval	-	Sherman	5	03:39 PM
10.03	MI	approval to ballot P&P "WG Voting Procedures" revision	-	Sherman	5	03:44 PM
10.04	MI*	Extension of meeting planner contract	-	Hawkins	0	03:49 PM
10.05	MI	Authorization to produce 802 Standards CD-ROM	-	O'Hara	2	03:49 PM
10.06	II	EC executive session feedback	-	Nikolich	15	03:51 PM

10.07	II	Results of EC email ballots	-	Nikolich	5	04:06 PM
10.08	II	LMSC Executive Secretary reorganization of responsibilities	-	Nikolich	5	04:11 PM
10.09	MI	802.20 - moving forward	-	Upton	10	04:16 PM
10.10	MI	Meeting planner RFQ process	-	Hawkins	5	04:26 PM
10.11	II	Meeting planner contract update	-	Rigsbee	5	04:31 PM
10.12	II	Attendance automation requirements update	-	Gilb	5	04:36 PM
10.13			-			04:41 PM
10.14			-			04:41 PM
10.15			-			04:41 PM
10.16			-			04:41 PM
11.00		Information Items	-			04:41 PM
11.01	II	Open office hours feedback	-	Nikolich	5	04:41 PM
11.02	II	Network Services Report	-	Rigsbee	5	04:46 PM
11.03	II		-			04:51 PM
11.04	II		-			04:51 PM
11.05	II		-			04:51 PM
11.06	II	802.3ar status update	-	Grow	3	04:51 PM
11.07	II	802.3 interim meeting polls	-	Grow	2	04:54 PM
11.08	II	802.16 Liaison letter to IETF	-	Marks	2	04:56 PM
11.09	II	Joint 802.1/802.17 Liaison response to ITU-T SG15 on ring protection	-	Jeffree	2	04:58 PM
11.10	II	ITU-T SG15 liaison response on Ethernet connection management	-	Jeffree	2	05:00 PM
11.11	II	Liaison contribution to IETF, MEF, DSL Forum - combination of tags	-	Jeffree	2	05:02 PM
11.12			-			05:04 PM
11.13			-			05:04 PM
11.14			-			05:04 PM
11.15			-			05:04 PM
11.16			-			05:04 PM
11.17			-			05:04 PM
11.18			-			05:04 PM
11.19			-			05:04 PM
11.20			-			05:04 PM
11.21			-			05:04 PM
		ADJOURN SEC MEETING	-	Nikolich		06:00 PM
		ME - Motion, External MI - Motion, Internal				
		DT- Discussion Topic II - Information Item				

Moved: To approve the agenda, as modified.

Moved: Stevenson/Jeffree

Passes: 16/0/0

4.00	II	TREASURER'S REPORT	-	Hawkins	10	01:03 PM
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IEEE Project 802
Statement of Operations
March 2006 Plenary Session
Denver, CO
As of Jul 20, 2006

Session Income				Est/Act	Budget	Deviation
	Net Registrations			1,372	1,200	172
67%	925 Early Registrations	@ \$400	370,000			370,000
	22 Early cancellations	@ \$400	-8,800			
	31 Cancellations	@ \$350	-10,850			
32%	444 Registrations	@ \$500	222,000			222,000
	5 Cancellation	@ \$450	-2,250			
	2 Special Cancellation	@ \$500	-1,000			
	1 On-site registrations	@ \$500	500			
	1 Student	@ \$100	100			
	1 Special Registration	@ \$400	400			
	2 Other credits	@ \$100	-200			
	Registraion Subtotal		569,900	569,500	497,465	72,035
	0 Deadbeat Payment	@ \$500		0	0	0
	Interest			68	60	8
	Other			74,261	0	74,261
TOTAL Session Income				643,829	497,525	146,304
Session Expenses				Actual	Budget	
	Audio Visual Rentals			16,855	15,000	(1,855)
	Audit			0	8,000	8,000
	Bank Charges			140	500	360
	Copying			3,879	3,500	(379)
	Credit Card Discounts & Fees			12,688	14,515	1,827
	Equipment Expenses			24,345	9,000	(15,345)
	Get IEEE 802 Contribution			96,900	90,000	(6,900)
	Insurance			2,713	3,500	787
	Meeting Administration			83,485	75,064	(8,421)
	Misc Expenses			3,083	500	(2,583)
	Networking			64,345	65,000	656
	Other			18,133		
	Phone & Electrical			529	2,100	1,571
	Refreshments			117,886	96,000	(21,886)
	Shipping			12,764	6,500	(6,264)
	Social			79,091	42,000	(37,091)
	Supplies			1,250	500	(750)
TOTAL Session Expense				538,089	431,679	(106,409)
Other Income/Expense				0		
NET Session Surplus/(Deficit)				105,740	65,846	39,894
Analysis						
	Refreshments per registration			86	80	(6)
	Social per registration			58	35	(23)
	Meeting Admin per registration			61	62.55	2
	Surplus/(Loss) per registration			77	55	22
	Pre-Registration ratio			0.67	0.85	
Cash on hand as of Jan 31, 2006				459,154		
Reserve for uninvoiced expenses for prior sessions				(215,546)		
Reserve for other outstanding commitments				0		
Income received for current session				(5,130)		
Expenses prepaid for current session				0		
Expenses prepaid for future sessions				0		
Petty cash fund (F2F)				2,000		
Net Session Surplus (Deficit)				105,740		
Operating Reserve following this session				346,218		

IEEE Project 802
Estimated Statement of Operations
July 2006 Plenary Session
San Diego, CA
As of July 21, 2006

Meeting Income	<i>Budget</i>	<i>Estimate</i>	
Registrations	1,200	1,379	179
Registration income	528,000	578,800	50,800
Cancellation refunds	(10,560)	(26,150)	(15,590)
Deadbeat collections	0	0	0
Bank interest	60	60	0
Other income	0	100,110	100,110
TOTAL Meeting Income	517,500	652,820	135,320
Meeting Expenses	<i>Budget</i>	<i>Estimate</i>	<i>Variance</i>
Audio Visual Rentals	22,000	29,000	7,000
Audit	6,000	6,000	0
Bank Charges	500	500	0
Copying	3,750	3,750	0
Credit Card Discount	14,784	16,206	1,422
Equipment Expenses	11,000	11,000	0
Get IEEE 802 Contribution	90,000	103,425	13,425
Insurance	0	0	0
Meeting Administration	75,064	83,651	8,587
Misc Expenses	2,000	5,500	3,500
Network	60,000	55,560	(4,440)
Phone & Electrical	2,500	500	(2,000)
Refreshments	158,000	155,000	(3,000)
Shipping	4,500	15,000	10,500
Social	45,000	66,500	21,500
Supplies	800	500	(300)
Other Discounts	0	0	0
TOTAL Meeting Expense	495,898	552,092	56,194
Other Income/Expense			
NET Meeting Income/Expense	21,602	100,728	79,126

		Attendance						
		400	500	600	700	800	900	1,000
Average Fee	250	(349,354)	(356,507)	(363,659)	(370,811)	(377,964)	(385,116)	(392,269)
	400	(291,094)	(283,682)	(276,269)	(268,856)	(261,444)	(254,031)	(246,619)
	550	(232,834)	(210,857)	(188,879)	(166,901)	(144,924)	(122,946)	(100,969)
	700	(174,574)	(138,032)	(101,489)	(64,946)	(28,404)	8,139	44,681
	910	(93,010)	(36,077)	20,857	77,791	134,724	191,658	248,591

John indicated that there is a significant danger of a loss exceeding our expectations on the London 802-sponsored interim session in January 2007.

4.01 II Announcements from the Chair - Nikolich 10 01:14 PM
None.

5.00

IEEE Standards Board Items

 -
5.01 ME 802.1at PAR to NESCOM - Jeffree 3 01:15 PM

MOTION

- 802.1 requests permission from the EC to forward the P802.1at draft PAR – SRP - to NesCom.
- 802.1 Proposed: fuller Second: garner
 - For: 23 Against: 0 Abstain: 5
- Exec Proposed: Jeffree Second:
 - For: Against: Abstain:
- Draft PAR/5C URLs:

<http://www.ieee802.org/1/files/public/docs2006/new-p802.1at-draft-par-0506-v1.pdf>

<http://www.ieee802.org/1/files/public/docs2006/new-p802.1at-draft-5c-0506-v1.pdf>

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

Draft PAR Confirmation Number: 175785200.17078
Submittal Email: tony@jeffree.co.uk
Type of Project: Amendment to an Existing Standard 802.1Q-2005
1.1 Project Number: P802.1Qat
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: 9: Stream Reservation Protocol (SRP)
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: 2008-07
4.3 Projected Completion Date for Submittal to RevCom: 2009-07
5.1 Approximate number of people expected to work on this project: 30
5.2 Scope of Proposed Standard: This standard specifies protocols, procedures and managed objects, usable by existing higher layer mechanisms, that allow network resources to be reserved for specific traffic streams traversing a bridged local area network. It identifies traffic streams to

a level sufficient for bridges to determine the required resources and provides a mechanism for dynamic maintenance of those resources.

5.3 Is the completion of this standard is dependent upon the completion of another standard: Yes

If yes, please explain: This standard will refer to the material being defined in P802.1ak (also an amendment to 802.1Q); however, P802.1ak will commence Sponsor ballot in June/July 2006, and hence, that project will be complete in time for this project to reference its work.

5.4 Purpose of Proposed Standard: This standard provides a signaling protocol to enable the end-to-end management of resource reservation for QoS guaranteed streams. The signaling protocol facilitates the registration, deregistration, and retention of resource reservation information in relevant network elements. The signaling protocol is an essential component for automatic configuration in bridged local area network applications that require latency and bandwidth guarantees.

5.5 Need for the Project: Many vendors and users desire a single network infrastructure to carry various multimedia applications such as digital video, high-fidelity digital audio, and gaming traffic, as well as non-time-sensitive traffic (e.g., data traffic). The application of current IEEE 802 technologies for high quality time sensitive streaming allows users to load their networks unknowingly to the extent that the user experience is negatively impacted. To provide the robust guaranteed QoS capability for streaming applications, the availability of network resources along the entire data path must be assured before transmission takes place. This requires the definition of traffic stream descriptors and a protocol to signal the resource reservation along the end-to-end path of streams. MRP will be used as a basis for this protocol.

5.6 Stakeholders for the Standard: Developers and users of Audio-Visual (AV) and networking equipment, including networking IC developers, switch and NIC vendors.

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: 2006-05-15

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](#)

P802.1at - Stream Reservation Protocol (SRP)

Draft 5 Criteria
May 17, 2006

Broad Market Potential

- **Broad set(s) of applicability**
 - **Multiple vendors and numerous users**
 - **Balanced cost (LAN vs. attached stations)**
-
- Carrying time-sensitive streaming applications with guaranteed QoS represent a new and very broad application space for IEEE 802 technologies. This requires a protocol to signal the resource reservation along the end-to-end paths of streams.
 - Many vendors and users have expressed their support for a standard means of end-to-end stream resource reservation to facilitate the use of bridged LANs for time-sensitive applications.
 - As a control protocol, SRP makes no new demands on a bridge or station's data forwarding capabilities. It does not upset the cost model for bridges.

Compatibility with IEEE Std. 802.1

- **Conformance with 802 Overview and Architecture**
- **Conformance with 802.1D, 802.1Q**
- **Conformance with 802 Functional Requirements**

- **As an extension to IEEE Std. 802.1Q-2005, the proposed standard will conform to the aforementioned documents.**
- The standard defines a control protocol, and does not modify the existing forwarding characteristics and control protocols of bridges.

Distinct Identity

- **Substantially different from other IEEE 802 standards**
- **Unique solution for problem (not two alternatives / problem)**
- **Easy for document reader to select relevant spec.**
- There is no existing 802 standard or approved project that provides end-to-end stream registration.
 - The admission control in some existing 802 standards (e.g., 802.11e, 802.15.3) has no end-to-end meaning.
- Previous efforts (e.g., SBM) were too complex to be taken up by the market; this standard will minimize complexity by confining itself to applications with homogenous one-to-many reservation, and well defined streams with simple traffic profiles.

Technical Feasibility

- **Demonstrated system feasibility; reports – working models**
- **Proven technology, reasonable testing**
- **Confidence in reliability**
 - SRP will be based on MRP which is a refinement of the well established GARP architecture. It will be defined as a new MRP application.
 - We are confident that a MRP based application is a suitable solution.

Economic Feasibility

- **Known cost factors, reliable data**
- **Reasonable cost for performance expected**
- **Consideration of installation costs**

- Other registration protocols (GMRP/GVRP) are standardized. P802.1ak MRP builds on that knowledgebase.

- Running another MRP application will have a negligible impact on the current cost of bridges.

- We expect that applications will be developed and run in stations that automatically request services from SRP without intervention by the user. Therefore, there are no incremental installation costs for the provision of SRP.

**Moved: 802.1 requests permission from the EC to forward the P802.1at draft PAR – SRP - to NesCom.
Moved: Jeffree/Stevenson**

14/0/0 Passes

5.02 ME 802.1au PAR to NESCOM

- Jeffree

3 01:18 PM

MOTION

- 802.1 requests permission from the EC to forward the P802.1au draft PAR – Congestion Notification - to NesCom.
- 802.1 Proposed: finn Second: kim
 - For: 25 Against: 0 Abstain: 6
- Exec Proposed: Jeffree Second:
 - For: Against: Abstain:
- Draft PAR/5C URLs:

<http://www.ieee802.org/1/files/public/docs2006/new-p802.1au-draft-par-0506-v1.pdf>

<http://www.ieee802.org/1/files/public/docs2006/new-p802.1au-draft-5c-0506-v1.doc>

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

Draft PAR Confirmation Number: 175787384.18794
Submittal Email: tony@jeffree.co.uk
Type of Project: Amendment to an Existing Standard 802.1Q-2005
1.1 Project Number: P802.1Qau
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: 10: Congestion Notification.
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: 2008-07
4.3 Projected Completion Date for Submittal to RevCom: 2009-07
5.1 Approximate number of people expected to work on this project: 20
5.2 Scope of Proposed Standard: This standard specifies protocols, procedures and managed objects that support congestion management of long-lived data flows within network domains of limited bandwidth delay product. This is achieved by enabling bridges to signal congestion

information to end stations capable of transmission rate limiting to avoid frame loss. This mechanism enables support for higher layer protocols that are highly loss or latency sensitive. VLAN tag encoded priority values are allocated to segregate frames subject to congestion control, allowing simultaneous support of both congestion controlled and other higher layer protocols. This standard does not specify communication or reception of congestion notification information to or from stations outside the congestion controlled domain or encapsulation of frames from those stations across the domain.

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: Data center networks and backplane fabrics employ applications that depend on the delivery of data packets with a lower latency and much lower probability of packet loss than is typical of IEEE 802 VLAN bridged networks. This amendment will support the use of a single bridged local area network for these applications as well as traditional LAN applications.

5.5 Need for the Project: There is significant customer interest and market opportunity for Ethernet as a consolidated Layer 2 solution in high-speed short-range networks such as data centers, backplane fabrics, single and multi-chassis interconnects, computing clusters, and storage networks. These applications currently use Layer 2 networks that offer very low latency and controlled frame loss due to congestion. Use of a consolidated network will realize operational and equipment cost benefits.

5.6 Stakeholders for the Standard: Developers and users of networking for data center and backplane Ethernet environments including networking IC developers, switch and NIC vendors, and 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: 2006-05-15

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?

If no, please explain:

Submit to NesCom

Save and Come Back Later

Contact the [NesCom Administrator](#)

Congestion Notification Draft PAR (P802.1au)

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.

Mechanisms to avoid frame loss, of which congestion notification is one, are essential for support of the highly loss sensitive higher layer protocols, which are prevalent in the important applications E.g. data storage, clustering, backplane fabrics.

Back-end data storage networks, clustering networks and backplane fabrics are typically limited in size, making them amenable to a congestion control mechanism that is most effective with a limited network bandwidth-delay product. Each network is typically under the control of a single administrator, so the control technique does not require protection against 'gaming' by separate organizations attempting to acquire an unfair share of the bandwidth.

The data traffic to be controlled by the proposed congestion notification mechanism will be segregated using a VLAN-based technique, thus ensuring that traffic types already supported by VLAN Bridges are not affected and that there is no diminution of applicability to consolidated networks.

- b) Multiple vendors and numerous users

Multiple equipment vendors have expressed interest in the proposed project. There is strong and continued user interest in converting existing networks to Ethernet and in the realization of operational and equipment cost savings through use of a consolidated network. Further there is strong interest in increased use of data storage networks, provided that they can be realized with familiar technology and a consolidated network.

- c) Balanced costs (LAN versus attached stations)

The introduction of congestion notification is not expected to materially alter the balance of costs between end stations and bridges. While the introduction of the congestion notification option may constrain bridge implementation, significant equipment and operational costs savings are expected as compared to the use of separate networks for traditional LAN connectivity and for loss/latency sensitive applications.

2. 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: 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 all prior revisions and amendments of the 802.1Q standard. The data traffic to be controlled by the proposed congestion notification mechanism will be segregated using a VLAN-based technique, thus ensuring that traffic types already supported by VLAN Bridges are not affected.

Congestion notification frames and frame headers are confined to a domain composed solely of congestion notification capable bridges and end stations, thus preventing interoperability or compatibility problems from arising with either existing end stations and bridges, or with future systems using possible different techniques.

The proposed amendment will not introduce new bridge transmission selection algorithms or rate controls. Proposed end station controls on transmission rate and queuing are intended for use with full-duplex links and will be compatible with transmission control mechanisms already developed or under development by 802.3 and subject to liaison with 802.3 using the already established procedures.

Such end station controls will be independent of the details of the 802.3 media access control technology and will make use of the existing interface used by bridges.

The proposed amendment will contain MIB modules, or extensions to existing MIB modules, to enable management operations for any configuration required together with performance monitoring for both end stations and bridges.

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 VLAN-aware Bridges and their participation in LAN protocols. No other IEEE 802 standard addresses congestion notification by bridges.

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

Congestion notification is a reactive (not prescriptive) mechanism, and has not been anticipated by any other IEEE 802 specification. It does not require or restrict the use of admission control techniques. It signals congestion through bridges, unlike mechanisms that are specific to individual media access control methods.

Congestion Notification mechanism (ECN: Explicit Congestion Notification) specified by IETF is applicable to internet-wide topologies and only to TCP/IP applications. This proposal addresses the needs of low bandwidth-delay networks including those carrying non-TCP or non-IP traffic.

- 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.

Congestion notification techniques have been shown to be useful even in networks that are as difficult to control as the Internet. The proposed amendment will be applied only in networks of limited bandwidth-delay product and where both bridges and end stations are typically under the control of a single administration. This reduces the risk that the benefits of the technique will be eroded by over extended control loops or by some of the end stations 'gaming the system'.

The amendment will specify a one way bandwidth-delay product across the congestion controlled domain. The bandwidth-delay product limit is expected to be in the region of 1-5 Mbits (100 – 500 μ S control loop delay for 10Gbps network) and simulation and analysis will verify performance characteristics up to the advertised bandwidth-delay product.

It has been shown that end station rate limiting capabilities, suitable for use with congestion notification, can be implemented in hardware at acceptable cost.

- b) Proven technology, reasonable testing.

The proposed amendment is based on extensive simulation and analysis in an area that has been studied for over 20 years.

- c) Confidence in reliability.

In keeping with best practice in this technical area, both end station and bridge behaviour will be specified, and the performance, stability, and fairness

of the congestion control algorithm and resulting network throughput simulated and analyzed to the bounds of the specification.

- 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 amendment will retain existing cost characteristics of bridges including simplicity of queue structures and will not require maintenance of additional queues or queue state beyond the existing per traffic class(priority) queues for conformance to either its mandatory or optional provisions. In particular per flow queuing and state will not be required.

The proposed amendment may require some functions, specifically the generation of congestion notification frames, at a rate and within a time not practical for some existing and otherwise conformant bridge implementation architectures. However these functions can be performed by some existing bridges with known implementation costs.

The proposed amendment is technically feasible, in the envisaged application environment, with minimal flow state in end stations and will allow for complexity/throughput optimization trade-offs.

- b) Reasonable cost for performance.

The proposed technology will reduce overall costs where separate networks are currently required by enabling the use of a consolidated network.

The proposed solution allows the network to avoid packet loss without significant throughput reduction.

- c) Consideration of installation costs.

Installation costs of VLAN Bridges or end stations are not expected to be significantly affected; any increase in network costs is expected to be more than offset by a reduction in the number of separate networks required.

Moved: 802.1 requests permission from the EC to forward the P802.1au draft PAR – Congestion Notification - to NesCom.

Moved: Jeffree/Stevenson

16/0/0 Passes

5.03 ME 802.1HREV PAR to NESCOM

- Jeffree

3 01:21 PM

MOTION

- 802.1 requests permission from the EC to forward the P802.1H-REV draft PAR – MAC Bridging of Ethernet - to NesCom.
- 802.1 Proposed: seaman Second: congdon
 - For: 24 Against: 0 Abstain: 3
- Exec Proposed: Jeffree Second:
 - For: Against: Abstain:
- Draft PAR URL:

<http://www.ieee802.org/1/files/public/docs2006/new-p802.1h-rev-draft-par-0506-v1.pdf>

Draft PAR Confirmation Number: 175717592.3968	
Submittal Email: tony@jeffree.co.uk	<input type="button" value="Change Submitter Email"/>
Type of Project: Revision to an Existing Standard 802.1H-1995	
1.1 Project Number: P802.1H	
1.2 Type of Document: Recommended Practice for	
1.3 Life Cycle: Full	
1.4 Is this project in ballot now? No	
2.1 Title of Standard: Local and Metropolitan Area Networks: Recommended Practice for Media Access Control (MAC) Bridging of Ethernet in Local Area Networks	Old Title: Local and Metropolitan Area Networks: IEEE Recommended Practice for Media Access Control (MAC) Bridging of Ethernet Version 2.0 in 802 Local Area Networks
3.1 Name of Working Group: Higher Layer LAN Protocols Working Group	
<input type="button" value="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 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: 2008-07	
4.3 Projected Completion Date for Submittal to RevCom: 2009-07	

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

5.2 Scope of Proposed Standard: This Recommended Practice specifies extensions to the behavior of MAC Bridges to facilitate interoperability in bridged networks containing a mixture of IEEE 802.3 LANs and other types of LANs. To avoid future incompatibilities, this Technical Report provides guidelines for the identification of protocols operating over IEEE 802 MACs, with particular emphasis on protocols that use the Ethernet Type field.

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 Recommended Practice provides guidelines for protocol identification and translation rules for bridges to support interoperability between IEEE 802.2 and Ethernet Type – based protocols.

5.5 Need for the Project: The need for this revision project is that IEEE 802.1H is in need of updating in a number of areas to reflect developments in Bridging since its publication and to correct inaccuracies in the text that have resulted from changes in other standards.

5.6 Stakeholders for the Standard: LAN standards developers. LAN equipment developers, manufacturers and distributors. Developers of other networking technologies that may be required to interwork with LAN equipment. Users of LAN equipment.

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: 2006-05-15

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](#)

Moved: 802.1 requests permission from the EC to forward the P802.1H-REV draft PAR – MAC Bridging of Ethernet - to NesCom.

Moved: Jeffree/Stevenson

16/0/0 Passes

5.04 ME Reaffirmation ballot for IEEE Std 802

- Jeffree

3 01:24 PM

MOTION

- 802.1 requests permission from the EC to initiate a reaffirmation Sponsor Ballot for IEEE Std 802, Overview and Architecture.
- 802.1 Proposed: seaman Second: romanow
 - For: 29 Against: 0 Abstain: 3
- Exec Proposed: Jeffree Second:
 - For: Against: Abstain:

Moved: 802.1 requests permission from the EC to initiate a reaffirmation Sponsor Ballot for IEEE Std 802, Overview and Architecture.

Moved: Jeffree/Stevenson

16/0/0 Passes

5.05	ME		-		
5.06	ME	802.3av PAR to NESCOM	-	Grow	3 01:27 PM

802.3av WG Votes

- **Broad Market Potential** – Y:45, N:1, A:9
Move that 802.3 WG approve the 10 Gb/s PHY for EPON Study Group Broad Market Potential criterion, as shown in 10gepon_5criteria_0506.pdf.
- **Compatibility** – Y: 47, N: 0, A: 4
Move that 802.3 WG approve the 10 Gb/s PHY for EPON Study Group Compatibility criterion, as shown in 10gepon_5criteria_0506.pdf.
- **Distinct Identity** – Y: 49, N: 1, A: 5
Move that 802.3 WG approve the 10 Gb/s PHY for EPON Study Group Distinct Identity criterion, as shown in 10gepon_5criteria_0506.pdf.
Y:49 N:1 A:5
- **Technical Feasibility** – Y: 52, N: 1, A: 6
Move that 802.3 WG approve the 10 Gb/s PHY for EPON Study Group Technical Feasibility criterion, as shown in 10gepon_5criteria_0506.pdf.
- **Economic Feasibility** – Y: 42, N: 2, A: 11
Move that 802.3 WG approve the 10 Gb/s PHY for EPON Study Group Economic Feasibility criterion, as shown in 10gepon_5criteria_0506.pdf.
- **PAR** – Y: 45, N: 1, A: 9
Move that 802.3 WG approve the 10 Gb/s PHY for EPON Study Group PAR, as shown in 10gepon_PAR_0506.pdf, with appropriate modifications to indicate the current revision of 802.3, and forward the PAR to the 802 SEC and NesCom for approval.

P802.3av to NesCom

Motion:

The LMSC grants approval for P802.3av
submittal to NesCom.

PAR: http://www.ieee802.org/3/10GEPON_study/public/may06/10gepon_PAR.pdf

5C: http://www.ieee802.org/3/10GEPON_study/public/may06/10gepon_5criteria.pdf

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

Draft PAR Confirmation Number: 173855908.5838
Submittal Email: glen.kramer@ieee.org
Type of Project: Amendment to an Existing Standard 802.3-2005
1.1 Project Number: P802.3av
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 - Amendment: Physical Layer Specifications and Management Parameters for 10Gb/s Passive Optical Networks
3.1 Name of Working Group: Ethernet Working Group
Contact information for Working Group Chair Robert M Grow Email: bob.grow@ieee.org Phone: 858-391-4622
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: 2008-07
4.3 Projected Completion Date for Submittal to RevCom: 2009-03
5.1 Approximate number of people expected to work on this project: 50
5.2 Scope of Proposed Standard: The scope of this project is to amend IEEE Std 802.3 to add physical layer specifications and management parameters for symmetric and/or asymmetric operation at 10 Gb/s on point-to-multipoint passive optical networks.
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: To significantly increase performance of point-to-multipoint architecture (Ethernet Passive Optical Network) to support emerging bandwidth-intensive services while considering equipment, operation, upgrade, and maintenance costs.
5.5 Need for the Project: The project is applicable to subscriber access, back-haul, and multi-dwelling unit environments. The project is needed to enable telecommunications operators and multiple system operators to provide advanced bandwidth-intensive services, such as high-definition television, while: reducing footprint and power consumption of central office equipment; minimizing service upgrade cost; and minimizing fiber deployment costs.
5.6 Stakeholders for the Standard: Telecom system and component vendors, telecommunications carriers, and multiple system operators (MSOs)
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: 2006-05-24 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? Yes If Yes, the following questions must be answered: Technical Committee Name and Number: ISO SC6 WG3 Other Organization Contact Information: Contact person: Robin Tasker

Contact Email address: r.tasker@dl.ac.uk

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](#)

Broad Market Potential

- a) **Broad set of applications**
 - b) **Multiple vendors, multiple users**
 - c) **Balanced cost, LAN vs. attached stations**
-

- 10G EPON is applicable in multiple environments to support bandwidth-intensive applications that will require fast, reliable, scalable, first-mile connections. Such applications include Broadcast TV (expanded HDTV content), IPTV, time-shifted TV, rich unicast based VOD content libraries, 3D Online Interactive Games, UltraHigh Speed Internet, Personal Video Casting, Business Ethernet Access, Distributed Network Attached Storage, Medical Imaging, HDTV Video Conferencing, Video Email, Virtualized Multimedia Network applications, Grid Computing Interconnect, Next Generation Wireless Access Backhaul, MDU backhaul, and BPL backhaul.
- In an overwhelming response at the March, 2006, IEEE 802 LMSC meeting in Denver, attendees voted 52 to 2 to form a 10Gb/s EPON study group. Among those represented were 31 companies including optical component manufacturers and semiconductor manufacturers, equipment vendors, and service providers and 58 individuals who expressed interest in participating in the activities of 10GEPON study group and consequent task force.
- 10G interfaces will eventually exhibit a similar cost balance as 1G 802.3ah for PON ports versus per attached stations.

Compatibility

- a) **Conformance with 802 Overview and Architecture**
 - b) **Conformance with 802.1D, 802.1Q, 802.1f**
 - c) **Compatible managed object definitions**
-

- The proposed standard will conform to the simplified full-duplex media access control defined in Annex 4A in IEEE Std. 802.3-2005.
- The proposed standard will conform to the requirements of IEEE Std 802-2001. Conformance with 802.1D, 802.1Q, and 802.1f is provided by use of the existing overlying 802.3 MAC and MAC Control sublayer interfaces.
- The Management Information Base (MIB) for 10Gb/s PHY for EPON will maintain compatibility with the current 802.3 MIB, allowing a consistent management model at all operating speeds.

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 appropriate for wire line access using point-to-multipoint topology at 10Gb/s.
- The proposed project is a 10Gb/s upgrade for users of Ethernet Passive Optical Networks specified in IEEE Std 802.3-2005. The solution may include more than one Physical Media Dependent sublayer specification to support different optical link budgets. The solution may include a 10Gbps symmetric solution and/or an asymmetric 10Gbps downstream/1Gbps upstream solution.
- The proposed project will be formatted as a set of clauses in IEEE Std 802.3, making it easy for the document reader to select the relevant specification.

Technical Feasibility

- a) Demonstrated system feasibility**
 - b) Proven technology, reasonable testing**
 - c) Confidence in reliability**
-

- Presentations made to the 10Gb/s PHY for EPON Study Group illustrate the technical feasibility of 10Gb/s EPON system. The 10Gb/s EPON prototype system was implemented by adding the 10Gb/s EPON PHY to 802.3-compliant devices. Two options supporting 10Gb/s EPON PHY were studied: asymmetric (10Gb/s downstream/ 1Gb/s upstream) mode and symmetric (10Gb/s downstream/ 10Gb/s upstream) mode.
- This project reuses the Ethernet point-to-multipoint and point-to-point technologies that proved to be stable and credible. The project will extend burst mode technology to 10Gb/s. The reasonable throughput and latency for the 10Gb/s burst mode interface was demonstrated by using the continuous mode optics available for 10Gb/s point-to-point Ethernet devices. This study group will develop the specifications of the 10Gb/s EPON PHY, considering the performance of the 10Gb/s burst mode interface and the compatibility with the 802.3 standards. The testing is expected to be straightforward, based on experience gained from testing of 1Gb/s EPON and 10Gb/s point-to-point products.
- This study group has received contributions from PHY and system vendors; service providers; and industry/academic experts. The 1Gb/s point-to-multipoint and 10Gb/s point-to-point technologies are mature and reliability data exists which provides a high level of confidence in reliability of 10Gb/s EPON systems.

Economic Feasibility

- a) **Known cost factors, reliable data**
 - b) **Reasonable cost for performance**
 - c) **Consideration of installation costs**
-

- The cost factors for the components and systems are well known because 10Gb/s Ethernet and EPON architectures are massively deployed for commercial services.
- Point-to-multipoint topology is optimal for broadcast services and IP-based TV, providing cost-efficient subscriber access architecture. Coupled with a reduction of the footprint and power consumption of CO equipment, reduction of trunk fiber count, and lower maintenance and repair costs, the introduction of 10Gb/s EPON results in the overall reduction of infrastructure cost and reasonable cost for performance ratio.
- The installation costs of cable plant and maintenance costs are similar to 1Gb/s EPON.

Moved: The LMSC grants approval for P802.3av submittal to NesCom.

Moved: Grow/Jeffree

15/0/0 Passes

5.07 ME 802.11k PAR extension to NESCOM

- Kerry

1 01:29 PM

IEEE 802 LMSC RESOLUTION

Motion By: KERRY

Seconded By: O'Hara

- **Move that the ExCOM approve the WG decision; TGk request the 802.11 WG to forward the proposed 11k PAR extension to 2011 (as found in document 06/806r0) to NESCOM for consideration of the PAR.**
- WG Results from the May 2006 session: **57/0/0**
- TGk results from the Interim May 2006 session: **7/0/0**
- WG Move by: Al Petrick
- WG 2nd: Richard Paine
- **WG Re-Affirm the decision Results: Approved 142/3/7**

Approve:

Do Not Approve:

Abstain:

[Email This Letter](#)

26 May 2006

Paul Nikolich
18 Bishops Lane
Lynnfield, MA 01940
p.nikolich@ieee.org

Re: P802.11k - Standard for Information Technology-Telecommunications and information exchange between systems-Local and metropolitan area networks-Specific requirements-Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications

Dear Paul:

I am pleased to inform you that on 25 May 2006 the IEEE-SA Standards Board approved the above referenced project until 31 December 2006. A copy of the file can be found on our website at <http://standards.ieee.org/board/nes/projects/802-11k.pdf>.

Now that your project has been approved, please forward a roster of participants involved in the development of this project. This request is in accordance with the IEEE-SA Operations Manual, Clause 5.1.2i under Duties of the Sponsor which states:

"Submit annually to the IEEE Standards Department an electronic roster of individuals participating on standards projects"

For your convenience, an Excel spreadsheet for your use has been posted on our website at <http://standards.ieee.org/guides/par/roster.xls>. Please forward this list to me via e-mail at j.haasz@ieee.org no later than 23 August 2006.

Please visit our website, IEEE Standards Development Online (<http://standards.ieee.org/resources/development/index.html>), for tools, forms and training to assist you in the standards development process. Also, we strongly recommend that a copy of your draft be sent to this office for review prior to the final vote by the working group to allow for a quick review by editorial staff before sponsor balloting begins.

If you should have any further questions, please contact me at 732-562-6367 or by email at j.haasz@ieee.org.

Sincerely,

Jodi Haasz
Program Manager
International Stds Programs and Governance
Standards Activities
Phone +1 732 562 6367
FAX +1 732 875 0695
Email: j.haasz@ieee.org

CC: stuart@ok-brit.com

PAR Request Date: 08 March 2006**PAR Approval Date:** 25 May 2006**PAR Signature Page on File:** Yes**Type of Project:** Modification to Approved PAR**Status:** Modification to a Previously Approved Amendment PAR P802.11k, 2002-12-11**Root Project/PAR:** Modification to Approved PAR P802.11-REVma, 2003-03-20**1.1 Project No.:** **P802.11k****1.2 Type of Document:** Standard**1.3 Life Cycle:** Full-Use**1.4 Is this document in ballot now?** No**2.1 Title**

Standard for Information Technology-Telecommunications and information exchange between systems-Local and metropolitan area networks-Specific requirements-Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications

Old Title

Amendment to STANDARD [FOR] Information Technology-Telecommunications and information exchange between systems-Local and Metropolitan networks-Specific requirements-Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications: Radio Resource Measurement of Wireless LANs

2.1 Amendment/Corrigenda Title

Amendment : Radio Resource Measurement of Wireless LANs

3.1 Working Group Name[Wireless LAN Working Group](#)**Working Group Chair**[Kerry Stuart J](#)

Phone: 408-348-3171

Email: stuart@ok-brit.com

Working Group Vice Chair**3.2 Sponsor**[IEEE Computer Society Local and Metropolitan Area Networks \(C/LM\)](#)**Sponsor Chair**[Nikolich Paul](#)

Phone: 857-205-0050

Email: p.nikolich@ieee.org

3.3 Joint Sponsor**4.1 Type of Ballot:** Individual**4.2 Expected Date of Submission for Initial Sponsor Ballot:** 2006-07-00**4.3 Projected Completion Date for Submittal to RevCom:** 2007-03-00**5.1 Approximate number of people expected to work on this project:** 500**5.2 Scope:** This project will define Radio Resource Measurement enhancements to provide interfaces to higher layers for radio and network measurements.**Old Scope:** This project will define Radio Resource Measurement enhancements to provide interfaces to higher layers for radio and network measurements.**5.3 Is the completion of this document contingent upon the completion of another document?** No

5.4 Purpose: The original standard has a basic set of radio resource measurements for internal use only. These measurements and others are required to provide services; such as roaming, coexistence, and others; to external entities. It is necessary to provide these measurements and other information in order to manage these services from an external source.

Old Purpose: The original standard has a basic set of radio resource measurements for internal use only. These measurements and others are required to provide services; such as roaming, coexistence, and others; to external entities. It is necessary to provide these measurements and other information in order to manage these services from an external source.

5.5 Need for the Project: The demand for measurements is driven by WLAN vendors, suppliers, and service providers who are focusing on emerging new technologies. These new technologies include voice-over-ip (VoIP), video-over-ip, location, sensors, and high-throughput wireless that require more robust measurements of the WLAN radio environment.

5.6 Stakeholders for the Standard: The stakeholders are the telecommunications industry.

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 **Presented Date:** 2006-03-06

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? Yes

If yes, please explain:

IETF SNMP The IETF has had a standard for years called the "Simple Network Management Protocol (SNMP)" for access of data about the wired, non-mobile network. The MIBs for this protocol have been defined and allocated. The wireless LAN technologies inject new requirements that include location, mobility, varying power levels, varying signal strength, etc. The IETF has not adequately addressed these requirements for SNMP. Distributed Management Task Force (DMTF) The DMTF has developed a Common Information Model (CIM) that defines the schema needed to retain data measurement information about the fixed network. The Open Group's Mobile Management Forum (MMF). The MMF is defining the requirements and information needed for mobility including the Mobility and Directory and Mobility and Security requirements.

Sponsor Organization:

Project/Standard Number:

Project/Standard Date: 0000-00-00

Project/Standard Title:

7.2 Is there potential for this standard (in part or in whole) to be adopted by another national, regional, or international organization? ? Yes

Technical Committee Name and Number: ISO/IEC/JCT1 SC6

Contact person: [Robin Tasker](#)

Contact person Phone Number: +44-1925-603758

Contact person Email Address: R.Tasker@dl.ac.uk

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

7.4 Additional Explanatory Notes:

This PAR modification is to revise the "Type of Project" section only, to change the document being amended to "IEEE P802.11-REVma". This amendment cannot be approved until after the approval of IEEE P802.11-REVma. Scope of the Project: The new standard shall be compatible with the IEEE 802.11 MAC. The proposed project facilitates improved management of 802.11 networks by gathering and making available information about the wireless medium and the 802.11 traffic on the wireless medium. The new extensions shall comply with all mandatory portions of the IEEE 802.11 standards and specification. Regulatory Bodies - IEEE P802.11 will correspond with regulatory bodies worldwide in order to assure that the data to be measured will be applicable geographically as widely as possible.

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:

Moved: that the ExCOM approve the WG decision; TGk request the 802.11 WG to forward the proposed 11k PAR extension to 2011 (as found in document 06/806r0) to NESCOM for consideration of the PAR.
Moved: Kerry/O'Hara

16/0/0 Passes

5.08	ME	-		
5.09	ME	802.16/cor2 PAR to NESCOM	- Marks	3 01:31 PM

Project Authorization Request (PAR)

Submittal Email: r.b.marks@ieee.org

Type of Project: Corrigendum to an Existing Standard 802.16-2004

1.1 Project Number: P802.16-2004/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: Corrigendum to IEEE Standard for Local and Metropolitan Area Networks - Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access Systems

3.1 Name of Working Group: IEEE 802.16 Working Group on Broadband Wireless Access

Contact information for Working Group Chair: Roger B Marks

Email: r.b.marks@ieee.org

Phone: 1-303-725-4626

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

3.3 Joint Sponsor: IEEE Microwave Theory and Techniques Society

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: 2007-03

4.3 Projected Completion Date for Submittal to RevCom: 2007-05

5.1 Approximate number of people expected to work on this project: 200

5.2 Scope of Proposed Standard: This corrigendum contains substantive corrections to IEEE Std 802.16. It corrects errors, inconsistencies, and ambiguities in that standard. It does not contain material that introduces enhancements or new features.

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: The purpose of this project is only to correct errors, inconsistencies, and ambiguities in IEEE Std 802.16-2004 as amended by IEEE Std 802.16e-2005, IEEE Std 802.16-2004/Cor1-2005 and IEEE Std 802.16f-2005.

5.5 Need for the Project: The need for this project is to correct errors, inconsistencies, and ambiguities in IEEE Std 802.16 as soon as possible.

5.6 Stakeholders for the Standard:

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: 2006-07-17

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

https://standards.ieee.org/cgi-bin/NesCOM/myP_par?prt_pview

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

Other Organization Contact Information:

Contact person: Jose M. Costa

Contact Email address: costa@nortelnetworks.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)

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:

**Moved: To forward the maintenance PAR IEEE 802.16maint-06/021r2 to NesCom.
Moved: Marks/Takefman**

15/0/1 Passes

5.10 ME 802.22.2 PAR to NESCOM

- Stevenson

01:44 PM

Motion: To approve the proposed P802.22.2 PAR for consideration by NesCom and the SASB.

Moved: Stevenson

Second: Shellhammer

Informative:

- This PAR, and the corresponding 5 criteria document, were approved by 802.22, with quorum present, at the May 2006 interim session in Jacksonville by a vote of 22 yes, 2 no, 1 abstain.
- The PAR and 5C were submitted to the EC via the EC reflector in compliance with the 30 day requirement
- Bob Grow kindly pointed out to the Chair of 802.22 that the PAR submitted to the EC was on an outdated form (802.22 had followed a link to the “2006 PAR Form” on the IEEE-SA website, but the link erroneously pointed to a older form that had been replaced by a new form in April)
- In response to Mr.Grow’s helpful notice of the inadvertent irregularity, the Chair of 802.22 transposed all of the material from the outdated PAR form to the new PAR form and resubmitted the PAR to the EC on the correct form (still in compliance with the 30 day requirement).
- The approval of the PAR, as transposed to the new form, was reaffirmed by 802.22 at its WG opening plenary at this session (July 2006) by a vote of 22 yes, 0 no, 0 abstain.

Yes No Abstain

IEEE-SA STANDARDS BOARD

PROJECT AUTHORIZATION REQUEST (PAR) FORM - 2006

The submittal deadlines are available at <http://standards.ieee.org/board/nes/index.html>.
(See NesCom Convention - Item #14)

Prior to submitting your PAR, please review the [NesCom Conventions](#).

1. **ASSIGNED PROJECT NUMBER P** (Please leave blank if not available.)
(See NesCom Convention - Item #19)

2. **SPONSOR DATE OF REQUEST** Day: Month: Year: 2006

3. **TYPE OF DOCUMENT** (Please check one.)

Standard for { document stressing the verb "shall" }

Recommended Practice for { document stressing the verb "should" }

Guide for { document in which good practices are suggested, stressing the verb "may" }

4. **TITLE OF DOCUMENT**

(See NesCom Conventions - [Item #5](#), [Item #7](#))

Draft

5. **LIFE CYCLE**

Full-Use

Trial-Use

6. **TYPE OF PROJECT**

New document

Revision of an existing document (indicate number and year existing document was approved in box to the right):

Amendment to an existing document (indicate number and year existing document was approved in box to the right):

(####-YYYY)

Corrigendum to an existing document (indicate number and year existing document was approved in box to the right):

Modified PAR (indicate PAR Number and Approval Date here: P

Day: Month:

Year:)

Is this project in ballot now? Yes No

State reason for modifying the PAR in Item #21.

7. WORKING GROUP INFORMATION:

Name of Working Group (WG) :

Approximate Number of Expected Working Group Members:

8. CONTACT INFORMATION FOR WORKING GROUP CHAIR (must be an IEEE-SA member as well as an IEEE and/or Affiliate Member)

(See NesCom Convention [Item #3](#), [Item #4](#))

Name of Working Group Chair: First Name:

Last Name:

Telephone:

FAX:

E-mail:

9. CONTACT INFORMATION FOR CO-CHAIR/OFFICIAL REPORTER, Project Editor or Document Custodian if different from the Working Group Chair (must be an IEEE-SA member as well as an IEEE and/or Affiliate Member)

(See NesCom Convention [Item #3](#))

Name of Co-Chair/Official Reporter (if different than Working Group Chair): First Name:

Last Name:

Telephone:

FAX:

E-mail:

10. CONTACT INFORMATION FOR SPONSORING SOCIETY OR STANDARDS COORDINATING COMMITTEE

(See NesCom Convention [Item #1](#), [Item #3](#))

Sponsoring Society and Committee: (Please choose the correct acronym for your Sponsor Society/Technical Committee or SCC. [For an acronym list, please click here.](#))

Sponsor Committee Chair: First Name: Last Name:

Telephone: FAX: E-mail:

Standards Coordinator (Power Engineering Society Only):

Standards Coordinator: First Name: Last Name:

Telephone: FAX: E-mail:

IF THIS PROJECT IS BEING SPONSORED BY TWO SPONSORS, PLEASE COMPLETE THE INFORMATION BELOW

Sponsoring Society and Committee: (Please choose the correct acronym for your Sponsor Society/Technical Committee or SCC. [For an acronym list, please click here.](#))

Sponsor Committee Chair: First Name: Last Name:

Telephone: FAX: E-mail:

Standards Coordinator (Power Engineering Society Only):

Standards Coordinator: First Name: Last Name:

Telephone: FAX: E-mail:

11. SPONSOR BALLOTING INFORMATION (Please choose one of the following):

Individual Balloting

Entity Balloting

Mixed Balloting (combination of Individual and Entity Balloting)

Expected Date of Submission for Initial Sponsor Ballot: Month: Year:

Please review the PAR form three months prior to submitting your draft for ballot to ensure that the title, scope, and purpose on the PAR form match the title, scope, and purpose of the draft. If they do not match, you will probably need to submit a modified PAR.

Additional communication and input from other organizations or other IEEE Standards Sponsors should be encouraged through participation in the working group or the invitation pool.

(See NesCom Conventions - [Item #20](#))**12. PROJECTED COMPLETION DATE FOR SUBMITTAL TO REVCOM: Month:**

Year:

If this is a MODIFIED PAR and the completion date is being extended past the original four-year life of the PAR, please answer the following questions. If this is not a modified PAR, please go to

Question #13.(See NesCom Conventions - [Item #18](#))

a. Statement of why the extension is required:	
b. How many working group members are working on the project?	
c. How many times a year does the working group meet:	
1. In person?	
2. Via teleconference?	
d. How many times a year is a draft version circulated to the working group via electronic means?	

e. What percentage of the Draft is stable?	%
f. How many significant working revisions has the Draft been through?	
g. Balloting History - If the draft has gone to ballot, please provide a history of all IEEE Sponsor ballots under this project in the box to the right. Please include the: <ul style="list-style-type: none"> ● Ballot Close Date (or scheduled Close Date) ● Ballot Draft Number ● Ballot Results (% affirmative, % negative, % abstain) 	
h. Is this the first request for an extension?	Yes No
If no, when was the previous extension approved?	(DD-MMM- YYYY)

13. SCOPE OF PROPOSED PROJECT

(See NesCom Conventions - [Item #6](#), [Item #16](#), [Item #17](#))

Briefly detail the projected output including technical boundaries.

FOR MODIFIED PROJECTS/REVISION DOCUMENTS - Only detail the projected output including the scope of the project or last published document to be modified and any amendments and/or additions.

Is the completion of this document contingent upon the completion of another document?

Yes (with detailed explanation below) No

14. PURPOSE OF PROPOSED PROJECT

Briefly, clearly and concisely explain "why" the document is being created.

(See NesCom Conventions - [Item #16](#))

FOR MODIFIED PROJECTS/REVISION DOCUMENTS - Only include the purpose of the project or last published document and any amendments and/or additions.

15. REASON FOR THE PROPOSED PROJECT:

Give the specific reason for the standardization project. Focus on explaining the problem being addressed, the benefit to be provided and the stakeholders for the project.

16. INTELLECTUAL PROPERTY (Please answer each of the questions below)

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 No

If yes, state date: Day: Month: Year:

If no, please explain:

**b. Is the Sponsor aware of copyright permissions needed for this project? Yes
No**

If yes, please explain:

c. Is the Sponsor aware of trademarks that apply to this project? Yes No

If yes, please explain:

d. Is the Sponsor aware of possible registration activity related to this project?

Yes No

If yes, please explain:

17. ARE THERE OTHER DOCUMENTS OR PROJECTS WITH A SIMILAR SCOPE?

Yes (with detailed explanation below) No

If Yes, please answer the following:

Sponsor Organization:

Project/Document Number:

Project/Document Date: (DD-MMM-YYYY)

Project/Document Title:

18. FUTURE ADOPTIONS

Is there potential for this document (in part or in whole) to be adopted by another national, regional or international organization?

If Yes, the following questions must be answered:

Technical Committee Name and Number: TC SC WG

Other Organization Contact Information:

Contact Name - First Name: Contact Name - Last Name:

Contact Telephone Number:

Contact FAX Number:

Contact Email address:

19. WILL THIS PROJECT RESULT IN ANY HEALTH, SAFETY, OR ENVIRONMENTAL GUIDANCE THAT AFFECTS OR APPLIES TO HUMAN HEALTH OR SAFETY? Yes

No

If yes, please explain:

20. SPONSOR INFORMATION

a. Is the scope of this project within the approved scope/definition of the Sponsor's Charter?

Yes No

If no, please explain:

b. Have the Sponsor's procedures been accepted by the IEEE-SA Standards Board Audit Committee? Yes No

(See NesCom Convention [Item #2](#))

21. ADDITIONAL EXPLANATORY NOTES (Item Number and Explanation)

I acknowledge having read and understood the IEEE Code of Ethics. I agree to conduct myself in a manner which adheres to the IEEE Code of Ethics when engaged in official IEEE business.

The **PAR Copyright Release and Signature Page** must be submitted by FAX to +1 732-875-0695 to the NesCom Administrator before this PAR will be forwarded to NesCom and the Standards Board for approval.

(See NesCom Conventions - Item #8, Item #9, Item #10)

**IEEE P802.22
Wireless RANs**

**5 Criteria for Proposed P802.22.2 PAR for the creation of a
Recommended Practice for the Installation and Deployment of IEEE
802.22 Systems**

Date: 2006-07-23

Author(s):

Name	Company	Address	Phone	email
Carl R. Stevenson	WK3C Wireless LLC	4991 Shimerville Rd. Emmaus, PA 80149-4955	+1 610-841-6180	wk3c@wk3c.com

Abstract

This document contains the “5 Criteria” information for the IEEE 802 Executive Committee’s review, regarding a PAR proposed by 802.22 for approval at the July 2006 IEEE 802 Plenary.

Notice: This document has been prepared to assist IEEE 802.22. 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.

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Patent Policy and Procedures: The contributor is familiar with the IEEE 802 Patent Policy and Procedures <<http://standards.ieee.org/guides/bylaws/sb-bylaws.pdf>>, including the statement "IEEE standards may include the known use of patent(s), including patent applications, provided the IEEE receives assurance from the patent holder or applicant with respect to patents essential for compliance with both mandatory and optional portions of the standard." Early disclosure to the Working Group of patent information that might be relevant to the standard is essential to reduce the possibility for delays in the development process and increase the likelihood that the draft publication will be approved for publication. Please notify the Chair <[Carl R. Stevenson](mailto:Carl.R.Stevenson)> as early as possible, in written or electronic form, if patented technology (or technology under patent application) might be incorporated into a draft standard being developed within the IEEE 802.22 Working Group. **If you have questions, contact the IEEE Patent Committee Administrator at <patcom@ieee.org>.**

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).*

IEEE P802.22, under its primary PAR, is developing a standard for use, on a strictly non-interfering basis, for Wireless Regional Area Networks (“WRANs”) using a cognitive radio-based approach, with the target spectrum being geographically unused channels allocated to the TV Broadcast Service.

In the course of our studies, the members of the WG have determined that it is desirable and appropriate to develop a “Recommended Practice for the Installation and Deployment of IEEE 802.22 Systems” that will provide technical guidance to installers and deployers of IEEE 802.22 compliant systems. Correct installation and deployment are important to assure that such systems will maximally achieve their design goals in terms of system performance, reliability, and non-interference to incumbent licensed systems with which they will share the TV broadcast bands.

Because of the expectation of significant global deployment of IEEE 802.22 systems, there is significant need and market potential for such a Recommended Practice.

Because the creation of a Recommended Practice will result in a new, stand-alone document, a new PAR is necessary and the IEEE 802.22 WG recommends that this work be placed as a Task Group (which would be TG2) in the IEEE 802.22 WG because that is where the necessary expertise on the functional and operational requirements of the IEEE 802.22 system resides.

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: 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.

IEEE 802.22, under its primary PAR, has already met this requirement. The creation of a Recommended Practice for the Installation and Deployment of IEEE 802.22 Systems will have no adverse effect in this area.

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.*

IEEE 802.22, under its primary PAR, has already met this requirement. The proposed Recommended Practice for the Installation and Deployment of IEEE 802.22 Systems will have no adverse effect in this area and, by being specific to 802.22 systems, will clearly have a distinct identity of its own.

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.*

IEEE 802.22, under its primary PAR, has already demonstrated technical feasibility. The creation of a Recommended Practice for the Installation and Deployment of IEEE 802.22 Systems will have no adverse effect in this area. In fact, by helping to assure proper installation and deployment of IEEE 802.22 systems, the proposed Recommended Practice will further enhance the reliability of IEEE 802.22 systems' operation, both in terms of basic system performance and in terms of further assuring that IEEE 802.22 compliant systems do not create interference to incumbent licensed systems with which they will share the TV broadcast bands.

This recommended practice will not require a CA document, since it is not creating a new air interface.

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.*

IEEE 802.22, under its primary PAR, has already demonstrated economic feasibility. The creation of a Recommended Practice for the Installation and Deployment of IEEE 802.22 Systems will have no adverse effect in this area. In fact, by helping to assure proper installation and deployment of IEEE 802.22 systems, the proposed Recommended Practice will ultimately reduce the costs of installation and deployment by helping assure that IEEE 802.22 compliant systems are installed and deployed correctly the first time, eliminating, or at a minimum greatly reducing, the need for remedial action after a system is deployed.

References:

**Moved: To approve the proposed P802.22.2 PAR for consideration by NesCom and the SASB.
Moved: Stevenson/Shellhammer**

15/0/0 Passes

5.11	ME		-			
5.12	ME		-			
5.13	ME	802.3aq to REVCOM	-	Grow	5	01:45 PM

802.3aq ballot status

- D4.0 Recirculation – 84.3% return, 93.6% approve, 10.3% abstain
- 9 disapprove voters, 27 unsatisfied comments
- NO comments on last recirculation.

P802.3aq to RevCom

Motion:

The LMSC grants approval for
submittal of P802.3aq to RevCom.

Working Group motion #4 – Y: 60, N: 1, A: 5

Move that the IEEE 802.3 Working Group Chair request
LMSC approval for submission of IEEE 802.3aq to
REVCOM.

**Moved: The LMSC grants approval for submittal of P802.3aq to RevCom.
Moved: Grow/Takefman**

14/0/0 Passes

5.14 ME 802.3as conditional to REVCOM

- Grow

5 01:49 PM

802.3as ballot status

- D3.2 Recirculation – 81.6% return, 93.6% approve, 9.2% abstain
- 5 disapprove voters, 6 unsatisfied comments
- 11 comments on last recirculation.

P802.3as conditional to RevCom

Motion:

The LMSC grants conditional approval per Clause 20 for P802.3as submission to RevCom.

802.3as Sponsor ballot results

	D3.0		D3.1		D3.2	
Sponsor ballot group	147		147		147	
Ballots returned (>75%)	113	77%	119	81%	120	82%
Approve (>75%)	92	88%	97	90%	102	94%
Disapprove	12		11		7	
Abstain (<30%)	9	8%	11	9%	11	9%

Note: Ben Brown and Glen Kramer have flipped their disapprove votes. Current disapprove count as of D3.2 is 5

802.3as comment summary

	GR	G	TR	T	ER	E	Total
D3.0	7	6	21	33	38	55	160
D3.1	0	0	1	3	0	6	10
D3.2	0	0	11	2	0	3	16

D3.0
66 required comments

6 unsatisfied

D3.1
0 required comments
0 unsatisfied

(1 rogue TR comment)

D3.2
8 required comments
0 unsatisfied

(3 rogue TR comments)

802.3as disapprove comments

Disapprove balloter	Comment #
Yong Kim	D3.0/#108
David Law	D3.0/#114 (withdrawn)
Robert O'Hara	D3.0/#14
Pat Thaler	D3.0/#104, #106, #107
Geoff Thompson	D3.0/#113

P802.3as unsatisfied comments (1)

- **D3.0/#14**
 - Packet vs. frame (R)
- **D3.0/#104**
 - Modify a note re: encapsulation protocols, refer to 1.4 definitions (AIP)
- **D3.0/#106**
 - State diagram and subclause title mismatch (Clause 4) (A)
- **D3.0/#107**
 - State diagram and subclause title mismatch (4A) (A)
- **D3.0/#108**
 - Wants 1875 rather than 2000 octet (R)

P802.3as unsatisfied comments (2)

■ D3.0/#113

- (#200) Restore caps of field names (AIP)
- (#201) Revise Q-tagged def in 1.4 (AIP)
- (#202) basic frame to “Basic Frame” (R)
- (#203) envelope frame to “Envelope Frame” (R)
- (#204) Revise overview sentence (AIP)
- (#205) Add clarifying sentence (AIP)



Internal 802.3as TF tracking number

802.3 WG Motion #_ (San Diego)

- Request 802.3 WG approval to submit P802.3as to 802 EC for conditional approval to be placed on September RevCom agenda

- ***M: On behalf of 802.3as TF***

- **Y: 39 N: 0 A: 13**
- **>= 75%**
- **Passes**

IEEE P802.3as D3.0 Frame format extensions Comments

CI 00 SC 0 P 0 L 0 # 113
THOMPSON, GEOFFREY O Individual

Comment Type GR Comment Status A

*** Comment submitted with the file 1340000024-FEX_comments.csv attached ***

myBallot would not accept output of ballot tool will submit comments manually Upload attempt produced the following error message: Row 1: "Category" not found Row 1: "Comment" missing Row 2: "Category" not found Row 2: "Comment" missing Row 3: "Category" not found Row 3: "Comment" missing Row 4: "Category" not found Row 4: "Comment" missing Row 5: "Category" not found Row 5: "Comment" missing Row 6: "Category" not found Row 6: "Comment" missing Row 7: "Category" not found Row 7: "Comment" missing Row 8: "Category" not found Row 8: "Comment" missing Row 9: "Category" not found Row 9: "Comment" missing Row 10: "Category" not found Row 10: "Comment" missing Row 11: "Category" not found Row 11: "Comment" missing Row 12: "Category" not found Row 12: "Comment" missing Row 13: "Category" not found Row 13: "Comment" missing

Suggested Remedy

Response Response Status U

ACCEPT IN PRINCIPLE.

See comments 200-212. Resolutions copied below:

200:ACCEPT IN PRINCIPLE.

Change all instances in 1.4.127 and throughout the rest of the draft where the field names are mentioned as proper nouns to be as follows:

- Destination Address
- Source Address
- Length/Type
- MAC Client Data
- Pad
- Frame Check Sequence

Change all instances throughout the draft where the field names are mentioned as proper nouns to be as follows:

- Preamble
- Start Frame Delimiter
- Extension

201:ACCEPT IN PRINCIPLE.

Change to:

1.4.334 Q-tagged frame: A MAC frame with a specific Type value and has a maximum length of 1522 octets. (See IEEE 802.3, 3.2.7 and IEEE 802.1Q, Annex C).

202:REJECT.

Motion to reject comment: 4-2-1

There is no consensus to make a change.

203:REJECT.

Motion to reject comment: 4-2-1

There is no consensus to make a change.

204:ACCEPT IN PRINCIPLE.

Change to:

"This clause defines the mapping between MAC service interface primitives and Ethernet packets, including the syntax and semantics of the various fields of MAC frames and the fields used to form those MAC frames into packets."

205:ACCEPT IN PRINCIPLE.

Add the following:

All three frame types use the same Ethernet frame format.

206:ACCEPT IN PRINCIPLE.

See comment 200

207:REJECT.

This addition is out of scope of 802.3. Whether or not encapsulation protocols may be used in a recursive manner is an issue for their own definition.

208:REJECT.

This comment was WITHDRAWN by the commenter.

The problem is that the new text says that the 'L/T field indicates' -- the problem is that it may not, the outer L/T field will not necessarily be a well known envelope type, thus the current text.

IEEE P802.3as D3.0 Frame format extensions Comments

209:ACCEPT IN PRINCIPLE.

Change to:
 "Other clauses in this standard may add optional protocol sublayers directly above the MAC that preserve the service interface to the MAC client. Any augmentations to the MAC client interface are specified in the relevant sublayer clause (e.g., clause 31)."

210:REJECT.

This text is now 3.2.8

211:ACCEPT.

212:ACCEPT.

Change sentence to:

However, they may be distinguished within the MAC client.

CI 01 SC 1.4.127 P 10 L 30 # 200
 Thompson, Geoff Nortel

Comment Type ER Comment Status A

Please reverse out the change of capitalization that has been put in on the drafts for this each of the field names for the following reasons:

- 1) The field labels are the proper names for each of the fields
 Proper names should be capitalized
- 2) The change is unnecessary and will only confuse those who are used to the distinguished form that has been in use for over 20 years.
- 3) The change is unnecessary to accomplish the scope of the PAR.
- 4) The change is likely to produce additional style inconsistency across the .3 standard.
- 5) This style change was proposed and the change was rejected in P802.3-REVam
- 6) The change has introduced an inconsistency of capitalization within the various field label names.
- 7) Consideration of this previously submitted DISAPPROVE comment is within the scope of this ballot.
- 8) The rationale of ""self consistency within the opened clauses"" is a weak argument when balanced against the items above.
 This is an unwanted ""service to humanity"!"

SuggestedRemedy

Please delete the change of capitalization for the proper names of field names that has been put in the drafts in this clause and throughout the draft.
 This will significantly reduce the size of the final draft.

Response Response Status W

ACCEPT IN PRINCIPLE.

Change all instances in 1.4.127 and throughout the rest of the draft where the field names are mentioned as proper nouns to be as follows:

- Destination Address
- Source Address
- Length/Type
- MAC Client Data
- Pad
- Frame Check Sequence

Change all instances throughout the draft where the field names are mentioned as proper nouns to be as follows:

- Preamble
- Start Frame Delimiter
- Extension

IEEE P802.3as D3.0 Frame format extensions Comments

CI 01 SC 1.4.334 P 10 L 33 # 201
Thompson, Geoff Nortel

Comment Type ER Comment Status A

Current text (below) is misleading and insufficiently specific:

1.4.334 Q-tagged frame: A MAC frame with a single 4 octet tag in the Length/Type field and the first two octets of the MAC client data field, the original Length/Type field moved to the third and fourth octets of the MAC client data field, and that has a maximum length of 1522 octets. (See IEEE 802.3, 3.2.7 and IEEE 802.1Q, Annex C)

SuggestedRemedy

Change to:

1.4.334 Q-tagged frame: A MAC frame of the encapsulating protocol specified by EtherType value 0x81-00. The protocol place exactly two octets after the Type field and then continues with the Length/Type field of the encapsulated frame resulting in a frame growth of four octets and a maximum length of 1522 octets. (See IEEE 802.3, 3.2.7 and IEEE 802.1Q, Annex C).

Response Response Status W

ACCEPT IN PRINCIPLE.

Change to:

1.4.334 Q-tagged frame: A MAC frame with a specific Type value and has a maximum length of 1522 octets. (See IEEE 802.3, 3.2.7 and IEEE 802.1Q, Annex C).

CI 01 SC 1.4.xxx P 10 L 40 # 202
Thompson, Geoff Nortel

Comment Type ER Comment Status R

The term being defined is being defined as a label for a proper noun, not just a descriptive term, therefore it should be capitalized

SuggestedRemedy

Change ""basic frame"" to ""Basic Frame"" to distinguish the label from the description.

Response Response Status U

REJECT.

Motion to reject comment: 4-2-1

There is no consensus to make a change.

CI 01 SC 1.4.xxx P 10 L 44 # 203
Thompson, Geoff Nortel

Comment Type ER Comment Status R

The term being defined is being defined as a label for a proper noun, not just a descriptive term, therefore it should be capitalized

SuggestedRemedy

Change ""envelope frame"" to ""Envelope Frame"" to distinguish the label from the description.

Response Response Status U

REJECT.

Motion to reject comment: 4-2-1

There is no consensus to make a change.

CI 03 SC 3.1 P 15 L 39 # 204
Thompson, Geoff Nortel

Comment Type ER Comment Status A

Opening the overview with the text:

""This clause defines the mapping between MAC service interface primitives and Ethernet packets, including the syntax and semantics of the various fields of MAC frames and the fields used to encapsulate those MAC frames into packets.""
is confusing and heads people off in the wrong direction.

SuggestedRemedy

Restore the main thrust of the overview by opening with text something like:

""This clause defines the syntax and semantics of an Ethernet packet and its various fields. Specific attention is paid to additional fields or regions defined for use with type encoded encapsulating protocols.""

Response Response Status W

ACCEPT IN PRINCIPLE.

Change to:

""This clause defines the mapping between MAC service interface primitives and Ethernet packets, including the syntax and semantics of the various fields of MAC frames and the fields used to form those MAC frames into packets.""

IEEE P802.3as D3.0 Frame format extensions Comments

Cl 03 SC 3.1 P 15 L 47 # 205
Thompson, Geoff Nortel

Comment Type ER Comment Status A

Listing the three type of frames can confuse the reader with respect to strong common underlying characteristic, i.e. that the basic format of the Ethernet packet is maintained across all 3

SuggestedRemedy

Insert the following text:
""All 3 frame types conform to the basic Ethernet packet model of addressing, type number that specifies data field organization (without regard to recursion), the data itself and a checksum.

Response Response Status W

ACCEPT IN PRINCIPLE.

Add the following:

All three frame types use the same Ethernet frame format.

Cl 03 SC 3.1.1 P 15 L 48 # 14
O'HARA, ROBERT Individual

Comment Type GR Comment Status R

The replacement of "frame" with "packet" is not acceptable. The MAC layer deals with frames, not packets. The use of "packet" in this document, beginning here and in all other occurrences, must be corrected.

SuggestedRemedy

Undo all deletions of "frame", where it is replaced by "packet", throughout the document.

Response Response Status U

REJECT.

There is no consensus to make this change.

The 802.3 document was inconsistent in its use of packet and frame. This Amd has made the use consistent with the clauses in its scope. The chosen use of packet and frame is consistent with 802.3 usage.

Cl 03 SC 3.2.7 P 20 L 15 # 104
THALER, PATRICIA A Individual

Comment Type TR Comment Status A

With no definition of "encapsulation protocols" there is no way for one to know if one is following the recommendation. I realize that it is difficult to strictly define the term but it deserves some explanation beyond citing two examples without explaining the principle. A protocol that adds "additional prefixes and suffixes" isn't enough of a description. TCP and IP add headers to frames but I don't think we would consider them to be encapsulation protocols when they are the native protocol. (They would be if they were being used to create a tunnel for another protocol.) Therefore something should be added that makes it clear this is to allow for headers and footers that are added transparent to the original creator of the frame.

SuggestedRemedy

An encapsulation protocol is a protocol that adds a prefix or suffix or both to a frame that is transparent to the MAC Client sending the original client data.

Response Response Status U

ACCEPT IN PRINCIPLE.

Modify Note 1, first sentence:

. . .encapsulation protocols (see 1.4.xxx Envelope frame) . . .

IEEE P802.3as D3.0 Frame format extensions Comments

CI 03 SC 3.2.7 P 30 L 11 # 108
 KIM, YONGBUM Individual

Comment Type TR Comment Status R

802.1 requested a solution to 802.3 on ever-increasing encapsulation that upper layers useover 802.3 network. The minimum has been met, and then some.802.1ad + 4 bytes802.1AE + 32 bytes (and +32 for provider side) 802.1ah + 4 bytes provider backbone PPP+ MPLS + others = ~ 20 bytes-----S. Total min. 60, max 92MACSec Caveat - 160 (instead of 32), diff of 128 bytes Caveat Total min. 188, max 220bytes.1522+220 = 1720 << 1800 bytes which is where you have high probabilitythat CSMA/CD network would pass these larger frames with +/- 3 bit FIFOs. This meet theobjectives:- 802.1 minimum expansion request- Minimal impact to existing networks and standard, etc.I "have not" seen any "technical" justification why ~2K is a good new frame size but peopleprefer it. I like to invite technical justification why it ought to be different than this ~1800byte #.Supporting Document 1-----

/1/files/public/docs2005/liaison-dot3as-joint-0501.pdfObjectives (Pg 3)1)Preserve the IEEE 802.3 MAC data service interface 2)Preserve the basic frame format3)Maintain the maximum data field length (1500 octets) 4)Increase the maximum framesize exclusively for optional prefix and suffix fields in envelope frames 5)Redefine theTagged frame format as an envelope frame format 6)At a minimum, support:a)IEEE 802.1Q Virtual Bridged LANsb)IEEE 802.1ad Provider Bridgesc)IEEE 802.1AE MACsecd)ITU-T SG15 Ethernet transport encapsulations 7)Investigate and define the largestmaximum frame size with minimal impact to existing networks and standards And StrawPolls (Pg 4)Supporting Document 2-----

/3/minutes/mar04/0304_IEEE802_1_report.pdf (Pgs 3 & 4) TOPIC 1: Frame SizeExpansion Requirements (as currently known)* MACSec Secure Frame Format - 24octets (point to point), 32 octets (sharedmedium)* Provider Bridge TAG - 4 octetsSupporting Document 3-----

http://www.ieee802.org/3/frame_study/0409/braga_1_0409.pdfObservations (1), pg 12 of 19. All repeater tested accept at least 4130 byte frame.This means that repeaters tested have all better than 100 ppm clock, supporting that+/- 3 bit FIFO or deeper value was used for repeaters. Most of thefailed devices are 802.1 Bridges with Ethernet MACs ("Ethernet Switches") thatoften has hardware limit on supported lengths.

SuggestedRemedy

Change c) 1982 decimal - envelop frames ... to 1857 or N to 1808 (reasonable longword boundary andallow for the same 48 octet private and/or internal header).

Response Response Status U

REJECT.

Based on study, the WG has agreed on 2000 octets as the new maximum frame size. There is no new information to change that view.

Motion to approve: Y-6 N-1

CI 04 SC 4.3.2.1.4 P 32 L 50 # 106
 THALER, PATRICIA A Individual

Comment Type TR Comment Status A

This subclause and 4.3.2.2.4 have inaccurate titles still. The state diagram titles on the figures were corrected and these should be corrected to match. The state diagrams are for the MAC client interface, not the MAC.

SuggestedRemedy

Change the subclause title to match the name in the figure title.This will result in the subclause having the same title as the next level subclause (4.3.2.1 and 4.3.2.2 respectively). If that is a problem, the subclause only has the sentence that references the figure. It could be deleted and sentence moved to the parent clause.

Response Response Status U

ACCEPT.

CI 4A SC 4A.3.2.1.4 P 44 L 16 # 107
 THALER, PATRICIA A Individual

Comment Type TR Comment Status A

Also applies to 4A.3.2.2.4. Same problem as my comment on the titles for the equivalent subclauses in Clause 4.

SuggestedRemedy

Whatever change is done in Clause 4 also needs to be applied here.

Response Response Status U

ACCEPT.

**Moved: The LMSC grants conditional approval per Clause 20 for P802.3as submission to RevCom.
Moved: Grow/Stevenson**

16/0/0 Passes

5.15 ME 802.11REV-ma conditional to REVCOM

- Kerry

5 01:54 PM

IEEE 802 LMSC RESOLUTION

Motion By: KERRY

Seconded By: O'Hara

- **To forward the 802.11REV-ma draft to REVCOM, upon successful completion of the procedure in Clause 21 of the LMSC P&P.**

– WG Moved by: Bob O'Hara

– WG 2nd: Andrew Myles

– **WG Results: Approved 53/0/3**

Approve:

Do Not Approve:

Abstain:

**IEEE P802.11
Wireless LANs**

802.11Rev-ma Conditional Approval Clause 21 Report

Date: 2006-0719

Author(s):

Name	Company	Address	Phone	email
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Abstract

This document provides the material necessary to support a request for conditional approval to send 802.11REV-ma to REVCOM.

Notice: This document has been prepared to assist IEEE 802.11. 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.

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From the 802 LMSC Policies and Procedures, Clause 21:

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.

From the myBallot site:

Ballot Open Date: 06/21/2006

Ballot Close Date: 07/11/2006

RESPONSE RATE

This ballot has met the 75% returned ballot requirement.

145 eligible people in this ballot group.

99 affirmative votes

10 negative votes with comments

1 negative votes without comments

8 abstention votes

118 votes received = 81% returned
7% abstention

APPROVAL RATE

The 75% affirmation requirement is being met.

99 affirmative votes

10 negative votes with comments

109 votes = 91% affirmative

Schedule for confirmation ballot: to close by 15 September 2006 (third recirculation ballot) or 31 October 2006 (fourth recirculation ballot).

Schedule for resolution meeting: 18-22 September 2006

Outstanding disapprove ballot comment report

The table below shows the remaining disapprove ballots and a count of their comments. A blank cell indicates no response by the ballot for the ballot at the top of the column.

Name	Original Ballot	Recirc #1	Recirc #2
Keith Amman	1		
Parag Bhatt	0		
Clint Chaplin	5	9	5
Darwin Engwer	10	12	
David James	1		
Andrew Myles	9	11	5
Stephen Palm			14
Amjad Soomro		2	
Dorothy Stanley			38
Adrian Stephens	8	15	9
Harry Worstell	1		
Total	35	49	71

Comments from Initial Ballot

Cl 06 SC 6.2.1.1.1 P49 L1 # 2

JAMES, DAVID V

Individual

COORDINATION, EDITORIAL

#

Comment Type **TR** Comment Status **A**

(These apply throughout; the page, sub-clause, and line numbers were put in to bypass the format checker and are only relevant for a small portion of this comment)

This document does not conform to the IEEE Style Manual.

A couple of examples:

- 1) List of Figures ==> List of figures
- 2) Figure 118 in TOF breaks across line
- 3) Redundant/confusing names:
destination address, DA
- 4) Mbit/s ==> Mb/s
- 5) State machine on #811 not consistent with state machine notation in other 802 specifications

Response

SuggestedRemedy

Conform to the IEEE Style Manual.

If necessary, please request assistance from the IEEE Editors.

Response *Response Status* **U**

ACCEPT. The Working Group editor is working with the IEEE-assigned project editor to ensure conformance with the IEEE Style Manual.

Change abbreviation for "megabits per second" to the correct spelling throughout (either Mbit/s or Mb/s).

There is no requirement for state machine format consistency between 802 documents.

Editor included in draft 5.2 by changing capitalization of List of tables, List of figures.

Editor searched for megabit and it does not occur in document.

Editor consulted current IEEE style guide and IEEE staff. Both Mb/s and Mbit/s are considered standard, acceptable, and clear. No changes were made.

Cl 00 SC N & M P L # 7

STEPHENS, ADRIAN P Individual

Comment Type ER Comment Status A

There is confusion between these two annexes as to exactly what an AP is. Annex N provides no means for an AP to discover about mapping changes from the DS. Annex M says that this is possible.

SuggestedRemedy

There probably needs to be a new DS-STA-NOTIFY.request (from DS to AP) to provide this communication. Alternatively the use of terms like AP needs to be clarified (i.e. in M it includes the DS, in N they are called out separately).

Response Response Status U

ACCEPT IN PRINCIPLE.

It is a fact that Annex N does not provide a means for an AP to discover about mapping changes from the DS. Annex M says that "an AP may also receive access control updates from other APs in the form of inter-access point notifications of MU association events and transitions". That inter-access point notification is accomplished via protocol messages, not via the DS SAP.

Those protocol messages are initiated via the IAPP SAP, which is defined in 802.11F.

--begin detailed explanation--

The AP has knowledge of which MUs (mobile STAs) are associated (locally). The AP informs the DS of such updates so that the DS can forward MSDUs destined for that MU to the correct AP. The DS has no knowledge of the entities for which it is distributing MSDUs. For example, an AP may choose to notify the DS about the AP itself (i.e. the ACM_STA), so that MSDUs destined for that AP's SME can be properly delivered by the DS.

In the mobility scenario, the MU is associated with an old AP, and that AP will have notified the DS of the MU's AP (the old AP). When the MU transitions to a new AP, the new AP notifies the DS of the MU's AP (now the new AP).

This immediately causes new MSDUs that are destined for that MU (that are received by the DS) to be forwarded to the new AP.

The remaining issue is the dangling association status at the old AP. The old AP has no way to know that the MU has transitioned to a new AP. While this does not affect new outbound traffic destined for the MU, there is the issue of queued data at the old AP. The old AP will continue to attempt to transmit this queued data until the max retry limit has been exceeded. As this happens the old AP will then discard the MSDUs one-by-one. Eventually the old AP will timeout the MU's association status.

If the MU transitioned to the new AP using a reassociate frame then early teardown of the MU's association status at the old AP is possible. This early teardown (as defined in 802.11F) is accomplished by a direct AP-to-AP communication from the new AP to the old AP, in effect saying "I have this MU now, you can discard the MU's context information along with any queued MSDUs and MPDUs".

In contrast, the DS needs to keep track of the minimal info it needs to distribute MSDUs, and the old AP might or might not benefit from knowing that the association is dead. (Keep in mind that the MU could conceivably have disassociated, or might do a new association rather than a reassociation.) So the AP-to-AP update is only handy (not compulsory). The AP-to-DS update is necessary to proper functioning of the WLAN system. Therefore separate mechanisms, and therefore different primitives. (Although the IAPP SAP needs something like the DS to work, it does not need the DS -- for example, in a WLAN switch the IAPP SAP can exist out-of-band of the DS).

So, Annex N is correct and complete wrt the DS SAP interface primitives. Annex M is correct wrt the functions of the AP. And 802.11F is correct wrt the IAPP functions.

--end detailed explanation--

Early draft text for Annex M clause M.4 contained a reference to 802.11F wrt the AP-to-AP communication needed to support early teardown of the MU's association status at the old AP. The text describing that specific use case scenario was removed in response to a comment on an earlier draft of 802.11ma. (see the Primary AP Functions section of doc 5/120r9 for the original Annex M text, which cites the specific IAPP SAP primitives that define this functionality and cause the corresponding protocol messages to be sent).

In response to the last line of the Suggested Remedy, Annex M does not indicate that an AP includes the DS, they are separate entities and are described individually. Annex M does point out that it is possible to combine an AP and a DS into a single unit called an Access Unit, but that's just one possible product instantiation.

Editor: In clause M.4 change

Change

"An AP may also receive access control updates from other APs in the form of inter-access point notifications of MU association events and transitions." to

"An AP may also receive access control updates directly from other APs, via a protocol outside the scope of this standard, in the form of inter-access point notifications of MU association events and transitions."

Editor included in draft 5.2 by adding to N.4.

Cl 11 SC 11.1.3 P308 L # 8
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status A

"A STA may start its own BSS without first scanning for a BSS to join".
One of the issues I have with the structure of the document is that it claims that the SME is outside the scope of the specification, and therefore doesn't have a section for the SME. However it also makes normative statements that only make sense as specification for an SME.
This statement is an example of that, hopefully I'll notice and report a few more. Because control of sequencing of scanning/joining/starting is under control of the SME, this statement should read: "The SME of a STA may start its own BSS..."

SuggestedRemedy

Add a section containing statements for the SME and move the amended statement there.

Response Response Status U

ACCEPT.

Delete the sentence.

Editor included in draft 5.2 in 11.1.3.

Cl 11 SC 11.1.3.2.1 P L # 10
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status A

"In each BSS there shall be at least one STA&"
This is an example of another class of generic error that is, unfortunately, far too common in this document - wrong use of "shall".
"Shall" introduces a normative requirement on the implementer. In this example, shall cannot introduce a normative requirement on the implementer because the BSS consists of multiple STA from multiple implementers.
It should be possible to trace most "shall" statements to PICS entries.

SuggestedRemedy

I recommend that the document be scanned and each occurrence of "shall" (there are 2258 of them) be validated.

In this example, what it meant to say: "The procedures defined in this subclause ensure that in each BSS there is at least one STA&"

Response Response Status U

ACCEPT. The editor is to identify those uses of "shall" that are not normative and replace with descriptive language.

Editor included in draft 5.2 in 11.1.3.2.1.

Cl 11 SC 11.2.1.4 P L # 12
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status A

"An AP shall have an aging function to delete pending traffic when it is buffered for an excessive time period."
I'm not sure this normative requirement is necessary. It is certainly not testable without defining what "excessive" means.

SuggestedRemedy

Recommend turning this into an informative note.
Alternatively define the ageing algorithm so that compliance can be tested.

Response Response Status U

ACCEPT.

"An AP can delete buffered frames for implementation dependent reasons, including the use of an aging function and availability of buffers."

Editor included in draft 5.2 in 11.2.1.5.

Cl 11 SC 11.2.1.9 P L # 14
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status A

"The AP shall have an aging function to delete buffered traffic when it has been buffered for an excessive period of time. That function shall be based on the ListenInterval parameter of the MLMEASSOCIATE request primitive of the STA for which the traffic is buffered."
"... shall have a function..." "... shall be based on ...".
Oh dear, oh dear, oh dear.

SuggestedRemedy

Either turn this into a recommendation, or provide enough specification that a compliant implementation can be constructed.

Response Response Status U

ACCEPT.

Delete the first two sentences of 11.2.1.9. Also, replace "The AP aging function" with "Any AP aging function" in the third sentence.

Editor included in draft 5.2 in 11.2.1.11.

Cl 11 SC 11.3.2 P L # 15
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status R
"The STA's SME shall delete any PTKSA&"
See also my earlier comment. We need to put this in a section containing normative requirements on the SME.

SuggestedRemedy
Add a section containing statements for the SME and move the statement there.
Recommend scanning for SME and doing likewith with any other similar statements.

Response Response Status U
REJECT.

By removing the indicated text, the commenter removes the needed cross-layer description that pulls together all the individual operations described elsewhere in the standard. This cross-layer description is essential to understanding the security functionality.

Cl 08 SC 8.5.1.2 P156 L2 # 16
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status A
(Submitted on behalf of Jesse Walker, TGi edior)
Line 2 says: "PMK <-- L(PTK, 0, 256)"
This was an editorial error with normative consequences.

SuggestedRemedy
Replace the quoted text with:
PMK <-- L(AAA Key, 0, 256)

Response Response Status U
ACCEPT.

Editor included similar in draft 5.2 in 8.5.1.2. Replacement text is MSK not AAA Key.

Cl 00 SC P L # 19
WORSTELL, HARRY R Individual

Comment Type TR Comment Status A 11e
This ballot does not contain the 802.11e ammendment and should include it. I vote NO.

SuggestedRemedy
Include 802.11e in the rollup

Response Response Status U
ACCEPT.

Editor included in draft 5.1 by adding 802.11e.

COORDINATION, SCC14

[Redacted]

Cl 11 SC 11.6.7.2
MYLES, ANDREW F

P Individual

L

65 [Redacted]

Comment Type TR Comment Status R

The DFS channel changing facilities for IBSS represent a very complex set protocols that have little value in the vast majority of cases and will not work in many circumstances. There is no know implementation of this feature.

SuggestedRemedy

Delete all text related to selecting a new channel in an IBSS

Response Status U

REJECT.

The commenter is requested to provide more information supporting the assertions that the protocol does not work in many circumstances and thus has little value.

The editor is to reverse the changes made in draft 5.2, as shown below.

Delete all of clause 3.38 (done in 3.47 of draft 5.2) (reversed in draft 6.0)

Delete "or IBSS" in clause 5.4.4.2 (done in 5.4.4.2) (reversed in 5.4.4.2 of draft 6.0)

Delete "IBSS DFS" row from Table 5 in 7.2.3.1 (Changed to reserved in Table 8) (reversed in Table 8 of draft 6.0)

U

Delete "IBSS DFS" row from Table 12 in 7.2.3.9 (Changed to reserved in Table 15) (reversed in Table 15 of draft 6.0)

Delete "IBSS DFS" row from Table 22 in 7.3.2 (Changed to reserved in Table 26) (Reversed in Table 26 of draft 6.0)

Delete "or a STA in an IBSS" in first paragraph in 7.3.2.20 (done in 7.3.2.20) (reversed in draft 6.0 7.3.2.20)

Delete "or a STA in an IBSS" and "A STA in an IBSS may treat a Channel Switch Mode field set to 1 as advisory" in second paragraph in 7.3.2.20 (done in 7.3.2.20) (reversed in draft 6.0 7.3.2.20)

Delete all of clause 7.3.2.24 (done in 7.3.2.24) (Reversed in draft 6.0 in 7.3.2.24)

Delete "or a STA in an IBSS" from 7.4.1.5 (done in 7.4.1.5) (reversed in draft 6.0 in 7.4.1.5)

Delete row with "IBSS DFS Recovery Interval" in 10.3.2.2.2 (Done in 10.3.2.2.2) (Reversed in draft 6.0 in 10.3.2.2.2)

Delete "IBSS DFS Recovery Interval," from MLME-START.request parameter list in

CI 11 SC 11.6.1 P L # 69
 MYLES, ANDREW F Individual

Comment Type **TR** Comment Status **R**

The text defines association based on supported channels
 However, no use has ever been demonstrated for this feature in relation to DFS and few if any implementations provide it for any useful purpose

SuggestedRemedy

Delete all test related to association based on supported channels

Response Response Status **U**

REJECT. The commenter does not provide a compelling reason for deprecating this function. It is not proven that no use has ever been demonstrated for this feature. It is to soon to determine that no use will be found for this feature.

CI 11 SC 11.6.6 P L # 70
 MYLES, ANDREW F Individual

Comment Type **TR** Comment Status **R**

The text defines a complex measurement request and response mechanism.
 The mechanism is not required for DFS or TPC purposes. It is clearly not sufficient for the measurement purposes given that 11k is currently redefining it

SuggestedRemedy

Delete all text related to measurement request and response, and allow 11k to define more appropriate features

Response Response Status **U**

REJECT. The commenter is urged to work with 802.11 task group k to make this change in that amendment.

CI 00 SC M P L # 71
 MYLES, ANDREW F Individual

Comment Type **TR** Comment Status **R**

This annex allegedly provides an AP functional description
 However, in reality it has very limited value given that it is mostly content free and almost totally disconnected from implementation reality. The use of a large number of new terms and the semi-formal specification language only increases its obscurity.

SuggestedRemedy

Remove entire annex

Response Response Status **U**

REJECT. The material in the annex does provide useful information to readers new to the standard, to understand the function and description of an AP, without providing normative requirements.

CI 00 SC N P L # 72
 MYLES, ANDREW F Individual

Comment Type **TR** Comment Status **R**

There is little obvious value in this annex

SuggestedRemedy

Remove entire annex

Response Response Status **U**

REJECT. The material in the annex does provide useful information to readers new to the standard, to understand the function and description of an AP, without providing normative requirements.

[Redacted]

CI 00 SC P L 83 [Redacted]
 KLEINDL, GUNTER Individual

Comment Type TR Comment Status R amendments

With this revision the definition of 11a, 11b and 11g get lost.

SuggestedRemedy

Indicate in the PICS (Annex A) which items are mandatory for 11a, 11b and 11g.

Response Status U

REJECT. The designations of each amendment are ephemeral and cease to exist when the revision is approved. IEEE-SA procedure does not allow for these designations to continue to be used in the standard.

[Redacted]

CI 08 SC 8.5.1.1 P L # 84 [Redacted]
 MYLES, ANDREW F Individual

Comment Type TR Comment Status R security

There is some concern that SHA-1 is not sufficiently strong as part of the PRF for the long term, although it is considered adequate in the short to medium term.

SuggestedRemedy

Make a modification in 7.3.2.25.2 , 8.5.1.1 and possibly other clauses to allow the use of SHA-256 as part of the PRF instead of SHA-1 in a backward compatible way.

In doing so other changes could also be made to the PRF to make precomputation attacks harder and prefix attacks impossible.

Response Response Status U

REJECT.

The suggested remedy does not provide sufficient guidance to resolve this comment.

Cl H SC H.6.3 P950 L 108
 CHAPLIN, CLINT F Individual

Comment Type TR Comment Status A

Table H.7: Please also list the source and destination MAC addresses, so that an implementor could walk through the derivation of the the Phase 1 and Phase 2 outputs.

SuggestedRemedy

Add the following entries to the table:
 Source MAC Address: 02 03 04 05 06 07
 Destination MAC Address: 02 03 04 05 06 08

Response Status U

ACCEPT.

Editor included in draft 5.2 in H.6.3 Table H.7.

Cl 16 SC 16 P L # 109
 CHAPLIN, CLINT F Individual

Comment Type TR Comment Status A

This section describes a PHY that, I believe, was never commercially available, and will never be used in the future. It is no longer necessary to have this PHY in the standard. Maintaining this section is a waste of the IEEE's time. Essentially the same arguments that was used to withdraw IEEE 802.11F are to be used here.

SuggestedRemedy

Remove this section, or mark it as obsolete and not to be implemented.

Response Response Status U

ACCEPT IN PRINCIPLE.

Insert the following as the first paragraph in the clause: "This clause is no longer maintained and may not be compatible with all features of the remainder of this standard."

Editor included in draft 5.2 in clause 16.

Cl 00 SC P L # 110
CHAPLIN, CLINT F Individual

Comment Type TR Comment Status A 11e

IEEE 802.11e should be included in this roll-up. (I realize that it probably would have been anyway, but I wanted to make sure).

SuggestedRemedy

Include IEEE 802.11e

Response Response Status U

ACCEPT.

Editor included in draft 5.1 by adding 802.11e.

Cl 00 SC P L # 111
CHAPLIN, CLINT F Individual

Comment Type TR Comment Status A

The term "AAA Key" is being deprecated within the IETF. As a consequence, the use of that term in this standard needs to be changed to a replacement term. The term suggested by the IETF is "MSK"

SuggestedRemedy

Replace all instances of "AAA Key" to "MSK. Change the definition of "AAA Key" to define "MSK". Add an entry for "MSK" to the acronym section.

Response Response Status U

ACCEPT.

Replace all "AAA Key" occurrences with "MSK". Add the acronym "MSK" to clause 3.

Add the definition of MSK as follows to clause 3.

Master Session Key (MSK): The Master Session Key is keying material that is derived between the EAP peer and exported by the EAP method to the NAS. The MSK is at least 64 octets in length.

Editor included in draft 5.2, by deleting 3.10 and adding 3.80, deleting AAA abbreviation in clause 4, and adding abbreviations for MSK in clause 4. Editor used AS instead of NAS.

Editor in draft 5.2 by expunging AAA key term in favor of MSK, by introducing the new term in 8.4.6.1, and using it in 8.4.8, 8.5.1.2, 8.5.6.3.

[Redacted]

Cl N SC **N.2.1.1.4** *P986* *L*
ENGWER, DARWIN A Individual

288 [Redacted]

Comment Type **ER** *Comment Status* **A**
To more properly align with clause 3 definitions:

SuggestedRemedy

Change
"This primitive initiates distribution of the DSSDU through the DS. A directed DSSDU from"
to
"This primitive initiates distribution of the DSSDU through the DS. An individually
addressed DSSDU from"

Response Status **U**

ACCEPT.

Editor included in draft 5.2 in O.2.1.1.4.

[Redacted]

[Redacted]

Cl 07 *SC* 7.2.1.4 *P*62 *L* # 292
 ENGWER, DARWIN A Individual

Comment Type **TR** *Comment Status* **A**
 comment: RA is not shown in Figure 26

SuggestedRemedy

Like the change that was made to Table 4 in clause 7.2.2, change the third box annotation in Figure 26 from "BSS ID" to "RA = BSSID".

Response Status **U**

ACCEPT IN PRINCIPLE.

change the third box annotation in Figure 26 from "BSS ID" to "BSSID (RA)", where "(RA)" appears on the line under "BSSID".

Editor included in draft 5.2 in 7.2.1.4 Figure 27.

[Redacted]

Cl J *SC* J-1 *P*966 *L*1 # 293
 ECCLESINE, PETER Individual

Comment Type **TR** *Comment Status* **A** 4.9
 Japan allows 5 MHz channels in the 5.03 GHz-5.091 GHz band, and Annex J does not represent that

SuggestedRemedy

Editor to change draft according to 11-05-1121-00-000m-modifications-to-802-11ma-standard-regarding-4-9ghz-band.doc draft text to describe operation in Japan 4.9 GHz and 5GHz bands using 5 MHz channel spacing

Response *Response Status* **U**

ACCEPT. Use r1 of the document.

Editor included in draft 5.2.

Cl 07 SC 7.2.1.5 P62 L # 294
 ENGWER, DARWIN A Individual

Comment Type GR Comment Status A

TA is not shown in Figure 27.

SuggestedRemedy

Like the change that was made to Table 4 in clause 7.2.2,
 change the fourth box annotation in Figure 27 from "BSSID" to "TA = BSSID".

Response Response Status U

ACCEPT IN PRINCIPLE.

See comment #296 for editorial resolution.

Cl 07 SC 7.2.1.6 P63 L # 295
 ENGWER, DARWIN A Individual

Comment Type TR Comment Status A

TA is not shown in Figure 28.

SuggestedRemedy

Like the change that was made to Table 4 in clause 7.2.2,
 change the fourth box annotation in Figure 28 from "BSSID" to "TA = BSSID".

Response Response Status U

ACCEPT IN PRINCIPLE.

change the fourth box annotation in Figure 28 from "BSS ID" to "BSSID (TA)", where "(TA)"
 appears on the line under "BSSID".

Editor included in draft 5.2 in 7.2.1.6 Figure 28.

Cl 07 SC 7.2.1.5 P62 L # 296
 ENGWER, DARWIN A Individual

Comment Type TR Comment Status A

TA is not shown in Figure 27.

SuggestedRemedy

Like the change that was made to Table 4 in clause 7.2.2,
 change the fourth box annotation in Figure 27 from "BSSID" to "TA = BSSID".

Response Response Status U

ACCEPT IN PRINCIPLE.

change the fourth box annotation in Figure 27 from "BSS ID" to "BSSID (TA)", where "(TA)"
 appears on the line under "BSSID".

Editor included in draft 5.2 in 7.2.1.5 Figure 28.

Cl 07 SC 7.2.3 P64 L # 299
 ENGWER, DARWIN A Individual

Comment Type TR Comment Status A

The second paragraph in this section makes references to Address 1, yet Address 1 is not
 shown in Figure 30, and therefore there is no way to coorelate the text with the actual
 management frame format.

SuggestedRemedy

Correct the Figure and the text to correspond to each other.

Response Response Status U

ACCEPT.

Add "Address 1" to the third box in Figure 30 of 7.2.3. Place "DA" in parentheses below it
 in the same box.

Editor included in draft 5.2 in 7.2.3 in Figure 36.

CI 07 SC 7.1.3.1.4 P56 L # 300
 ENGWER, DARWIN A Individual

Comment Type TR Comment Status A

Re Table 2: for the bit field combination of ToDS=1 and FromDS=1, the description references the WDS, which doesn't really exist (yet).

SuggestedRemedy

Change
 "Data frame using the four-address wireless distribution system
 (WDS) format."
 to
 "Data frame using the four-address format."

Response Response Status U

ACCEPT.

Editor reverted to the 5.0 text on which this comment is based. The 5.1 text is shown as stricken and replace with 5.0 text and the changes suggested.

Editor included in draft 5.2 in 7.1.3.1.4 in Table 2.

CI 07 SC 7.1.3.3.3 P58 L # 301
 ENGWER, DARWIN A Individual

Comment Type TR Comment Status A

The term "broadcast BSSID" belies the real use of a value of all 1's in the BSSID field of a probe request. It is not a "broadcast" BSSID, it is a "wildcard" BSSID intended to match all BSSIDs.

SuggestedRemedy

Change "broadcast BSSID" to "wildcard BSSID".

Response Response Status U

ACCEPT.

Editor included in draft 5.2 in 7.1.3.3.3, 7.2.3, and 10.3.2.1.2.

CI 07 SC 7.2.3 P65 L # 302
 ENGWER, DARWIN A Individual

Comment Type TR Comment Status A

The term "broadcast BSSID" belies the real use of a value of all 1's in the BSSID field of a probe request. It is not a "broadcast" BSSID, it is a "wildcard" BSSID intended to match all BSSIDs.

SuggestedRemedy

Change "broadcast BSSID" to "wildcard BSSID".

Response Response Status U

ACCEPT.

Make the change in item c).

Editor included in draft 5.2 in 7.2.3.

CI 10 SC 10.3.2.1.2 P235 L # 303
 ENGWER, DARWIN A Individual

Comment Type TR Comment Status A

The term "broadcast BSSID" belies the real use of a value of all 1's in the BSSID field of a probe request. It is not a "broadcast" BSSID, it is a "wildcard" BSSID intended to match all BSSIDs.

SuggestedRemedy

Change "broadcast BSSID" to "wildcard BSSID".

Response Response Status U

ACCEPT.

Editor included in draft 5.2 in 10.3.2.1.2.

Cl 00 SC P L # 304
AMANN, KEITH Individual

Comment Type TR Comment Status A 11e

802.11e recently completed sponsor ballot and was approved. My understanding is that if this standard revision does not incorporate 802.11e then the 802.11e standard can be lost. I believe this would be a significant error on the part of the IEEE, and that it would seriously set the standard back.

SuggestedRemedy

Update the draft to incorporate the 802.11e standard as recently approved by the IEEE sponsor ballot process.

Response Response Status U

ACCEPT.

Editor included in draft 5.1 by adding 802.11e.

Comments from First Recirculation Ballot

Cl 11 SC 11.4 P 445 L 25 67
CHAPLIN, CLINT F Individual

Comment Type ER Comment Status A

802.11-1999 had only a subclause 11.3 (Association and Reassociation); 11e and 11i both made simultaneous modifications to that area of the standard, and didn't coordinate their changes. 11i split it into 11.3 (Authentication and Deauthentication) and 11.4 (Association, Reassociation, and Disassociation), that is how it appears in 11ma D5.0. 11e added four new subclauses, numbered them 11.4 through 11.7, and instructed that the existing clauses 11.4 and higher be moved to to follow. As a result, the Association/Reassociation/Disassociation subclause created by 11i is placed far apart from its closely-related subclause on Authentication/Deauthentication.

SuggestedRemedy

Make the new clauses from 11e follow 11.4 (keeping 11.3 Authentication and 11.4 Association clauses adjacent). Number the 11e clauses 11.5, 11.6, 11.7, and 11.8.

Response Status U

ACCEPT.

Editor included in draft 7.0 by virtue of other comment resolutions.

Cl 00 SC 0 P L # 73
CHAPLIN, CLINT F Individual

Comment Type ER Comment Status R

11e made a big mistake by defining the notion of a QSTA being somehow different than a STA. A STA is a STA. Some STAs are capable of additional functions, and advertises those additional capabilities. This change unfortunately set a precedent for later amendments - 11r D1.0 defined a TSTA and TAP, and 11n D1.0 defined a HT-STA and HT-AP. Don't set the precedent for future amendments to do this again.

SuggestedRemedy

Change QSTA to STA throughout. Change QAP to AP throughout. Change QBSS to BSS throughout. Change QIBSS to IBSS throughout. Delete definitions 3.118, 3.119, 3.121, and 3.122. Delete acronyms QAP, QBSS, QIBSS, and QSTA.

Response Response Status U

REJECT.

The change suggested by the commenter is not a simple editorial substitution. Such a substitution would result in substantial ambiguity in the functional description of the requirements for compliant operation of an implementation.

Cl 03 SC 3.98 P 12 L 52 # 75
 CHAPLIN, CLINT F Individual

Comment Type TR Comment Status A

(IEEE 802.11 TGr LB82 Comment 77) PMK is not derived from an EAP method. MSK is derived from an EAP method. Suggest change. (see next column).

SuggestedRemedy

"The PMK may be derived from a key generated by an Extensible Authentication Protocol (EAP) method."

Response Response Status U

ACCEPT IN PRINCIPLE.

Insert "a key generated by" between "from" and "an Extensible".

Editor included in draft 7.0 in 3.96.

Cl 05 SC 5.6 P 44 L 50 # 76
 CHAPLIN, CLINT F Individual

Comment Type TR Comment Status R

(IEEE 802.11 TGr LB82 Comment 376) This is a remnant. There should be no shalls in this section since there is no PICs for it.

SuggestedRemedy

change "shall" to must.

Response Response Status U

REJECT.

The normative statements are needed to complete the definition of the MAC. They are inappropriate in clause 5 and are moved to clause 11.

Move clause 5.6 to become clause 11.3. Move the current 11.3 in a level under the text moved from 5.6, becoming a new 11.3.1. Also move 11.8 (Association . . .) in a level and also under the new 11.3, as 11.3.2.

Editor included in draft 7.0 by moving 5.6, renumbering 11.3, and moving 11.8. References to 5.6, 11.3, and 11.8 were searched and updated.

Cl 07 SC 7.2.3.4 P 89 L 36 # 77
 CHAPLIN, CLINT F Individual

Comment Type TR Comment Status A

(IEEE 802.11 TGr LB82 Comment 447, 448, 450) The third column in the table corresponding to "QoS Capability" lacks any text. Seems that there is no descriptive text now. There is no description for the QoS Capability information element.

SuggestedRemedy

Add description text

Response Response Status U

ACCEPT.

Add "The QoS Capability element is present when dot11Qos-OptionImplemented is true" in the Notes column for the QoS Capability information element.

Editor included in draft 7.0 in 7.2.3.4, Table 10.

Cl 07 SC 7.2.3.4 P 89 L 36 # 78
 CHAPLIN, CLINT F Individual

Comment Type TR Comment Status R

(IEEE 802.11 TGr LB82 Comment 449) Definition of QOS Capablity IE in setcion 7.3.2.20 limits its use here.

SuggestedRemedy

Update the defination of QOS Capablity IE in section 7.3.2.20 to allow its use here.

Response Response Status U

REJECT.

7.3.2.20 does not describe the use of the QoS Capability IE.

CI 07 SC 7.2.3.6 P 90 L 41 # 79
 CHAPLIN, CLINT F Individual

Comment Type TR Comment Status A
 (IEEE 802.11 TGr LB82 Comment 496, 497, 498) The third column in the table corresponding to "QoS Capability" lacks any text. Seems that there is no descriptive text now. There is no description for the QoS Capability information element.

SuggestedRemedy

Add description text

Response Response Status U

ACCEPT.

Add "The QoS Capability element is present when dot11Qos-OptionImplemented is true" in the Notes column for the QoS Capability information element.

Editor included in draft 7.0 in 7.2.3.6, Table 12.

CI 07 SC 7.3.2.28 P 137 L 53 # 80
 CHAPLIN, CLINT F Individual

Comment Type TR Comment Status R
 (IEEE 802.11 TGr LB82 Comment 571) "specifies the remaining amount of medium time available via explicit admission control in units of 32 us/s." As specified, this implies that the value must be up to date. It is my understanding that some APs fail to update the medium time each time the QBSS Load information element is advertised, and so this definition would make these implementations non-compliant?

SuggestedRemedy

Reword to make it backward compatible with existing AP implementations that do not transmit an up-to-date value in this field.

Response Response Status U

REJECT.

Poor implementations do not necessitate changes to the standard.

CI 08 SC 8.4.10 P 201 L 52 # 83
 CHAPLIN, CLINT F Individual

Comment Type TR Comment Status A
 (IEEE 802.11 TGr LB82 Comment 837) "&it will delete some security association." What does some mean?

SuggestedRemedy

Clarify which security associations it will delete.

Response Response Status U

ACCEPT IN PRINCIPLE.

The subject of the comment is outside the scope of this ballot. The comment will be forwarded to the working group for consideration in a future revision of the standard.

CI 08 SC 8.4.10 P 201 L 54 # 84
 CHAPLIN, CLINT F Individual

Comment Type TR Comment Status R
 (IEEE 802.11 TGr LB82 Comment 838) "&it will delete some security association." What does some mean?

SuggestedRemedy

Clarify which security associations it will delete.

Response Response Status U

REJECT.

The subject of the comment is outside the scope of this ballot. The comment will be forwarded to the working group for consideration in a future revision of the standard.

Cl 11 SC 11.6.7.2 P L # 85
 MYLES, ANDREW F Individual

Comment Type TR Comment Status R

The DFS channel changing facilities for IBSS represent a very complex set protocols that have little value in the vast majority of cases and will not work in many circumstances. There is no know implementation of this feature.

In a response to the same comment in the last ballot, TGma asked me to justify my assertions. I believe that they are justified by a quote from 11.10.7.2 that states, "The potential for hidden nodes within an IBSS means that the IBSS channel switch protocol is best effort. All members of an IBSS shall have an individual responsibility to cease transmission on a particular channel in the presence of radar."

This text effectivley says that the IBSS channel switch protocol cannot be relied upon and that individual STAs need to do radar dedection anyway. It is almost certain that regulators will have a similar view.

This removes the primary advantage cited in 06/220. The other advantages cited in 06/220 for the IBSS DFS protocol can be achieved without any special over the air protocol.

SuggestedRemedy

Delete all text related to selecting a new channel in an IBSS, as specified in comment in last Sponsor Ballot

Response Response Status U

REJECT.

The mechanism does not cause any harm, without regard to it usefulness. The mechanism is adequate to cause some STAs in an IBSS to change channels, though it may not be sufficient to cause all STAs to do so.

Cl 11 SC 11.5.1 P L # 86
 MYLES, ANDREW F Individual

Comment Type TR Comment Status R

The text defines association based on transmit power capability

However, no use has ever been demonstrated for this feature and few if any implmentations provide it for any useful purpose.

In the response to a similar comment in the last ballot it was rejected because I had not shown it would never be useful. I would turn the response around by asking TGma to show that the feature is or will be useful. Showing there is a current implemenation would be compelling. I would also like the TG to show the feature was actually within scope for TGh.

SuggestedRemedy

Delete all text related to association based on transmit power capability

Response Response Status U

REJECT.

Fails after motion to accept failed (3,3,1).

Leaving this in the standard does not harm and there may be implementations of which the commenter is unaware.

Cl 11 SC 11.5.3 P L # 87
 MYLES, ANDREW F Individual

Comment Type TR Comment Status R

The text defines adaption of transmit power

However, no use has ever been demonstrated for this feature in relation to DFS and few, if any, implmenentations provide it for any useful purpose.

In the response to a similar comment in the last ballot it was rejected because I had not shown it would never be useful. I would turn the response around by asking TGma to show that the feature is or will be useful. Showing there is a current implemenation would be compelling.

It was also suggested that this feature was best deleted by 802.11v and 802.11k. This is certainly a possible course of action. However, these groups are more interested in developing useful new features rather than worrying about useless legacy features. It is TGma's responsibility to look after useless old features

SuggestedRemedy

Delete all text related to adaption of transmit power, and allow 11k and 11v to define new more appropriate features

Response Response Status U

REJECT.

Actually refers to 11.9.4.

While the commenter is not aware of any implementations of this feature, that is not proof that none exist. Work is under way in TGv to address this area in a regulation neutral fashion. Should that be incorporated into the standard, it is recommended that the regulation-specific text in 11.9 be removed.

Cl 11 SC 11.6.1 P L # 88
 MYLES, ANDREW F Individual

Comment Type TR Comment Status R

The text defines association based on supported channels

However, no use has ever been demonstrated for this feature in relation to DFS and few if any implmenentations provide it for any useful purpose

In the response to a similar comment in the last ballot it was rejected because I had not shown it would never be useful. I would turn the response around by asking TGma to show that the feature is or will be useful. Showing there is a current implemenation would be compelling. I would also like the TG to show the feature was actually within scope for TGh.

SuggestedRemedy

Delete all test related to association based on supported channels

Response Response Status U

REJECT.

Actually refers to 11.10.1.

While the commenter is not aware of any implementations of this feature, that is not proof that none exist. Maintaining this text in the standard does not hurt, even if there are no implementations of it.

CI 11 SC 11.6.6 P L # 89
 MYLES, ANDREW F Individual

Comment Type TR Comment Status A

The text defines a complex measurement request and response mechanism.

The mechanism is not required for DFS or TPC purposes. It is clearly not sufficient for the measurement purposes given that 11k is currently redefining it.

In the response to a similar comment in the last ballot it was rejected because I had not shown it would never be useful. I would turn the response around by asking TGma to show that the feature is or will be useful. Showing there is a current implementation would be compelling.

It was suggested in the response to a similar comment in the last ballot that this feature was best deleted by 802.11k. This is certainly a possible course of action. However, these groups are more interested in developing useful new features rather than worrying about useless legacy features. It is TGma's responsibility to look after useless old features

SuggestedRemedy

Delete all text related to measurement request and response, and allow 11k to define more appropriate features

Response Response Status U

ACCEPT.

Commenter is to provide specific editing instructions.

CI M SC M P L # 90
 MYLES, ANDREW F Individual

Comment Type TR Comment Status R

This annex allegedly provides an AP functional description

However, in reality it has very limited value given that it is mostly content free and almost totally disconnected from implementation reality. The use of a large number of new terms and the semi-formal specification language only increases its obscurity.

I disagree with the previous response to this comment in which it was asserted this annex is useful. Given this is new material to the standard, I believe a very strong reasons needs to be provided to include it.

SuggestedRemedy

Remove entire annex

Response Response Status U

REJECT.

The balloter is requested to read the actual draft being balloted. Annex M has nothing to do with AP functional description. It is assumed the balloter means Annex N.

The consensus of the working group is that the material is useful. The burden of proving it not useful is on the commenter. A simple assertion that it is not useful is insufficient justification to remove the annex.

CI N SC N P L # 91
 MYLES, ANDREW F Individual

Comment Type TR Comment Status R

There is little obvious value in this annex

I disagree with the previous response to this comment in which it was asserted this annex is useful. Given this is new material to the standard, I believe a very strong reasons needs to be provided to include it.

SuggestedRemedy

Remove entire annex

Response Response Status U

REJECT.

The consensus of the working group is that the material is useful. The burden of proving it not useful is on the commenter. A simple assertion that it is not useful is insufficient justification to remove the annex.

CI 09 SC 9.2.4 P 256 L 50 # 92
 MYLES, ANDREW F Individual

Comment Type TR Comment Status A

"The CW shall be reset to aCWmin after every successful attempt to transmit an MSDU or MMPDU,..." There are number of places where MSDU and MPDU are used interchangeably. On page 276, line #1, it clearly states that a MPDU is a fragment of MSDU. Shouldn't the retry counters and CW be associated with individual MPDUs since each MPDU is ACKed individually?

SuggestedRemedy

Replace MSDU with MPDU in appropriate places.

Response Response Status U

ACCEPT.

Change "MSDU" to "MPDU" in line 50.

Editor included in draft 7.0 in 9.2.4.

CI 09 SC 9.2.5.3 P 259 L # 93
 MYLES, ANDREW F Individual

Comment Type TR Comment Status R

MSDU and MPDU are used interchangeably in these two paragraphs

SuggestedRemedy

Replace MSDU with MPDU in appropriate places.

Response Response Status U

REJECT.

This comment is beyond the scope of the present ballot. The comment will be forwarded to the working group for consideration in a future revision of the standard.

CI 07 SC 7.3.2.30 P 140 L # 94
 MYLES, ANDREW F Individual

Comment Type GR Comment Status A

TSID is identified in Figure 101, but references clause 7.1.3.5.1 which defines the TID, not the TSID

SuggestedRemedy

Rename one of the fields to eliminate the confusion

Response Response Status U

ACCEPT IN PRINCIPLE.

Replace the sentence "The TSID subfield is 4 bits in length and contains the TSID values in the format defined in 7.1.3.5.1." below figure 101 with:
 "The TSID subfield is 4 bits in length and contains a value that is a TSID."

Editor included in draft 7.0 in 7.3.2.30.

CI O SC O.2.2 P 1165 L # 95
 ENGWER, DARWIN A Individual

Comment Type GR Comment Status A

With the withdrawal of 802.11F there are now a few aspects of 802.11 that are not described, specified or defined anywhere. While that is in general very unfortunate, there exist today other methods for accomplishing many of the mechanisms described in 802.11F that do not involve using the 802.11F protocol. However, the use of a specially addressed layer 2 frame (e.g. a null XID frame) by an AP to update the DS (e.g. and any infrastructure switches and routers) of the current association status of a mobile STA remains a valid and useful mechanism and method that is now lost.

SuggestedRemedy

Add an informative note in clause N.2.2 (now O.2.2) that cites the use of a null L2 XID packet as one method of accomplishing a DS-STA-NOTIFY update sequence in a real network/ WLAN system. Also include a reference to 802.11F clauses 4.5.1, 4.9.3, 5.1.1, 5.5.1, 5.5.2, 5.8, and 6.3, and (subsequently) add an 802.11F reference to Annex E. Alternatively we could copy from 802.11F directly into 802.11ma (in the appropriate places) the lines of text that describe the XID frame. Then the 802.11F reference and reference citation would not be needed.

Response Response Status U

ACCEPT IN PRINCIPLE.

Add the following sentence to the end of O.2.2.1.4:

"There are many mechanisms to implement this mapping update for the cases of ADD and MOVE. One example mechanism, in the case where the DS is an 802 LAN, is to use an 802.2 XID null frame."

Editor included in draft 7.0 in O.2.2.1.4.

CI 09 SC 9.9.3.1.2 P 296 L 7 # 96
SOOMRO, AMJAD A Individual

Comment Type TR Comment Status R

The surplus bandwidth allowance (SBA) field is loosely defined and it is clearly not needed to generate conforming schedules in any scenario. The mandatory parameters are minimum set of parameters required to generate a conforming schedule which meets TSPEC requirements. Any other parameter beyond this should be optional and be not made mandatory. The SBA is poorly defined and its use in wireless protocols to specify stream requirements is unique for this draft. The parameter is susceptible to loose interpretations at both the ends (QAP and QSTA) and, therefore, there is no basis for its inclusion. This parameter is superfluous in TSPEC.

SuggestedRemedy

Remove the requirement to make Surplus bandwidth allowance mandatory

Response Response Status U

REJECT.

While the use of the SBA may not be required to implement a conformant scheduler, the information may be useful to some implementers.

CI 07 SC 7.3.2.30 P 139 L # 97
SOOMRO, AMJAD A Individual

Comment Type TR Comment Status R

Applications such as video or voice are quite tolerant to frame loss conditions and while medical wireless applications are very loss sensitive, though their TSPEC would appear to be similar to voice TSPEC. In order to serve these diverse streams QAP needs to know drop sensitivity of the stream to adjust its scheduling. In order to ensure interoperability and better expression of traffic stream requirements, acceptable frame loss rate for the traffic stream needs to be communicated between HC and a QSTA.

SuggestedRemedy

Add the acceptable error frame loss parameter in TSPEC field

Response Response Status U

REJECT.

Addition of this field to the information element would make any existing implementations instantly noncompliant. This is not a desirable outcome. It is also not clear how a scheduling algorithm would operate differently, given the requested additional frame error loss tolerance information.

CI 06 SC 6.2.1.3 P 62 L 5 # 98
ENGWER, DARWIN A Individual

Comment Type TR Comment Status A

Further to comment #141 on the previous ballot, it is not clear why this primitive exists in its current form. If generation of MA-UNITDATA-STATUS.indication relates to a MA-UNITDATA.request then it should be a .confirm primitive.

Note that the mapping between corresponding .request and .confirm primitives can be asynchronous. That is there is a one-to-one mapping between .request and .confirm primitives, but they are not necessarily synchronous (e.g. an API implemented to be conformant with the SAP specification may employ delayed call back functions).

SuggestedRemedy

Change MA-UNITDATA-STATUS.indication primitive to MA-UNITDATA.confirm.

Response Response Status U

ACCEPT.

Editor to change all occurrences in the draft.

Editor included in draft 7.0 in 6.2.1, 6.2.1.1.4, 6.2.1.3, 6.2.1.3.2, 6.2.1.3.3, 8.2.1.3, 8.7.1, 8.7.2, 8.7.2.1.

CI O SC O.2.2 P 1165 L 32 # 99
ENGWER, DARWIN A Individual

Comment Type TR Comment Status A

With the withdrawal of 802.11F there are now a few aspects of 802.11 that are not described, specified or defined anywhere. While that is in general very unfortunate, there exist today other methods for accomplishing many of the mechanisms described in 802.11F that do not involve using the 802.11F protocol. However, the use of a specially addressed layer 2 frame (e.g. a null XID frame) by an AP to update the DS (e.g. and any infrastructure switches and routers) of the current association status of a mobile STA remains a valid and useful mechanism and method that is now lost.

SuggestedRemedy

Add an informative note in clause N.2.2 (now O.2.2) that cites the use of a null L2 XID packet as one method of accomplishing a DS-STA-NOTIFY update sequence in a real network/ WLAN system. Also include a reference to 802.11F clauses 4.5.1, 4.9.3, 5.1.1, 5.5.1, 5.5.2, 5.8, and 6.3, and (subsequently) add an 802.11F reference to Annex E. Alternatively we could copy from 802.11F directly into 802.11ma (in the appropriate places) the lines of text that describe the XID frame. Then the 802.11F reference and reference citation would not be needed.

Response Response Status U

ACCEPT IN PRINCIPLE.

See resolution to comment #95 (duplicate).

Cl 11 SC 11.2 P 432 L 25 # 100
 ENGWER, DARWIN A Individual

Comment Type **TR** Comment Status **R**

Revisit comment #13 from the previous ballot to ensure that after merging in the 802.11e material there is a requirement to send new MSDUs *after* queued MSDUs.

SuggestedRemedy

Add the appropriate shall statement to the appropriate subclause of 11.2 if it is not already there.

Response Response Status **U**

REJECT.

It is believed that the appropriate direction to the implementer is present in 6.1.3 and that no additional requirements are necessary.

Cl 03 SC 3.15 P 7 L 13 # 101
 ENGWER, DARWIN A Individual

Comment Type **TR** Comment Status **R**

The basic service set basic rate set text should not be deleted!! it is referenced again as soon as later in clause 3 and at other places in the standard as well.

SuggestedRemedy

Restore the deleted text and fix the definition at the same time.

Response Response Status **U**

REJECT.

Continue the replacement of "BSS basic rate set" with "contained in the BSSBasicRateSet parameter" for all remaining occurrences of BSS basic rate set.

Delete the definition of "extended rate set" and modify 11.1.4 by changing "Rate Set and Extended Rate Set" at the end of the last sentence to be "Supported Rates information element and Extended Supported Rates information element".

Delete the definition of "station basic rate" as those words occur only in the definitions.

The editor search draft 6.0 for BSS Basic Rate Set and basic service set basic rate set and base service set (BSS) basic rate set. None occur except in 3.53 (extended rate set) and 3.138 (station basic rate) which are to be deleted by this same action. No action on this part.

A less precise phrase, "basic rate set," was found in the document in 9.6 (twice), A.4.4, and Annex C. The editor included changes in draft 7.0 in 9.6 (twice) and A.4.4 to use the more precise wording "contained in the BSSBasicRateSet parameter".

The editor included in draft 7.0 in 11.1.4 to avoid extended rate set.

The editor deleted definitions in draft 7.0 from 3.53 (extended rate set) and 3.138 (station basic rate).

CI 03 SC 3.59 P 10 L 10 # 102
 ENGWER, DARWIN A Individual

Comment Type **TR** Comment Status **A**

Fragmentation is defined within 802.11, but here in clause the 3 the term should be related back to the appropriate guiding term in the normative reference document ISO 7498-1.

SuggestedRemedy

Change "partitioning" to "segmenting" (and potentially cite the reference to ISO 7498-1 clause 5.8.1.9).

Response Response Status **U**

ACCEPT.

Editor to change "partitioning" to "segmenting" and add an appropriate reference to ISO 7498-1.

Editor included in draft 7.0 in 3.57.

CI 00 SC P L # 103
 ENGWER, DARWIN A Individual

Comment Type **GR** Comment Status **A**

the introduction of hte 802.11e material introduced several inconsistencies in the draft standard

SuggestedRemedy

resolve the inconsistencies

Response Response Status **U**

ACCEPT.

The editor is instructed to comb the document for the term "amendment" and correct it wherever it is found. The editor is also instructed to replace the word "roam" with "transition" wherever it is found.

The Balloter is warned that the suggested remedy is required to provide sufficient detail to allow the ballot resolution committee to determine what is necessary to cause the balloter to change their vote from "no" to "yes". Failure to do so may cause the comment to be considered invalid.

Editor included in draft 7.0 by searching for amendment. Replaced with either revision or standard, as appropriate.

CI 08 SC 8.5.5 P 271 L 25 # 104
 STEPHENS, ADRIAN P Individual

Comment Type **TR** Comment Status **A**

(From Suman Sharma) STAKey handshake defined as part of standard is incomplete. Two flaws a) Security flaw & b) Definition flaw in this handshake has been identified as part of document 11-05-1058-00-000w-stakey-design-flaws.ppt. Note, although the referenced section is not changed in this this revision, the problem arises due to the introduction of the DLS feature which is new in this revision.

SuggestedRemedy

Document 11-05-1258-01-000m-normative-text-peerkey-handshake-proposal.doc provides fix to the STAKey flaws. Please use the normative text to fix the STAKey flaws.

Response Response Status **U**

ACCEPT.

Delete 3.136, 3.137, and 3.138, instead of 3.100, 101, and 102 as described in 05/1258r1.

Modify 3.130 as described in 05/1258r1, instead of 3.97.

Adopt 05/1258r1 for the remainder of the changes described there.

See commend #32 for editorial resolution.

CI 06 SC 6.1.1.2 P L # 112
 STEPHENS, ADRIAN P Individual

Comment Type **ER** Comment Status **R**

It is not clear what is new or changed in this subclause. The gutter marking indicates that it is all changed. However there are strikeouts and underlines within the section, which do not correspond to the gutter marking.

SuggestedRemedy

Please show changes from previous version with underlining or strikeout consistently, or define an unambiguous convention through editorial notes.

Response Response Status **U**

REJECT.

This was explained in an editor note in draft 6.0.

Cl 07 **SC 7.3.2** *P* *L* # 116
STEPHENS, ADRIAN P Individual

Comment Type **TR** *Comment Status* **A**

Table 26 contains a TBD

SuggestedRemedy

Get a number from the ANA and insert it here.

Response *Response Status* **U**

ACCEPT.

Editor to replace "TBD" with "127" for the element ID of the Extended Capabilities IE and place it in the correct order in the table.

Editor included in draft 7.0 in 7.3.2 (Table 26) and 7.3.2.27.

Cl 08 **SC 8.3.2.3.1** *P* *L* # 120
STEPHENS, ADRIAN P Individual

Comment Type **TR** *Comment Status* **A**

The deletion of "The priority ... Use." leaves the priority field undefined.

SuggestedRemedy

Specify the field.

Response *Response Status* **U**

ACCEPT.

The field is defined as the "MSDU priority" in 8.3.2.1 a). Editor to add the following in place of the deleted sentence:

"The Priority field refers to the priority parameter of the MA-UNITDATA.request service primitive."

Editor included in draft 7.0 in 8.3.2.3.1.

Cl 11 **SC 11.2.1.5** *P* *L* # 128
STEPHENS, ADRIAN P Individual

Comment Type **ER** *Comment Status* **R**

I challenge anybody to read bullet h) and understand it. My training as a writer says that paragraphs of a 400 words may be a teensy-weensy bit on the long side.

SuggestedRemedy

Restructure using a second level of list indentation to separate out the major topics of bullet h), g) and possibly d).

Response *Response Status* **U**

REJECT.

Commenter does not provide sufficient information to determine what he would accept.

Cl 11 **SC 11.2.2** *P* **440** *L* **52** # 129
STEPHENS, ADRIAN P Individual

Comment Type **TR** *Comment Status* **A**

I think the prohibition against BA and power-saving in a QIBSS is unnecessary. Power-saving introduces one new problem - that delivery of frames is delayed by a non-deterministic amount of time related to the beacon interval (perhaps several beacon intervals). There is the also the issue of whether our knowledge of the power-saving state of a peer is accurate.

The variable delay only creates an issue for block ack if the block ack timeout is too short. But setting this timeout is a matter of local policy, and we don't prevent an implementation doing something intelligent based on its knowledge of the power-saving state of a peer.

Having an inaccurate knowledge of the peer's power-saving state is no different for BA. A BA sequence will start with an exchange of frames intended to discover if contention has been won (i.e. RTS/CTS), this will also discover if the peer is asleep when we thought it was awake.

SuggestedRemedy

Remove the para starting on line 52: "In a QIBSS&".

Response *Response Status* **U**

ACCEPT.

Editor included in draft 7.0 in 11.2.2.

Cl D SC 0 P L # 141
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status A

There is nothing in the MIB to support 5MHz operation, but there is for 10MHz. So we must be missing some changes.

SuggestedRemedy

Add 5MHz support similar to 10MHz support in the MIB.

Response Response Status U

ACCEPT.

Editor to incorporate the text from 06/736r0.

Editor included in draft 7.0 in Annex D.

Cl 11 SC 11.7 P 456 L 52 # 142
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status R

(Submitted on behalf of Shlomo Ovadia) The DLS operation does not define if the DLS frames are unidirectional or bi-directional; potential implementation problem

SuggestedRemedy

Revise line 52 "However, STAs with QoS facility (i.e., QSTAs) may transmit unidirectional frames directly to another QSTA.."

Response Response Status U

REJECT.

See the resolution to comment #106.

Cl 11 SC 11.7 P 457 L 24 # 143
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status R

(Submitted on behalf of Shlomo Ovadia) The DLS operation does not define if data frames transmitted as part of a DLS link is unidirectional or bi-directional

SuggestedRemedy

Revise line 24 "A STA, QSTA-1, that intends to exchange unidirectional frames directly with another non-AP STA,&"

Response Response Status U

REJECT.

See the resolution to comment #106.

Cl 11 SC 11.7.3.1 P 459 L 42 # 144
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status A

(Submitted on behalf of Shlomo Ovadia) The DLS Teardown procedure at QSTA does not define DLS teardown if QSTA is out of the QAP range

SuggestedRemedy

Presentation IEEE 802.11-06/0242r1 presents a fix to this problem Submission IEEE 802.11-06/0598r0 contains normative text consistent with this presentation.

Response Response Status U

ACCEPT IN PRINCIPLE.

Adopt the changes in 06/598r0 with the following exception:

Delete: "in some implementation-defined way..." from the text inserted in 11.7.3.3.

Editor included in draft 7.0 in 11.7.3, 11.7.3.1, and 11.7.3.3.

Cl 11 SC 11.7.3.2 P 460 L 37 # 145
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status A

(Submitted on behalf of Shlomo Ovadia) QAP-initiated DLS teardown procedure is not defined; this is needed when if QAP loses its DLS session state or QSTA left BSS without disassociation

SuggestedRemedy

Presentation IEEE 802.11-06/0242r1 presents a fix to this problem Submission IEEE 802.11-06/0598r0 contains normative text consistent with this presentation.

Response Response Status U

ACCEPT IN PRINCIPLE.

See resolution to comment #144.

CI 07 SC 7.3.1.11 P 103 L # 147
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status A
(Comment on behalf of Emily Qi)

Table 24 does not define a vendor-specific action category. It is reasonable for vendors to define vendor-specific signalling, but at the moment, this is only present appended to existing management action frames - each of which has a normative effect. What is necessary is a vendor-specific frame that has no defined normative effect. This can be achieved by defining a vendor-specific management action category, with some standardised syntax relating to OUI within the frame.

SuggestedRemedy

Add "Vendor Specific" in Table 24 and assign it a code, or ask the ANA to assign a code as appropriate. It is suggested that the OUI follow immediately after the category field within the action field, the remainder of the field being vendor-defined. Add new subclause to 7.4 defining vendor-specific management action details. (Emily Qi volunteers to provide normative text consistent with this recommended change if so approved).

Response Response Status U
ACCEPT.

Apply the changes cited in document 6/773r0.

Editor included in draft 7.0 in 7.4 and new section 7.4.5.

CI 08 SC 8.5.5 P 271 L 25 # 149
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status A

For DLS to use peerkey handshake for creating a secure DLS link, it is necessary to create additional operational rules regarding the establishment of unidirectional DLS links in both directions between peers.

SuggestedRemedy

The rules for establishment of these links, and the conditions under which they are necessary need to be studied. It is hoped to bring a proposal containing normative text in due course.

Response Response Status U
ACCEPT IN PRINCIPLE.

See the resolution to comment #106.

CI 11 SC 11.7.3 P 460 L 460 # 150
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status A
(For Shlomo Ovadia) Figure 205 applies only to STA-initiated DLS Teardown procedure

SuggestedRemedy

Modify figure 205 caption to "QSTA-initiated DLS teardown message flow"

Response Response Status U
ACCEPT.

Editor included in draft 7.0 in 11.7.3, Figure 212.

CI 11 SC 11.10.7.2 P 471 L 37 # 151
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status R
(Submitted on behalf of Marc Jalfon)

This comment relates to comment 65 by Andrew Myles in document IEEE 802.11-06/0095r4 that was rejected by the comment resolution committee. This commenter agrees with Mr Myles comments, and disagrees with their dismissal by the comment resolution committee.

The DFS channel changing facilities for IBSS represent a very complex set protocols that have little value in the vast majority of cases and will not work in many circumstances.

Moreover, given that european regulatory agencies have relaxed their dfs requirements for IBSS, DFS in IBSS is not needed anymore to fulfill the PAR.

SuggestedRemedy

Delete all text related to selecting a new channel in an IBSS (i.e. the referenced subclause and any references to it). The precise set of changes have been documented in the response to comment 65 in the referenced document.

Response Response Status U
REJECT. See resolution to comment #85.

CI 07 SC 7.1.3.1.3 P 69 L 6 # 152
 ENGWER, DARWIN A Individual

Comment Type TR Comment Status A

After the 802.11e merge the text for the To DS and From DS clauses is more confusing than ever. The text in Table 2 is now also incorrect.

SuggestedRemedy

Replace the To DS and From DS bit designations and definitions with a two bit field, the meaning of which is defined by Table 2.

Delete all the existing text in clauses 7.1.3.1.3 and 7.1.3.1.4 except the sentence that reads "The permitted bit combinations and their meanings are given in Table 2."

Correct the descriptions in Table 2 as follows:

To/From:

00: Data frame direct from one STA to another STA within the same IBSS, or a data frame direct from one non-AP QSTA to another non-AP QSTA within the same QBSS, as well as all management and control frames.

10: Data frame destined for the DS or being sent by a STA associated with an AP to the Port Access Entity in that AP.

01: Data frame exiting the DS or being sent by the Port Access Entity in an AP.

11: Data frame using the four-address wireless distribution system (WDS) format. This standard does not define procedures for using this combination of field values.

Response Response Status U

ACCEPT IN PRINCIPLE.

Delete clause 7.1.3.1.4 and all the text in 7.1.3.1.3. Retitle 7.1.3.1.3 as "ToDS and FromDS fields".

As the only sentence in this subclause, insert "The meaning of the combinations of values for the ToDS and FromDS fields are shown in Table 2."

Insert the table as described in the suggested remedy.

Editor included in draft 7.0 in 7.1.3.1.4, including modifying Table 2 entires for To/From 10 and 01.

CI 07 SC 7.2.2 P 84 L 84 # 153
 ENGWER, DARWIN A Individual

Comment Type TR Comment Status A

The information in the description column is wrong.

SuggestedRemedy

Remove the description column. This incorrect info was added by the 802.11e merge and is an incorrect restatement of the material in Table 2 (clause 7.1.3.1.3).

Response Response Status U

ACCEPT.

Editor included in draft 7.0 in 7.2.2, Table 7.

CI 09 SC 9.4 P 275 L 46 # 154
 ENGWER, DARWIN A Individual

Comment Type ER Comment Status A

The term "directed" is deprecated.

SuggestedRemedy

change "directed" to "individually addressed"

Response Response Status U

ACCEPT.

Editor included in draft 7.0 in 9.1.5, 9.2, 9.2.6, 9.2.7, 9.2.8, 9.3.2.1, 9.3.3.1, 9.3.3.2, 9.3.3.4, 9.4, 9.5.

CI 10 SC 10.3.6.4 P 335 L 18 # 155
 ENGWER, DARWIN A Individual

Comment Type TR Comment Status A

MLME-ASSOCIATE.response is missing the EDCAPparameterSet parameter, which somehow(???) shows up in the corresponding .confirm. Is this information relayed from the AP, or just being echoed locally from the START.request primitive?

SuggestedRemedy

add the missing parameter

Response Response Status U

ACCEPT.

Copy the text from 10.3.6.2.2 for the EDCAPparameterSet parameter.

Editor included in draft 7.0 in 10.3.6.4.

Cl 10 SC 10.3.7.4 P 342 L 18 # 156
ENGWER, DARWIN A Individual

Comment Type **TR** Comment Status **A**

MLME-REASSOCIATE.response is missing the EDCAPparameterSet parameter, which somehow(???) shows up in the corresponding .confirm. Is this information relayed from the AP, or just being echoed locally from the START.request primitive?

SuggestedRemedy

add the missing parameter

Response Response Status **U**

ACCEPT.

Copy the text from 10.3.7.2.2 for the EDCAPparameterSet parameter.

Editor included in draft 7.0 in 10.3.7.4.

Comments from Second Recirculation ballot

Cl 00 SC 0 P L # 1 [REDACTED]
 MYLES, ANDREW F Individual

Comment Type TR Comment Status D
 In previous ballots, I requested the removal of: * Tx Power Capability functionality (see 11.5.1) * Adaption of Tx Power functionality (see 11.5.3) * Supported Channels functionality (see 11.6.1) I made this request on the basis that: * The functions are not required by spectrum management regulations, which is why they were originally included in the 802.11h * There was no known use of the functions for other useful purposes. The requests were rejected on the basis: * Leaving them in the standard does no harm * There may be implementations of which I am unaware. I accept that there are implementations of this functionality of which I am unaware. However, I claim there is harm in leaving unnecessary and useless functionality in the standard in the long term because it will bloat the standard making it harder to understand and maintain. It may also confuse equipment vendors into thinking they need to implement the functionality.

SuggestedRemedy
 A reasonable compromise is to add a statement at the appropriate places in the draft stating something like, " The following functionality, including associated IE's and frames, may be removed during the next maintenance cycle unless it can be shown the functionality has some use."

Proposed Response Response Status W
 PROPOSED REJECT.

It is inappropriate for a statement of future intention, as that suggested by the commenter, to be included in the standard.

Cl 00 SC 0 P L # 2 [REDACTED]
 MYLES, ANDREW F Individual

Comment Type TR Comment Status D
 In previous ballots, I requested the removal of Measurement Request and Report functionality (see 11.6.6) I made this request on the basis that: * The function is not required by spectrum management regulations, which is why it was originally included in the 802.11h * There was no known use of the function in its current form for other useful purposes. * A syntactically and semantically different version is being developed by 802.11 TGk The request was accepted and the commenter was directed to provide a set of instructions for the editor. The scope of the changes, and the difficulty they might cause 802.11 TGk, subsequently caused the commenter to suggest that: * the removal of the functionality be delayed until 802.11TGk complete their work * in the meantime, implementors should be discouraged from implementing the functionality by the inclusion of a note at the appropriate place stating that the functionality, including associated IE's and frames, would be removed in a future maintenance cycle (or possibly by 802.11 TGk) Unfortunately, it was too late for the suggestion to be considered by 802.11 TGma.

SuggestedRemedy
 Implement the suggestion in the comment to flag the future removal of this functionality

Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.

It is recognized that there is functionality in 802.11 that could be considered obsolete. The comment will be forwarded to the 802.11 Working Group for consideration in a future revision of the standard.

Cl 00 SC 0 P L # 3
 MYLES, ANDREW F Individual

Comment Type TR Comment Status D

In a previous ballots, I requested the removal of Annex N because I believed it had no value. This request was rejected with, "The consensus of the working group is that the material is useful. The burden of proving it not useful is on the commenter. A simple assertion that it is not useful is insufficient justification to remove the annex." This response is unreasonable because it is impossible to prove no value. Given this is new material, I strongly believe that it is incumbent on the authors to describe what value is provided. What I can say is that it attempts to describe the functions of an AP using an abstract form, new terminology (eg mobile STAs) and a new language (eg based on UML). The majority of the annex is used to describe the new terminology and language.

SuggestedRemedy

Remove Annex N

Proposed Response Response Status W

PROPOSED REJECT.

The consensus of the working group is that the material in Annex N is useful. Inclusion of Annex N was approved unanimously in March 2005 (document 05/205r0, motion #7). This text was developed in response to requests from 802.11 members and external SDOs for additional description of AP functionality. Annex N describes the functions of an AP using a UML-based syntax to clarify AP function versus common implementations of AP devices. The burden of proving that Annex N is not useful is on the commenter.

Cl 00 SC 0 P L # 4
 MYLES, ANDREW F Individual

Comment Type TR Comment Status D

It appears the reference in N.6 to Annex L should actually be to Annex M

SuggestedRemedy

Fix

Proposed Response Response Status W

PROPOSED ACCEPT.

Editor to correct the reference in N.6 to refer to Annex M.

Cl 00 SC 0 P L # 5
 MYLES, ANDREW F Individual

Comment Type TR Comment Status D

In previous ballots, I requested the removal of IBSS DFS functionality on the following basis "The DFS channel changing facilities for IBSS represent a very complex set of protocols that have little value in the vast majority of cases and will not work in many circumstances. There is no known implementation of this feature. In a response to the same comment in the last ballot, TGma asked me to justify my assertions. I believe that they are justified by a quote from 11.10.7.2 that states, "The potential for hidden nodes within an IBSS means that the IBSS channel switch protocol is best effort. All members of an IBSS shall have an individual responsibility to cease transmission on a particular channel in the presence of radar." This text effectively says that the IBSS channel switch protocol cannot be relied upon and that individual STAs need to do radar detection anyway. It is almost certain that regulators will have a similar view. This removes the primary advantage cited in 06/220. The other advantages cited in 06/220 for the IBSS DFS protocol can be achieved without any special over the air protocol." This comment was rejected with the following response: "The mechanism does not cause any harm, without regard to its usefulness. The mechanism is adequate to cause some STAs in an IBSS to change channels, though it may not be sufficient to cause all STAs to do so." I object to the rejection because: * The response admits the mechanism does not achieve its goals and yet there is no recommendation to remove the functionality * It is not true that no harm is caused because it bloats the standard with useless and deceptive material; something we need to avoid in fulfilling our responsibilities as standards developers.

SuggestedRemedy

I would prefer that this functionality was removed using the editing instructions previously provided. However, a reasonable compromise is to add a statement at the appropriate places in the draft stating something like, "The following functionality, including associated IE's and frames, may be removed during the next maintenance cycle unless it can be shown the functionality has some use."

Proposed Response Response Status W

PROPOSED REJECT.

It is recognized that there is functionality in 802.11 that could be considered obsolete. The comment will be forwarded to the 802.11 Working Group for consideration in a future revision of the standard.

CI 09 SC 9.6 P 287 L 54 # 18
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status D

(On behalf of Solomon Trainin) To be complete with the rule "The BlockAck control frame shall be sent at the same rate as the BlockAckReq frame" the spec has to say that the BlockAckReq shall be sent at the rate that both STA can receive and transmit. Only rates from BSSBasicRate set parameter are appropriate. This needs to be specified.

SuggestedRemedy

The resolution is to transmit both BAR and BA at the basic rate still following the rule of same rate. The following edits (in 9.6) achieve this: 1. Insert at the end of "When the control frame is a BlockAckReq or BlockAck frame" the following: " of a delayed Block Ack agreement". 2. Insert after "All other data, BlockAckReq, and BlockAck frames" the following "of a delayed Block Ack agreement" 3. Insert after "... the rate chosen to transmit ... ACK frame is intended." the following: "A STA requesting an immediate BlockAck response shall transmit the BlockAckReq frame at the highest rate in the BSSBasicRateSet parameter that is less than or equal to the rate of the previous Data frame sent to the same destination and that is of the same modulation class. If no rate in the basic rate set contained in the BSSBasicRateSet parameter meets these conditions then the BlockAckReq frame shall be sent at the highest mandatory rate of the PHY that is less than or equal to the rate of the previous Data frame sent to the same destination and that is of the same modulation class."

Proposed Response Response Status W

PROPOSED REJECT.

The current rule already requires that the transmission of the BAR be sent at a rate that can be received by the destination station. There is no need to clarify that rule. The remainder of the suggested remedy is beyond the scope of the current recirculation ballot. The comment will be forwarded to the working group for consideration in a future revision of the standard.

CI 08 SC 8.3.2.4 P 176 L 13 # 19
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status D

"Some TKIP countermeasures are applicable for secure DLS data frame exchange as well." Either some was intended, in which case the applicable cases should be listed, or (as is thought to be the case) it was intended to be "the same".

SuggestedRemedy

At the start of this sentence, replace "Some" with "The same".

Proposed Response Response Status W

PROPOSED REJECT.

See the resolution to comment #54. There is no need to make a special case for DLS. It is already encompassed by the current countermeasures text.

CI 00 SC 0 P L # 20
STEPHENS, ADRIAN P Individual

Comment Type ER Comment Status X

The IEEE-SA style guide does not allow hanging subclauses. There are many occurrences of this (5.9, 5.9.2, 5.9.3, 6.1.1, 6.1.1.1, 7, 7.1, 7.2.1, 7.4, 7.4.1, 8.1&)

SuggestedRemedy

Beseech the editor to insert new subclauses to contain introductory material, or material common to subsequent subclauses.

Proposed Response Response Status O

CI 09 SC 9.12 P 323 L 28 # 22
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status D

My comment in an earlier ballot was not adequately addressed. I proposed replacement of existing tables and figures with a new syntax. The alternative resolution adopted leaves the figures in place. The reason for my original change still stands - the figures are not maintainable. For example, TGn would have no option but to add a disclaimer to the tables (similar to the SDL in Annex C) "this does not apply to the HT feature". I've asked around and nobody really cares about this subclause anyway.

SuggestedRemedy

Remove the text and figures from 323 line 28 until the end of the subclause. Alternatively remove the whole subclause.

Proposed Response Response Status W

PROPOSED ACCEPT.

The editor is to remove the figures and text from page 323, line 28 through the end of the subclause.

Cl 03 SC 3.36 P 8 L 21 # 24
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status D

(On behalf of Shlomo Ovadia) The definition of direct link is inconsistent with DLS handshake in Clause 11.7

SuggestedRemedy

Proposed text "Direct Link: A bidirectional link from one non-access point (non-AP) quality of service (QoS) station (QSTA) to another non-AP QSTA operating in the same infrastructure QoS basic service set (QBSS) that does not pass through a QoS access point (QAP). Once a direct link has been set up, all data frames between the two non-AP QSTAs are exchanged directly."

Proposed Response Response Status W

PROPOSED ACCEPT.

Change "unidirectional" to "bidirectional" in 3.36.

Cl 11 SC 11.7 P 481 L 24 # 27
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status D

(On behalf of Shlomo Ovadia) Not clear what "intends to exchange frames" means

SuggestedRemedy

Proposed text "A STA, QSTA-1, that initiates a direct link with another non-AP STA, sends a DLS request frame to the QAP (step 1a in Figure 210)."

Proposed Response Response Status W

PROPOSED REJECT.

The comment is outside the scope of the current recirculation ballot. There were no changes that affect the cited text. The comment will be forwarded to the working group for consideration in a future revision of the standard.

Cl 11 SC 11.7 P 481 L 32 # 28
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status D

(On behalf of Shlomo Ovadia) "direct stream" is undefined here and in other occurrences

SuggestedRemedy

Proposed change "direct stream"->"direct link", global search and replace

Proposed Response Response Status W

PROPOSED REJECT.

The comment is outside the scope of the current recirculation ballot. The cited text has not changed. The comment will be forwarded to the working group for consideration in a future revision of the standard.

Cl 11 SC 11.7 P 481 L 5 # 29
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status D

(On behalf of Shlomo Ovadia) "for the duration of the direct stream as long as there is an active DLS between the two STAs" is redundant and unnecessary

SuggestedRemedy

Delete "for the duration of the direct stream"

Proposed Response Response Status W

PROPOSED REJECT.

The comment is outside the scope of the current recirculation ballot, as no change was made to the power save functionality with DLS. The comment will be forwarded to the working group for consideration in a future revision of the standard.

Cl 10 SC 10.3 P L # 30
STEPHENS, ADRIAN P Individual

Comment Type TR Comment Status D

(On behalf of Emily Qi) MLME SAP Interface for Vendor Specific Action Frame is missing

SuggestedRemedy

Add new sub-clauses in 10.3 to specify MLME-VENDORSPECIFIC.request, MLME-VENDORSPECIFIC.confirm, and MLME-VENDORSPECIFIC.indication. (Emily Qi volunteers to provide normative text consistent with this recommended change if so approved). Also consider whether clause 9/11 text is necessary to describe its use.

Proposed Response Response Status W

PROPOSED ACCEPT.

Include the content of document 06/926r1.

Cl 07 SC 7.2.2 P 81 L 25 # 33
 CHAPLIN, CLINT F Individual
 Comment Type ER Comment Status X
 incorrect English, plural noun, singular verb
 SuggestedRemedy
 Change "QSTAs uses QoS" to "QSTAs use QoS"
 Proposed Response Response Status O

Cl 08 SC 8.5.7 P 238 L 16 # 34
 CHAPLIN, CLINT F Individual
 Comment Type ER Comment Status X
 An accepted comment in a previous letter ballot changed "AAA Key" to "MSK" throughout.
 But one place in Figure 157 was missed.
 SuggestedRemedy
 Page 238, line 16 (middle of Figure 157), Change "AAA Key" to "MSK"
 Proposed Response Response Status O

Cl 11 SC 11.5.1 P 476 L 9 # 35
 CHAPLIN, CLINT F Individual
 Comment Type ER Comment Status X
 Unresolved cross reference
 SuggestedRemedy
 Change "Editor's Note" to "11.5.1.1"
 Proposed Response Response Status O

Cl 11 SC 11.7 P 481 L 49 # 36
 CHAPLIN, CLINT F Individual
 Comment Type ER Comment Status D
 Comment #148 of previous recirculation left inconsistent text in 11.7. The resulting text in D7.0 gives a normative cross reference to the teardown procedures (pointing to 11.7.4), then follows it with a "Note" that says that the DLS cannot be torn down. The first sentence of this pair was inserted by Comment #148 in the previous recirculation, and second sentence ("Note:") reasonably followed the text that was replaced by comment #148. Resolution to comment #148 in previous recirculation should have instructed the editor to include the "Note" in the text being replaced.

SuggestedRemedy
 Delete the sentence at line #49 of this page, "Note in this case the DLS cannot be torn down because a teardown message cannot be sent because the QSTAs are not on the same QAP."
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 00 SC 0 P L # 37
 CHAPLIN, CLINT F Individual
 Comment Type ER Comment Status D
 Followup to comment #73 of previous ballot. 11e made a big mistake by defining the notion of a QSTA being somehow different than a STA. A STA is a STA. Some STAs are capable of additional functions, and advertises those additional capabilities. This change unfortunately set a precedent for later amendments - 11r D1.0 defined a TSTA and TAP, and 11n D1.0 defined a HT-STA and HT-AP. Don't set the precedent for future amendments to do this again.
 SuggestedRemedy
 Proposed resolution given in the previous recirculation was rejected, and commentor agrees that several of the QoS modifiers can't be simply deleted. Request that the editor incorporate the changes given in 11-06-0897-xx-000m-q-removal (latest revision), which give instructions for the proper modification for every occurrence of QSTA, QAP, QBSS, QIBSS, nQSTA, nQAP, nQBSS, and nQIBSS.
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 03 SC 3.34 P 50 L 13 # 39
PALM, STEPHEN R Individual

Comment Type TR Comment Status D

Revised definition is more confusing. Recommend same definition as in WMM

SuggestedRemedy

An AC for a specific STA, to deliver traffic in that STA specific AC using APSD when an Unscheduled Service Period (USP) is triggered by that STA.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

The previous change is to be reversed.

CI 03 SC 3.57 P 51 L 46 # 40
PALM, STEPHEN R Individual

Comment Type TR Comment Status D

Isn't this standard full of things it defines???. Is there only a single one or multiple ones?

SuggestedRemedy

Delete "defined by this standard". Then the sentence needs more technical detail to be provided by the contributors

Proposed Response Response Status W

PROPOSED ACCEPT.

Editor to replace the current definition with the following: A key management protocol between two parties that confirms mutual possession of a station to station link master key (SMK) and distributes a station to station link transient key (STK).

CI 03 SC 3.125 P 57 L 9 # 41
PALM, STEPHEN R Individual

Comment Type TR Comment Status D

The deleted sentence changes the definition.

SuggestedRemedy

Return deleted sentence. Reword if necessary

Proposed Response Response Status W

PROPOSED ACCEPT.

Editor to reverse the deletion of the sentence.

CI 03 SC 3.137 P 57 L 16 # 42
PALM, STEPHEN R Individual

Comment Type TR Comment Status D

Isn't this standard full of things it defines???. Is there only a single one or multiple ones?

SuggestedRemedy

Delete "defined by this standard". Then the sentence needs more technical detail to be provided by the contributors

Proposed Response Response Status W

PROPOSED ACCEPT.

Editor to replace the definition with the following:

A key management protocol between two parties that creates a new station to station link master key (SMK).

CI 03 SC 3.147 P 58 L 6 # 43
PALM, STEPHEN R Individual

Comment Type TR Comment Status D

Is the last sentence a requirement? How is it fulfilled?

SuggestedRemedy

Delete or define what will qualify in the future.

Proposed Response Response Status W

PROPOSED ACCEPT.

Editor to delete the last sentence.

CI 07 SC 7.3.2.2 P 148 L 23 # 44
PALM, STEPHEN R Individual

Comment Type TR Comment Status D

What is "Kbps"? The metric standard for 1000 is lower case "k". Is the intent 1024 or 1000? This needs a definition

SuggestedRemedy

kbit/s

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

See resolution to comment #43.

CI 07 SC 7.3.2.2 P 148 L 23 # 45
PALM, STEPHEN R Individual

Comment Type TR Comment Status D

What is "rounded up"? The enclosing or the value? The example is confusing since the encoding should be 0x02

SuggestedRemedy
clarify

Proposed Response Response Status W
PROPOSED ACCEPT.

Replace "data rate, in units of 500Kbps and, if necessary, rounded up" with "data rate, rounded up to the next 500kb/s"

CI 07 SC 7.4.5. P 198 L 4 # 46
PALM, STEPHEN R Individual

Comment Type TR Comment Status D

Are the Vendor specific contents rely defined in the standard?

SuggestedRemedy
reword to clarify intent

Proposed Response Response Status W
PROPOSED ACCEPT.

Editor to delete the following from the sentence: "and the Information Elements that are defined in the standard"

CI 08 SC 8.1.4 P 201 L 47 # 47
PALM, STEPHEN R Individual

Comment Type TR Comment Status D

Much of this clause reads like a proposal not a standard. " is provided", "it is the intent&", "common"

SuggestedRemedy
Clarify

Proposed Response Response Status W
PROPOSED ACCEPT.

Replace the first paragraph of 8.1.4 with the following text:

The PeerKey protocol provides mutual authentication, session identification, and data confidentiality for a STA to STA connection. A PeerKey association, comprised of a STA to STA link master key security association (SMKSA) and a STA to STA link transient key security association (STKSA), shall only be allowed within the context of an existing RSNA by both peers with a common AP. Both the initiator STA and the peer STA shall ensure that dot11RSNAEnabled is true before initiating the STA to STA link master key (SMK) and STA to STA transient key (STK) handshakes and establishing their respective security associations.

CI 08 SC 8.1.4 P 201 L 52 # 48
PALM, STEPHEN R Individual

Comment Type TR Comment Status D

"STA shall ensure" sounds like the STA should set instead of read the value

SuggestedRemedy
Calrify intent

Proposed Response Response Status W
PROPOSED ACCEPT.

See the resolution to comment #47.

Cl 08 SC **8.3.2.4** P **218** L **13** # **49**
 PALM, STEPHEN R Individual
Comment Type **TR** **Comment Status** **D**
 The new statement is vague and content free.
SuggestedRemedy
 Delete or add some substance or reference
Proposed Response **Response Status** **W**
 PROPOSED ACCEPT.
 See the resolution to comment #54.

Cl 08 SC **8.4.1.1.4** P **232** L **33** # **50**
 PALM, STEPHEN R Individual
Comment Type **TR** **Comment Status** **D**
 "SMKSAs are cached for up to their lifetimes." Are SMKSAs required to be cached?
SuggestedRemedy
 Clarify that it is not an implementation detail
Proposed Response **Response Status** **W**
 PROPOSED REJECT.
 Delete "SMKSAs are cached for up to their lifetimes." from 8.4.1.1.4. This is an implementation decision and is not necessary to be specified. The protocol is robust enough to deal with the case where one side of the exchange has deleted the SMKSA.

Cl 08 SC **8.5.1.4** P **247** L **1** # **51**
 PALM, STEPHEN R Individual
Comment Type **TR** **Comment Status** **D**
 Are these assumptions or requirements?
SuggestedRemedy
 Clarify
Proposed Response **Response Status** **W**
 PROPOSED ACCEPT.
 Replace "Here the following assumptions apply:" with "The following apply and are depicted in Figure 140."

Cl 09 SC **9.2.6** P **316** L # **52**
 PALM, STEPHEN R Individual
Comment Type **TR** **Comment Status** **D**
 "individually addressed" does not seem to be defined. "directed" was defined in 3.35
SuggestedRemedy
 Define
Proposed Response **Response Status** **W**
 PROPOSED ACCEPT.
 Add the following definition: "Individual address: See unicast address."
 Add individual address as a synonym in the unicast address definition.

Cl 00 SC **0** P **160** L **2** # **53**
 STANLEY, DOROTHY V Individual
Comment Type **ER** **Comment Status** **D**
 "PeerKey specification" seems to imply that there is a separate document; not needed
SuggestedRemedy
 Delete the phrase beginning with "However such communications&PeerKey Protocol" and replace with "In this case, the PeerKey protocol is not used."
Proposed Response **Response Status** **W**
 PROPOSED ACCEPT.

Cl 00 SC **0** P **176** L **13** # **54**
 STANLEY, DOROTHY V Individual
Comment Type **TR** **Comment Status** **D**
 Either define the applicable countermeasures that apply to DLS, or delete the sentence.
SuggestedRemedy
 Delete the sentence beginning "Some TKIP countermeasures"
Proposed Response **Response Status** **W**
 PROPOSED ACCEPT.

CI 08 SC 8.4.1.1.4 P 190 L 31 # 55
 STANLEY, DOROTHY V Individual
 Comment Type ER Comment Status X
 Duplicate text
 SuggestedRemedy
 Delete the sentence beginning "In other words&"
 Proposed Response Response Status O

CI 00 SC 0 P 190 L 33 # 56
 STANLEY, DOROTHY V Individual
 Comment Type ER Comment Status X
 non-specific language
 SuggestedRemedy
 Change from "their lifetimes" to "the SMK Lifetime"
 Proposed Response Response Status O

CI 00 SC 0 P 190 L 29 # 57
 STANLEY, DOROTHY V Individual
 Comment Type ER Comment Status X
 Inconsistent article usage
 SuggestedRemedy
 Change from "An SMKSA" to "The SMKSA"
 Proposed Response Response Status O

CI 00 SC 0 P 199 L 26 # 58
 STANLEY, DOROTHY V Individual
 Comment Type TR Comment Status D
 Could not find the definition of an STSL "Teardown". Clause 8.5.9.2 refers to both the STSL Teardown procedure and to an STSL Teardown Message, neither of which are defined. Believe that these references should refer to e.g. DLS teardown - the application that uses the STSL. Also in 8.5.3.5. Also, capitalization on STLS "Teardown" vs "teardown" is not consistent. Pick one.

SuggestedRemedy
 Change all instances of "STSL teardown xxx" to a single term, such as "STSL application Teardown procedure" and indicate that one example is the MLME-DLSTeardown.request.
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.

Adopt the suggested remedy as written. In addition, at the first occurrence of STSL teardown, add the following text. "An example of STSL application teardown procedure is described in 11.7.3."

CI 00 SC 0 P 205 L 54 # 59
 STANLEY, DOROTHY V Individual
 Comment Type ER Comment Status X
 Incorrect grammar
 SuggestedRemedy
 Change from "to deliver SMK" to "to deliver the SMK"
 Proposed Response Response Status O

CI 00 SC 0 P 208 L 20 # 60
 STANLEY, DOROTHY V Individual
 Comment Type ER Comment Status X
 Incorrect grammar
 SuggestedRemedy
 Change from "The STAs where SMK handshakeis not implemented&" to "If the SMKHandshake is not supported, the STA shall set the SMK message bit to 0 and&.."
 Proposed Response Response Status O

Cl 00 **SC 0** **P 214** **L 8** # **61**
 STANLEY, DOROTHY V Individual
Comment Type **ER** **Comment Status X**
 Incorrect grammar
SuggestedRemedy
 Change from "PeerKeyHandshake uses..section 8.5.9" to "PeerKeyHandshake Messages use EAPOL-Key frames as defined in 8.5.9."
Proposed Response **Response Status O**

Cl 00 **SC 0** **P 217** **L 42** # **62**
 STANLEY, DOROTHY V Individual
Comment Type **ER** **Comment Status X**
 Incorrect grammar
SuggestedRemedy
 Change from "as follows" to "is as follows"
Proposed Response **Response Status O**

Cl 00 **SC 0** **P 217** **L 53** # **63**
 STANLEY, DOROTHY V Individual
Comment Type **ER** **Comment Status X**
 Incorrect grammar
SuggestedRemedy
 Change from "as follows" to "is as follows"
Proposed Response **Response Status O**

Cl 00 **SC 0** **P 220** **L 51** # **64**
 STANLEY, DOROTHY V Individual
Comment Type **ER** **Comment Status X**
 Convention is to capitalize "H" in Handshake"
SuggestedRemedy
 Change from "handshake" to "Handshake"
Proposed Response **Response Status O**

Cl 00 **SC 0** **P 222** **L 13** # **65**
 STANLEY, DOROTHY V Individual
Comment Type **ER** **Comment Status X**
 Convention is to capitalize "H" in Handshake"
SuggestedRemedy
 Change from "handshake" to "Handshake"
Proposed Response **Response Status O**

Cl 00 **SC 0** **P 222** **L 13** # **66**
 STANLEY, DOROTHY V Individual
Comment Type **ER** **Comment Status X**
 Incorrect article use
SuggestedRemedy
 Insert "the" prior to "4-Way handshake" and prior to "STK"
Proposed Response **Response Status O**

Cl 00 **SC 0** **P 231** **L 27** # **67**
 STANLEY, DOROTHY V Individual
Comment Type **ER** **Comment Status X**
 Convention is to capitalize the state names
SuggestedRemedy
 Change from "PeerKeylnit" to "PEERKEYINIT"
Proposed Response **Response Status O**

Cl 00 **SC 0** **P 233** **L 5** # **68**
 STANLEY, DOROTHY V Individual
Comment Type **ER** **Comment Status X**
 Incorrect grammar
SuggestedRemedy
 Delete "out" and "other" from the first sentence.
Proposed Response **Response Status O**

Cl 00 **SC 0** **P 233** **L 13** # 69
 STANLEY, DOROTHY V Individual
Comment Type **TR** *Comment Status* **D**
 Not sure "will be" is the right verb here
SuggestedRemedy
 Change "will be" to "are"
Proposed Response *Response Status* **W**
 PROPOSED ACCEPT.

 Change "will be dropped" to "are dropped".

Cl 00 **SC 0** **P 233** **L 15** # 70
 STANLEY, DOROTHY V Individual
Comment Type **ER** *Comment Status* **X**
 Incorrect grammar
SuggestedRemedy
 Change "is provided" to "are provided"
Proposed Response *Response Status* **O**

Cl 00 **SC 0** **P 233** **L 19** # 71
 STANLEY, DOROTHY V Individual
Comment Type **ER** *Comment Status* **X**
 Incorrect grammar
SuggestedRemedy
 Insert "the" prior to "MAC Address", "Peer STA" and "PeerKey"
Proposed Response *Response Status* **O**

Cl 00 **SC 0** **P 233** **L 20** # 72
 STANLEY, DOROTHY V Individual
Comment Type **ER** *Comment Status* **X**
 Incorrect grammar
SuggestedRemedy
 Insert "the" prior to "MAC Address", "Initiator STA" and "PeerKey"
Proposed Response *Response Status* **O**

Cl 00 **SC 0** **P 233** **L 21** # 73
 STANLEY, DOROTHY V Individual
Comment Type **ER** *Comment Status* **X**
 Missing articles
SuggestedRemedy
 Insert "The" and "the" prior to the "STK" occurrences
Proposed Response *Response Status* **O**

Cl 00 **SC 0** **P 235** **L 47** # 74
 STANLEY, DOROTHY V Individual
Comment Type **ER** *Comment Status* **X**
 Missing punctuation
SuggestedRemedy
 Insert a period following "machine"
Proposed Response *Response Status* **O**

Cl 00 **SC 0** **P 235** **L 48** # 75
 STANLEY, DOROTHY V Individual
Comment Type **ER** *Comment Status* **X**
 Duplicate punctuation
SuggestedRemedy
 Delete the period after the :
Proposed Response *Response Status* **O**

Cl 00 SC 0 P 235 L 50 # 76
 STANLEY, DOROTHY V Individual
 Comment Type **TR** Comment Status **D**
 Reference to direct link application not needed
 SuggestedRemedy
 Delete the sentence beginning "This state can be repeated multiple.."
 Proposed Response Response Status **W**
 PROPOSED ACCEPT.

Cl 00 SC 0 P 237 L 1 # 77
 STANLEY, DOROTHY V Individual
 Comment Type **TR** Comment Status **D**
 Lines 1-20 seem to be missing text, and has many missing articles, and sentence fragments. For example, the first definition should probably say "is received by" the Initiator STA
 SuggestedRemedy
 Add complete descriptions
 Proposed Response Response Status **W**
 PROPOSED ACCEPT.

Replace the existing text with the following:

- SMKNEGOTIATING3: This state is entered when the fifth EAPOL-Key frame for the SMK Handshake is received by the Initiator STA.
- SMKNEGOTIATING4: This state is entered when the fourth EAPOL-Key frame for the SMK Handshake is received by the Peer STA.
- STKSTART: Once the SMKSA is created, the Initiator STA enters this state. This is the start of the STK 4-Way Handshake.
- STKCALCNEGOTIATING: This state is entered when the second EAPOL-Key frame for the STK 4-Way Handshake is received by the Initiator STA and the MIC is verified.
- STKCALCNEGOTIATING1: This state is entered when the first EAPOL-Key frame for the STK 4-Way Handshake is received by the Peer STA and the MIC is verified.
- STKCALCNEGOTIATING2: This state is entered unconditionally by the Initiator STA.
- STKCALCNEGOTIATING3: This state is entered unconditionally by the Peer STA.
- STKCALCNEGOTIATING4: This state is entered when the third EAPOL-Key frame for the STK 4-Way Handshake is received by the Peer and the MIC is verified.
- STKINITDONE: This state is entered by the Initiator STA when the fourth EAPOL-Key frame for the STK 4-Way Handshake is received. This state is entered by the Peer STA when the fourth EAPOL-Key frame for the STK 4-Way Handshake is sent.

Also replace "STAKCALCNEGOTIATING2" with "STKCALCNEGOTIATING2" in figure 156.

Cl 00 SC 0 P 243 L 48 # 78
 STANLEY, DOROTHY V Individual
 Comment Type **ER** Comment Status **X**
 Missing article
 SuggestedRemedy
 Insert "the" prior to "PeerKey"
 Proposed Response Response Status **O**

Cl 00 SC 0 P 243 L 49 # 79
 STANLEY, DOROTHY V Individual
 Comment Type **ER** Comment Status **X**
 Incorrect article use
 SuggestedRemedy
 Change "This" to "The"
 Proposed Response Response Status **O**

Cl 00 SC 0 P 243 L 53 # 80
 STANLEY, DOROTHY V Individual
 Comment Type **ER** Comment Status **X**
 Missing article
 SuggestedRemedy
 Insert "the" prior to "first"
 Proposed Response Response Status **O**

Cl 00 SC 0 P 243 L 54 # 81
 STANLEY, DOROTHY V Individual
 Comment Type **ER** Comment Status **X**
 Grammar error
 SuggestedRemedy
 Change from "on receiving of first" to "upon receipt of the first"
 Proposed Response Response Status **O**

CI 00 **SC 0** **P 244** **L 1** # **82**
 STANLEY, DOROTHY V Individual
Comment Type **ER** *Comment Status* **X**
 Grammar error
SuggestedRemedy
 Change from "the STAs" to "each STA" and change from "message arrived for that session" to "messaging received for that session"
Proposed Response *Response Status* **O**

CI 00 **SC 0** **P 244** **L 1** # **83**
 STANLEY, DOROTHY V Individual
Comment Type **TR** *Comment Status* **D**
 "states" is not specific
SuggestedRemedy
 Change from "Peerkey handshake states" to "STKSA and SMKSA"
Proposed Response *Response Status* **W**
 PROPOSED ACCEPT IN PRINCIPLE.

Replace "On expiration of this timer, the STAs shall delete its PeerKey handshake states and discard any message arrived for that session (after expiry)." with "On expiration of this timer, the STA shall transition to the STKINIT state."

CI 00 **SC 0** **P 244** **L 4** # **84**
 STANLEY, DOROTHY V Individual
Comment Type **ER** *Comment Status* **X**
 Missing article
SuggestedRemedy
 Insert "the" prior to PeerKey
Proposed Response *Response Status* **O**

CI 00 **SC 0** **P 244** **L 13** # **85**
 STANLEY, DOROTHY V Individual
Comment Type **ER** *Comment Status* **X**
 Grammar error
SuggestedRemedy
 Change "whom" to "which" and insert "the" prior to STA_I
Proposed Response *Response Status* **O**

CI 00 **SC 0** **P 244** **L 20** # **86**
 STANLEY, DOROTHY V Individual
Comment Type **ER** *Comment Status* **X**
 Grammar error
SuggestedRemedy
 Change "complete handshake has two parts" to "The PeerKey Handshake has two components:"
Proposed Response *Response Status* **O**

CI 00 **SC 0** **P 244** **L 23** # **87**
 STANLEY, DOROTHY V Individual
Comment Type **ER** *Comment Status* **X**
 Missing article
SuggestedRemedy
 Insert "the" prior to "SMKSA" and prior to "PTK"
Proposed Response *Response Status* **O**

CI 00 SC 0 P 244 L 25 # 88
STANLEY, DOROTHY V Individual

Comment Type ER Comment Status X
missing punctuation, article

SuggestedRemedy

Change from "SMKSA Initiator STA" to "SMKSA, the Initiator STA" and change from "initiates 4-way handshake" to "initiates the 4-Way Handshake" and insert "the" prior to both occurrences of STKSA.

Proposed Response Response Status O

CI 00 SC 0 P 244 L 47 # 89
STANLEY, DOROTHY V Individual

Comment Type ER Comment Status X
not standards terminology

SuggestedRemedy

Change "by filling the" to "including the". Insert "the" before group in the second sentence, change "fill this field with any value and on the other side STA" to "include any value in this field and the receiving STA"

Proposed Response Response Status O

CI 00 SC 0 P 251 L 46 # 90
STANLEY, DOROTHY V Individual

Comment Type ER Comment Status X
missing article

SuggestedRemedy

Insert "the" prior to "STA"

Proposed Response Response Status O

Moved: To forward the 802.11REV-ma draft to REVCOM, upon successful completion of the procedure in Clause 21 of the LMSC P&P.

Moved: Kerry/O'Hara

Call the question: Sherman/Upton

13/0/1

10/3/2 Passes

5.16	ME		-			
5.17	ME	802.1ag approval for sponsor ballot	-	Jeffree	5	02:23 PM
Removed from the agenda.						
5.18	ME	802.3ap approval for sponsor ballot	-	Grow	5	02:25 PM

P802.3ap to Sponsor Ballot

Motion:

The LMSC grants approval for P802.3ap
Sponsor ballot.

Working Group motion #10 – Y: 55,N: 3, A: 5

Move that the IEEE 802.3 requests that the IEEE 802
LMSC EC forwards IEEE 802.3ap/D3.0 to sponsor
ballot.

802.3ap ballot status

- D2.5 Recirculation – 70.5% return, 90.3% approve, 19.2% abstain, 11 disapprove voters (2 subsequently flipped), 23 unsatisfied comments.
- Will update base text prior to Sponsor ballot to reflect IEEE 802.3an and P802.3aq/D4.0 with a couple other non-substantive changes.

Moved: The LMSC grants approval for P802.3ap Sponsor ballot.

Moved: Grow/Jeffree

16/0/0 Passes

5.19 ME 802.17b conditional approval for sponsor ballot

- Takefman

5

02:09 PM



Request to Forward 802.17b to Sponsor Ballot



- 802.17b Draft 1.6 Recirculation Ballot closed July 15, 2006
 - 100% return rate, 0% Abstain rate
 - 92.9% Approve Rate (13/1/0)
 - 5 Editorial comments from a voter
 - 2 Editorial / 3 Technical Non Binding comments from a non-member
 - All comments rejected
 - 7 of which will be submitted by the editor during sponsor ballot



Request to Forward 802.17b to Sponsor Ballot



- 1 negative voter (Robert Castellano)
 - 2 rejected Technically Binding comments on D1.3 which have been recirculated
 - no new negative comments since D1.3
 - Mr. Castellano is attempting to resolve these comments informally during Sponsor Ballot and the WG is working with him
 - Likely to resolve one of the comments



802.17 WG Motion



- Move to request the 802 EC to forward 802.17b Draft 2.0 to Sponsor Ballot
- M: Leon Bruckman
- S: Marc Holness
- 6/0/0



802.17b EC Motion



- Move to forward P802.17b to Sponsor Ballot
- M: Takefman
- S: Hawkins



D1.3 Comment #6



- Comment:
 - Currently support the request_sas parameter having values of OFF, UNICAST, MULTICAST, ANY, (null). This allows standard compliant implementations having more intelligent clients to not be precluded by the RPR MAC. Support of request_sas parameter having precedence over sdbstaticMcastLearn field in the sdbstaticMcast table is needed to control learning when a specific multicast group destination address originates from different source addresses
- Group response:
 - The Multicast ballot concluded with the multicast table being the only method for determining whether a multicast stream is SAS learned by another station.
- Castellano response (received this week, 4 month after reject)
 - This precludes protocols like PIM-SM (RFC-2362), and source-specific multicast (RFC-3569) from taking advantage of 802.17 multicast spatial reuse. These protocols define multicast groups on either (*,G) or (S,G) states. An (S,G) multicast forwarding state must take into account both the source and destination addresses to properly resolve the multicast forwarding group. The SDB precludes this as it only takes into account the destination address. Since using the SDB is not an option, the alternative is to bypass the SDB; however, by rejecting this comment it also precludes the client from being able to control the learn. Multicast spatial reuse is currently incomplete. It needs to allow the client to specify the multicast scope and also control the learn.
- Group response
 - The group does not believe that providing the client a method for bypassing the normal behavior of the SAS layer to add this functionality is justified. In fact, a number of fields of the final frame must be specified by the client that are not currently under client control and would require significant changes to the draft. A vendor choosing to solve this problem may do so in a proprietary manner.



D1.3 Comment #26

- Comment:
 - How does RPR MAC distinguish between 802.1Q type and 802.1ad type (qinq)?
 - Resolution: The RPR MAC needs to have a variable that is used to define the VLAN tag type.
- Group Response:
 - As stated in the draft, SAS checks the first EtherType to determine if the next field is a VLAN. The WG feels that it is better to avoid listing the EtherType values, since future applications can be limited. Reference comment #27.
 - #27 "SAS checks the first EtherType to determine if the next field is a VLAN tag. If so, the VID from that tag is used by SAS."
- Castellano response (received this week, 4 months after rejection)
 - The resolution missed the reason for the comment. The specification currently does not prevent qtag and qinq tag from aliasing to the same FID. The comment was not intending for the draft to specify tag type values. It was suggesting a tagtype variable allowing the user to specify the tagtype for identifying the VLAN tag. The remedy of 26 "SAS checks the Ethertype to determine if the next field is a VLAN tag" leads to ambiguous behavior because there are several different Ethertypes that are used to identify the next value is a VLAN tag. The problem is that these VLAN tags are in different spaces. The SAS handles them as if they are in the same space. I would rather see the SAS configured to handle a specific level of Q tag. Any frames not having this level are flooded. This is much better than having Qtags of different levels aliasing to the same value.
- Group Response
 - The chair will submit this comment during sponsor ballot for the group to reconsider.

Moved: to request the 802 EC to forward 802.17b Draft 2.0 to Sponsor Ballot
Moved: Takefman/Hawkins

16/0/0 Passes

5.20 ME 802.15.4a conditional approval for sponsor ballot

- Heile

5 02:30 PM

Executive Committee Actions

Move to approve the formation of a Study Group (SG4d) in 802.15 to investigate an amendment to 802.15.4-2006 to take advantage of the new 950 MHz band regulations under development by the The Ministry of Internal Affairs and Communications in Japan.

Moved: Bob Heile

Second: John Hawkins

Conditional Approval for 15.4a

- The draft amendment 802.15.4a has completed 2 recirculations
- The recirculation of 802.15.4aD3 closed on Friday, July 14, 2006 with the following results:
 - 154/23/19 for an affirmation ratio of 86.4%, a response ratio of 83.4%, and an abstention ratio of 9.7%
 - There were no new no votes or voters
- Although the group could move forward with D3, it would prefer to make one further comprehensive editorial clean-up pass and conduct one more recirculation

Conditional Approval for 15.4a

- No vote statistics—
 - Of the 161 comments, 131 have been accepted or accepted in principal and included in the draft.
 - Of the remaining 30 rejected comments from 18 of the 23 no voters, approximately 15 are unique
- 802.19 is satisfied with the CA resolution
- Motion to seek conditional approval to forward 802.15.4aD4 to Sponsor Ballot passed at the Working Group Closing Plenary with a vote of 28/0/0

Conditional Approval for 15.4a

Move to seek conditional approval per
Clause 20 to forward 802.15.4aD4 to
Sponsor Ballot

Mover: Bob Heile

Second: John Hawkins

Moved: to seek conditional approval per Clause 20 to forward 802.15.4aD4 to Sponsor Ballot.
Moved: Heile/Hawkins

15/0/0 Passes

5.21 ME 802.16k conditional approval for sponsor ballot

- Marks

5

02:36 PM

2006-07-21

IEEE 802.16-06/042r1

P802.16k to Sponsor Ballot: Conditional Approval

21 July 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:
9 July 2006

Stage	Open	Close
Initial WG Ballot	9 June	9 July 2006

Vote tally including Approve, Disapprove and Abstain votes

- 102 Approve 96%
 - 4 Disapprove
 - 34 Abstain
- Return 61%

Comment resolution

- 27 comments received and resolved
 - 17 Accepted or Accepted-Modified
 - 5 Rejected
 - 5 Withdrawn
- Technical Disapprove: 8
 - 4 Satisfied
 - 4 not yet Satisfied
 - None specifically unsatisfied
 - From three voters

Comments that support the remaining disapprove votes and Working Group responses

- attached

Schedule for confirmation ballot and resolution meeting

- July 19 Completed D2
- July 22: Issue D2
- July 28: Open First Recirculation
- Aug 13: Close First Recirculation
- Sept 25-28: comment resolution at
802.16 Session #45, if
necessary

802.16 WG Motion

802.16 Closing Plenary: 20 July 2006:

Motion: To authorize the WG chair to request conditional approval to forward the 802.16g and 802.16k drafts for Sponsor Ballot.

- Proposed: Phillip Barber
- Seconded: Panyuh Joo
- Approved 47-0-0.

Motion

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

Moved: Marks

Seconded:

Approve:

Disapprove:

Abstain:

Document under Review: **IEEE P802.16k/D1**Ballot Number: **22**

Comme

Comment # **002**Comment submitted by: **Avi****Freedman****Member****2006-07**

Comment	Type	Starting Page #	Starting Line #	Fig/Table#	Section
	Technical, Binding	1	2		

What document does this amendment refer to? There is a mismatch between the section numbers in this document and the original IEEE 802.1D-2004 document, as found on 802 IEEE official disc.
For example: there is no section 6.5.5, as stated in the editing instructions of this document.

Suggested Remedy

State the correct document and relevant amendments

Proposed Resolution**Recommendation:****Recommendation by****Reason for Recommendation****Resolution of Group****Decision of Group: Rejected**

This 802.16k Amendment Project is amending the 802.1D-2004 document as amended by 802.17a. It is the common, expected, and required practice of the 802 community of standards to write amendments demonstrating method for conformance to the 802.1D bridging standard. The 802.1 Working Group requires that the other 802 Working Groups author these amendments themselves, as the appropriate technology specific experts. If you observe the changes in 802.17a, the numbers do not mismatch.

Vote:

In Favor: 0 Against: 10 Abstain: 2

Comment Rejected

2006/07/21

IEEE 802.16-06/034r2

Document under Review: **IEEE P802.16k/D1**

Ballot Number: **22**

Comme

Comment # **026L**

Comment submitted by: David

Johnston

Member

2006-07

Comment Type **Technical, Satisfied** Starting Page # **999** Starting Line # Fig/Table# Section **6.5.5**

The encoding of both the user_priority and access_priority in the ISSP is redundant, since both will be equal, resulting from the 1:1 mapping of user_priority to access_priority as described in 802.1D.

Suggested Remedy

Adopt the changes in S802.16k-06/002

Proposed Resolution

Recommendation: **Accepted**

Recommendation by

Adopt the changes in S802.16k-06/002

Reason for Recommendation

Resolution of Group

Decision of Group: **Accepted**

Adopt the changes in S802.16g-06_043.ppt

Accepted without opposition

Document under Review: **IEEE P802.16k/D1**Ballot Number: **22**

Comme

Comment # **003**

Comment submitted by: Paul

Piggin

Member

2006-07

Comment	Type	Starting Page #	Starting Line #	Fig/Table#	Section
	Technical, Binding	2			6.5.5

The language in section 6.5.5 is not strictly appropriate for a standard. It is of a style which is introductory in nature and thereby interrupts the document's flow. Reference to 'that standard' in the first paragraph is inappropriate text for an amendment.

Suggested Remedy

Rephrase section 6.5.5 and any other sections to ensure the amendment fits seamlessly with the base document.

Proposed Resolution**Recommendation:****Recommendation by****Reason for Recommendation****Resolution of Group****Decision of Group: Rejected**

The language proposed by this amendment for subclause 6.5.5 is consistent with the language used in the prior technology specific bridging conformance subclauses in 802.1D (see 6.5.4). Specifically, in the -2004 document, page 23, paragraph 2, the sentence uses the language 'Clause 7 of that standard....'

Vote:

In Favor: 0 Against: 8 Abstain: 4

Comment Rejected

2006/07/21

IEEE 802.16-06/034r2

Document under Review: **IEEE P802.16k/D1**

Ballot Number: **22**

Comme

Comment # **001**

Comment submitted by: Richard

van Leeuwen

Member

2006-07

Comment	Type	Technical, Binding	Starting Page #	0	Starting Line #	Fig/Table#	Section
---------	------	--------------------	-----------------	---	-----------------	------------	---------

"Abstract: This amendment specifies protocols and procedures to support the bridging of IEEE 802.16 frames over 802.1D MAC Bridges."

Actually, it should provide the necessary information to IEEE Std. 802.1D to map the ISS to the IEEE 802.16 CS service parameters as described in section 6.5 of 802.1D:

"This subclause specifies the mapping of the Internal Sublayer Service to the MAC Protocol and Procedures of each individual IEEE 802 MAC type. and the encoding of the parameters of the

Suggested Remedy

Update the abstract

Proposed Resolution

Recommendation:

Recommendation by

Reason for Recommendation

Resolution of Group

Decision of Group: Accepted-Modified

On the cover page, for the 'Abstract', modify the text as:

'Abstract: This amendment to IEEE Std 802.1D defines support of the internal sublayer service by the IEEE 802.16 MAC.'

Accepted without opposition

2006/07/21

IEEE 802.16-06/034r2

Document under Review: **IEEE P802.16k/D1**

Ballot Number: **22**

Comme

Comment # **023**

Comment submitted by: Richard

van Leeuwen

Member

2006-07

Comment Type **Technical, Binding** Starting Page # **999** Starting Line # Fig/Table# Section **6.5.5.2.1.1**

In the second paragraph it is not clear whether "least significant bit" refers to the least significant bit of the ISSP byte, or of the three priority bits?.

Suggested Remedy

Describe the bit positions in the ISSP byte as well as significance.

Proposed Resolution

Recommendation:

Recommendation by

Reason for Recommendation

Resolution of Group

Decision of Group: **Accepted-Modified**

see resolution of comment 026L

Accepted without opposition

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

16/0/0 Passes

5.22 ME 802.16g conditional approval for sponsor ballot - Marks 5 02:43 PM

Withdrawn from the agenda

6.00

Executive Committee Study Groups, Working Groups, TAGs
--

 -
6.01 MI confirmation of election of Jose Puthenkulam as vice chair of 802.16 - Marks 3 02:44 PM

802.16 Election Report

- The 802.16 Working Group carried out elections on Monday 17 July in accordance with its Officer Election Process (IEEE 802.16-03/28)
- A secret ballot was used, with paper ballot forms.
- All five declared candidates appeared on the ballot (IEEE 802.16-06/037).
- At the time of the election, one candidate (Jon Labs) withdrew. No additional nominations were received.
- The first-round results were:
 - Panyuh Joo: 39
 - Herbert Ruck: 5
 - Jose Puthenkulam: 37
 - Brian Kiernan: 71
- Since no received a majority of the votes. According to the process, a runoff election was scheduled for 20 July.

Runoff Election

- A runoff election was scheduled for the 802.16 Session #44 Closing Plenary of 20 July.
- At the time of the election, one candidate (Panyuh Joo) withdrew.
- The final results were:
 - Jose Puthenkulam: 61
 - Brian Kiernan: 58
- Jose Puthenkulam was duly elected as Vice Chair

LMSC Motion

Motion: To confirm the election of Jose Puthenkulam as Vice Chair of the IEEE 802.16 Working Group

- Motion: Roger Marks
- Second:
- LMSC Vote: -/-/-

**Moved: To confirm the election of Jose Puthenkulam as Vice Chair of the IEEE 802.16 Working Group.
Moved: Marks/Sherman**

Letters of affiliation and support have been received by the recording secretary.

14/1/1 Passes

6.02	MI		-			
6.03	MI		-			
6.04	MI		-			
6.05	MI		-			
6.06	MI*	Continuation of 802.1 Congestion Management SG	-	Jeffrey		
6.07	MI*		-			
6.08	MI*		-			
6.09	MI*		-			
6.10	MI	Formation of 802.15 study group 4c	-	Heile	3	02:53 PM

Executive Committee Actions

Move to form a Study Group (SG4c) to investigate an amendment to 802.15.4-2006 to take advantage of the 779 -787 MHz, and 430 - 432 MHz, 433 - 434.79 MHz bands approved by the "Radio Management of P.R.China (Supervised by Ministry of Info Industry) for the operation of WPAN equipment.

Working Group Vote 44y/0n/1a

Clint Powell, Freescale has agreed to Chair

Executive Committee Actions

Move to approve the formation a Study Group (SG4c) in 802.15 to investigate an amendment to 802.15.4-2006 to take advantage of the 779 -787 MHz, and 430 - 432 MHz, 433 - 434.79 MHz bands approved by the "Radio Management of P.R.China (Superviseded by Ministry of Info Industry) for the operation of WPAN equipment.

Moved: Bob Heile

Second: John Hawkins

Moved: to approve the formation a Study Group (SG4c) in 802.15 to investigate an amendment to 802.15.4-2006 to take advantage of the 779 -787 MHz, and 430 - 432 MHz, 433 - 434.79 MHz bands approved by the “Radio Management of P.R.China (Supervised by Ministry of Info Industry)” for the operation of WPAN equipment.

Moved: Heile/Hawkins

16/0/0 Passes

6.11 MI Formation of 802.15 study group 4d

- Heile

3

02:35 PM

Executive Committee Actions

Move to form a Study Group (SG4d) to investigate an amendment to 802.15.4-2006 to take advantage of the new 950 MHz band regulations under development by the The Ministry of Internal Affairs and Communications in Japan.

Working Group Vote 50y/0n/1a

Phil Beecher, Integration Associates has agreed to Chair

Executive Committee Actions

Move to approve the formation of a Study Group (SG4d) in 802.15 to investigate an amendment to 802.15.4-2006 to take advantage of the new 950 MHz band regulations under development by the The Ministry of Internal Affairs and Communications in Japan.

Moved: Bob Heile

Second: John Hawkins

Moved: to approve the formation of a Study Group (SG4d) in 802.15 to investigate an amendment to 802.15.4-2006 to take advantage of the new 950 MHz band regulations under development by the The Ministry of Internal Affairs and Communications in Japan.

Moved: Heile/Hawkins

16/0/0 Passes

6.12 MI Formation of 802.11 study group on A/V extensions - Kerry 3 03:03 PM

Withdrawn from the agenda

6.13 MI Formation of 802.3 Higher Speed study Group - Grow 3 03:05 PM

Higher Speed SG formation

Motion:

The LMSC grants approval for formation of a Higher Speed Study Group within 802.3.

Working Group motion #13 – Y: 53, N: 3, A: 3

Move the IEEE 802.3 Working Group requests formation of a “Higher Speed Study Group” to evaluate definition of greater than 10 Gb/s MAC data rate and related PHY capability to IEEE Std 802.3. The Study Group may recommend one or more PARs.

220 CFI attendees, 109 interested in participating

Moved: The LMSC grants approval for formation of a Higher Speed Study Group within 802.3.
Moved: Grow/Jeffree

16/0/0 Passes

6.14		-		
6.15		-		
6.16		-		
7.00	Break	-	10	03:09 PM
8.00	IEEE-SA Items			
8.01	II 802 Task Force update	-	Nikolich/Kipness 5	03:19 PM

802 Task Force notes

- Attendees: Nikolich, Hawkins, Law, Thompson, Mills, LaBelle, Kerry, Turner, KimB, Kenney, Grow, Kipness, Tatiner
- SOM: 1:10pm, EOM: 1:45pm
- 1) myBallot/myProject update - Kipness
 - - Document numbering --Kipness to issue a summary of conclusions reached at EC meeting earlier this morning
- 2) Get IEEE 802 update - Hawkins/Kenney
 - - proposed budget to EC on Friday with a minimum of \$337k, maximum \$500k
 - - increase 'for fee' period from 6 months to 12 months
 - - solicit input from EC on requirements/information for thorough program
- 3) Attendance Software update - Labelle
 - - Bob is meeting with EC later this afternoon

802 Task Force

- 4) European Patent Office update - Law
 - - MOU under negotiation; give search access without releasing IP rights
 - - Law as action to follow up on a 'search service' with potential revenue
- 5) Indemnification - Kipness
 - - non-US citizen when meeting in non-US venue (Stephen McCan brought this issue March 2006)
 - - Topp--IEEE rules apply regardless of venue
- 6) Anonymous letter update - Nikolich
 - - IEEE BoD directed investigation under way
 - - access to final report to all parties named in the letter and anyone interviewed to be requested by Nikolich of IEEE BoD
- New Business:
- 7) Grow--renew request to improve rogue comments submission by including bulk submission.

Project Numbering

- -- Tatiner, Kipness, Turner and Sahr met with Thompson, Grow and Jeffree to discuss project numbering Tuesday night
- Wed AM, another meeting convened to continue the discussion (Nikolich, Kipness, Grow, Jeffree, Tatiner, Sahr, Turner, LaBelle and Camp in attendance)
 - new system appears to be flexible enough to accomodate 802's needs
- however:
 - -- dot1 will have small/cap letters in project/document title grandfathered in
 - -- dot1 small/cap scheme may not be implemented going forward
- ***action--Christina/Michael will prepare a white paper on the numbering system for 802's review through PaulN

A question was asked about the revision number not having a year number attached to the document number. Michael Kipness responded that the system would be more accommodating of this. The database will support this. This is still under investigation for a final answer.

8.02	II		-				
8.03			-				
9.00		<table border="1"><tr><td>LMSC Liaisons & External Interface</td></tr></table>	LMSC Liaisons & External Interface	-			
LMSC Liaisons & External Interface							
9.01	II	Get IEEE 802 Program Update	-	Hawkins	5	03:30 PM	

Get IEEE 802®

For LMSC July Plenary

Karen Kenney, Associate Managing Director,
Business Administration

John Hawkins,
IEEE 802 Treasurer

21 July 2006
San Diego, CA



Get IEEE 802®

Status of 2007 Budget

- Projected funding shortfall on the order of \$200k for 2007
- This is based on extrapolating current trends for PDF, print, & subscriptions as well as corporate & individual sponsorships
- Program goal is to maintain “revenue-neutral” status.
- +/- 20% of budget triggers a program review. 2007 may be the first time we trip a trigger. Given the current trend it will only get worse.
- Meetings during plenary week explored various solutions to the problem, as well as the root cause(s) for the problem.
- Recommendation to the EC comes in two parts
 - Short term actions to enable approval of 2007 budget
 - A more comprehensive analysis of the program

Options Discussed/Considered

- **Nominal fee program**
- **Delay releasing standards into the program from the current 6 months to 1 year**
- **Increase meeting registration fees**
- **“Beefed-up” corporate sponsorships**
 - **Consider added value sponsorships**
 - **Market those more effectively and to the right people**
- **Discontinue the current Get IEEE 802[®] program**

Nominal Charge Downloads

1. Documents available for sale for the first six months after publication.
2. After six months, provide restricted access (at no charge) and unrestricted access (for nominal charge), \$30/download.

Perceived as significantly detracting from the value of the program

Perceived as inequitable from a regional point of view (“nominal” for me, may not be “nominal” for you).

DRM issues seen as significant impediment

Levels of “restricted” and “unrestricted” seen as controversial and source of expensive customer service issues.

Delayed Release

- **“Easy” to implement**
- **Does have an adverse effect on the program “brand”**
- **Difficult to estimate effect on income to subscription programs**
- **Most probable avenue to additional income without impact to existing revenue streams**
- **Buys us time to more fully re-evaluate the program**

Recommendation

- **Lock the budget at 2006 levels as the 2007 budget.**
- **Implement a delayed release (to 1 year)**
- **Commit to a guaranteed minimum 802 sponsorship contribution of \$337.5k
(= \$75 * 1500 regs * 3 sess)
Contribution would be capped at \$500k**
- **Re-evaluate the program**
 - **Questioning the initial assumptions**
 - **Evaluate a marketing program w/ SA to “mine the value of standards”**

Program Evaluation

- **Document the assumptions of the program**
 - Understand the original numbers to know if they are still valid today
- **Corporate Value Creation – Sponsorship Enhancement**
 - Evaluate revenue trends for print
 - Analysis of Get802 doc download statistics (per document, per region, etc)
- **Alternate revenue sources**
 - Is the value still in print sales?
 - Is there a licensing angle?
 - What?

A suggestion was made that perhaps the program should be discontinued for a year, to gain a new budget benchmark for the “revenue neutral” measurement that is a requirement of the program. Another point was made that 802 does not get credit for RAC sales of 802 addresses.

A question was asked about where “revenue neutral” actually enters into the program. A quotation from the agreement was read that indicates that “deviation from an agreed budget” is the measurement to be examined. Karen Kenney responded that this is one of the reasons that the recommendation is to carefully examine the program.

**Moved: to adopt the 2007 Get802 budget (specific financial data removed from the minutes). Document download introduction would be delayed for 12 months. Download delay to begin 1 August 2006.
Moved: Hawkins/Upton**

10/3/3 Passes

9.02 ME Revised proposal to revise M.1450-2

- Lynch

5 03:54 PM

Working Document towards a Draft Revision of :
RECOMMENDATION ITU-R M.1450-2^{*,**}

Characteristics of broadband radio local area networks

(Questions ITU-R 212/8 and ITU-R 142/9)

(2000-2002-2003)

The ITU Radiocommunication Assembly,

considering

- a) that broadband radio local area networks (RLANs) are widely used for fixed, semi-fixed (transportable) and nomadic computer equipment for a variety of broadband applications;
- b) that broadband RLAN standards currently being developed are compatible with current wired LAN standards;
- c) that it is desirable to establish guidelines for broadband RLANs in various frequency bands;
- d) that broadband RLANs should be implemented with careful consideration to compatibility with other radio applications;
- e) that the above guidelines should not limit the effectiveness of broadband RLANs but be used to enhance their application.

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recommends

- 1 that for guidance on existing broadband RLAN standards, Table 2 can be referred to; (NOTE 2)
- 2 that for details on methods of multiple access and modulation techniques for broadband RLANs in mobile applications, Table 3 can be referred to;
- 3
- 4
- 5
- 6 that for guidance on fixed applications of RLANs refer to Recommendation ITU-R F.1244. [Editorial note: the reference to Recommendation ITU-R F.1244 should ultimately be replaced with reference to the draft new Report [BWA.REQ], which has been developed by WP 9B and is intended to incorporate the relevant information from Rec. F. 1244, after it is approved by Study Group 9.]

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- Deleted: that for guidance on the characteristics of broadband RLANs, Annex 1 can be referred to;
- Deleted: that for guidance on modulation schemes using orthogonal frequency division multiplexing (OFDM) for broadband RLANs, Annex 2 can be referred to;
- Deleted: that for detailed guidance on remote access schemes for RLANs in mobile applications, Annex 3 can be referred to;
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NOTE 1 – Acronyms and terminology used in this Recommendation are given in Table 1.

NOTE 2 – The Annex provides detailed information on how to obtain complete standards described in Table 3.

* This Recommendation was jointly developed by Radiocommunication Study Groups 8 and 9, and future revisions should be undertaken jointly.

** This Recommendation should be brought to the attention of Telecommunication Standardization Study Group 17, and Radiocommunication Study Groups 3 and 4.

TABLE 1
Acronyms and terms used in this Recommendation

AP	Access point
<u>Access Method</u>	<u>Scheme used to provide multiple access to a channel</u>
<u>Bit Rate</u>	<u>The rate of transfer of a bit of information from one network device to another</u>
<u>BPSK</u>	<u>Binary phase shift keying</u>
BRAN	Broadband <u>Radio Access Networks</u>
<u>Channel-ization</u>	<u>Bandwidth of each channel and number of channels that can be contained in the RF bandwidth allocation</u>
CSMA/CA	Carrier sensing multiple access with collision avoidance
DFS	Dynamic frequency selection
<u>EIRP</u>	<u>Effective Isotropic Radiated Power</u>
<u>ETSI</u>	<u>European Telecommunications Standards Institute</u>
<u>Frequency Band</u>	<u>Nominal operating spectrum of operation</u>
<u>HIPERLAN2</u>	<u>High Performance <u>Radio LAN 2</u></u>
<u>HiSWAN</u>	<u>Hi Speed Wireless Access Networks</u>
<u>HSWA</u>	<u>High Speed Wireless Access</u>
<u>IEEE</u>	<u>Institute of Electrical and Electronics Engineers</u>
<u>LAN</u>	<u>Local Area Network</u>
<u>Modulation</u>	<u>The method used to put information onto an RF carrier</u>
<u>MMAC</u>	<u>Multimedia Mobile Access Communication</u>
<u>OFDM</u>	<u>Orthogonal Frequency Division Multiplexing</u>
<u>PSD</u>	<u>Power Spectral Density</u>
<u>RF</u>	<u>Radio Frequency</u>
<u>RLAN</u>	<u>Radio Local Area Network</u>
<u>TPC</u>	<u>Transmit Power Control</u>
<u>Tx power</u>	<u>(Transmitter Power) – RF power in Watts produced by the transmitter</u>

TABLE 1 (end)

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TABLE 2

Methods of multiple access and modulation techniques

Frequency band	Multiple access	Modulation technique
UHF	CSMA/CA	CCK
	FDMA	PBCC
	TDMA	
	SSMA-DS SSMA-FH	
SHF	CSMA/CA	GMSK/FSK
	FDMA	BPSK-OFDM
	TDMA-FDD	QPSK-OFDM
	TDMA-TDD	BPSK
		8-PSK-OFDM 16-QAM-OFDM
	TDMA/EY-NPMA	64-QAM-OFDM

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TABLE 3^(#)

RLAN characteristics for frequency sharing*

Characteristics	802.11- 1999 (R2003) (IEEE 802.11b)	802.11- 1999 (R2003) (IEEE 802.11a ⁽¹⁾ , i)	802.11- 1999 (R2003) (IEEE 802.11g ⁽¹⁾)	ETSI BRAN HIPERLAN 2 (1), (2)	MMAC HSWA HiSWAN a ⁽¹⁾
General					
Frequency band	2 400- 2 483.5 MHz	4 900-5 000 MHz (Note 3) 5 150-5 250 MHz 5 250-5 350 MHz ⁽³⁾ 5 470-5 725 MHz 5 725-5 825 MHz 5 725-5 850 MHz (NOTE 4)	2 400- 2 483.5 MHz	5 150-5 350 and 5 470-5 725 MHz ⁽³⁾	5 150 to 5 250 MHz ^{(3), (6)}
Channelization	5 MHz	5 MHz	5 MHz	20 MHz	20 MHz
Antenna	Various	Various	Various		
Gain approximate	0-6 dBi (Omni)	0-6 dBi (Omni)	0-6 dBi (Omni)		
Radiation Pattern	Omni Directional	Omni Directional	Omni Directional		
Occupied Bandwidth	802.11b mask (Figure 2)	OFDM mask (Figure 1)	OFDM mask (Figure 1)	OFDM mask (Figure 1)	OFDM mask (Figure 1)
Transmitter					
Tx Power	1 000mW 8 dBm/3KHz	4 900-5 000 MHz (see 'j' revision) 5 150-5 250 MHz 50 mW 5 250-5 350 MHz 5 470-5 575 MHz 200 mW 11 dBm/MHz ⁽⁸⁾ 5 725-5 825 MHz 1000 mW 17 dBm/MHz 5 725-5 850 MHz 1 000 mW 8 dBm/3KHz	1 000 mW 8 dBm/3KHz	5 150-5 350 MHz 200 mW maximum mean e.i.r.p. and use of transmitter power control 5 470-5 725 MHz 1 W maximum mean e.i.r.p. and use of transmitter power control	5 150-5 250 MHz 10 mW/MHz e.i.r.p. ⁽⁶⁾
Transmitter					
Interference Mitigation	CSMA/CA	CSMA/CA	CSMA/CA	DFS/TPC	

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Receiver					
Sensitivity	Listed in Standard	Listed in Standard	Listed in Standard		

TABLE 3 (end)

- (1) Parameters for the physical layer are common between IEEE 802.11a and ETSI BRAN HIPERLAN 2 and HiSWANa.
- (2) WATM (Wireless ATM) and advanced IP with QoS are intended for use over ETSI BRAN HIPERLAN 2 physical transport.
- (3) For the band 5 150 to 5 250 MHz, No. 5.447 of the Radio Regulations (RR) applies.
- (4) This requirement refers to FCC 15.247 in the United States of America.
- (5) This requirement refers to EUROPE ETS 300-328.
- (6) This requirement refers to JAPAN MPHPT ordinance for Regulating Radio Equipment, Articles 49-20 and 49-21.
- (7) All values from FCC amendment of the Commission's Rules to Docket No. 96-102 provide for operation of unlicensed NII (RM-8648) devices in the 5 GHz frequency range (RM-865). Also reflected in Canadian Radio Standard Specification RSS-210.

⁽⁸⁾ Some administrations have higher power.
⁽⁹⁾ Note that some administrations regulate transmitter power vs. EIRP. Further it should be recognized that power or EIRP limits may vary by region or by administration.

NOTE 3. 4 900-5 000 MHz Power levels and channels specified in 802.11- 1999 (R2003)rev1 are used by some administrations

Band : 4 900 - 5 091 MHz - Fixed wireless access-, licensed- <250mW EIRP and <50 mW/MHz EIRP for licensed access

Band : 4 900 - 5.091 MHz - Nomadic access - unlicensed -10 mW/MHz EIRP

Band 5150 - 5 250 MHz - Unlicensed - 10mW/MHz EIRP

NOTE 4. 5 470 - 5 725 MHz have DFS rules in regions and administrations which must be consulted. 5 825-5 825 MHz in the USA come under the UNII FCC Part 15 rules. 5 825-5 850 come under the FCC Part 18 rules which expressly forbid telecommunications in this 25 MHz.

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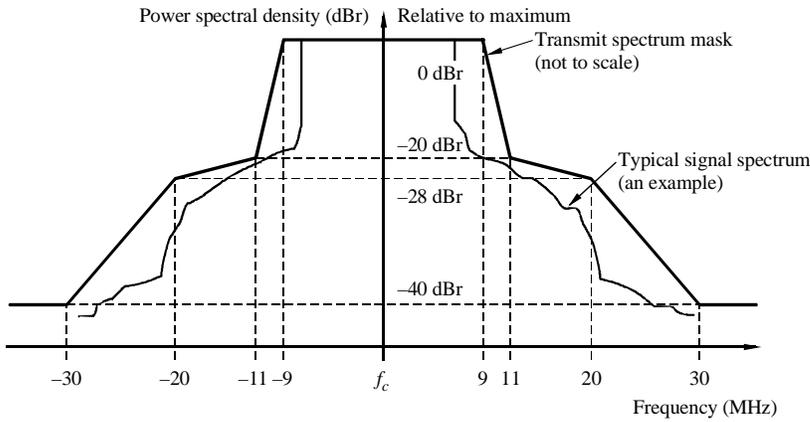
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FIGURE 1
Transmit spectrum mask

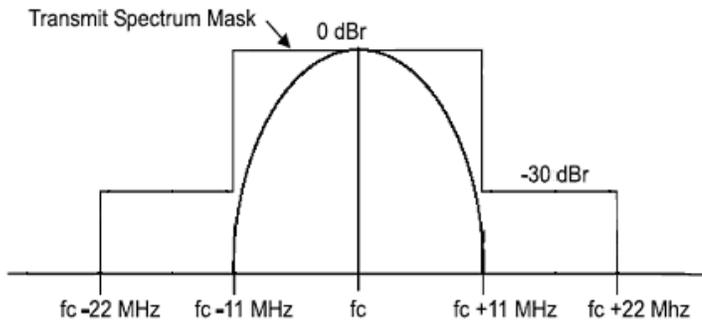


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Figure 1 Spectrum mask is for systems 802.11a, 11g, HIPERLAN2 and HiSWAN

FIGURE 2

802.11b Transmit spectrum mask



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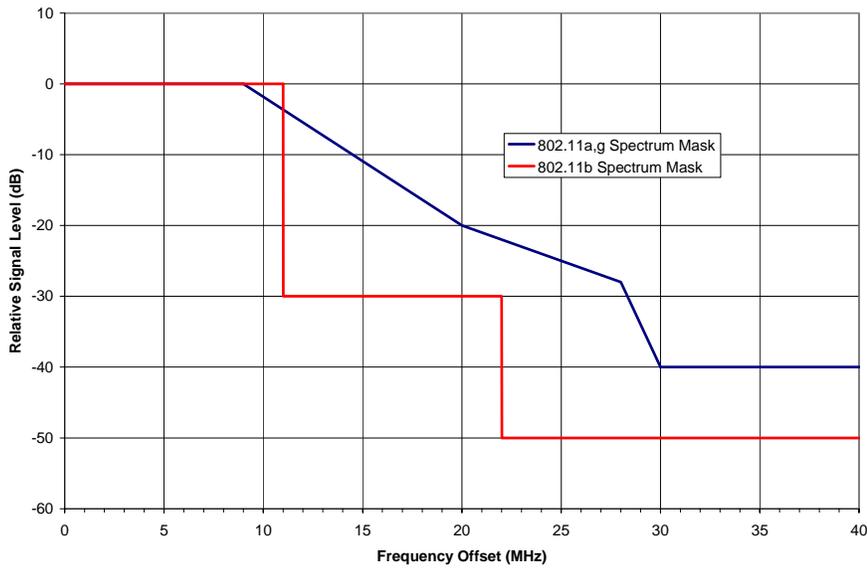
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FIGURE 3

Spectrum masks for IEEE 802.11 a, b, g

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IEEE 802.11a,b,g Spectrum Mask



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Annex 1

Additional information on RLANS

The HYPERLAN2 standards are TS 101 475 for the physical layer & TS 101 761 for the DLC Layer, and these can be downloaded from the ETSI Publications Download Area at: <http://etsi.org/pda/queryform.asp>

The IEEE 802.11 standards can be downloaded from <http://standards.ieee.org/get802/>

IEEE 802.11 has developed a set of standards for RLANS, 802.11- 1999 (R2003), which have been harmonized with IEC/ISO¹. The medium access control (MAC) and physical characteristics for wireless local area networks (LANs) are specified in ISO/IEC 8802-11:2005, which is part of a series of standards for local and metropolitan area networks. The medium access control unit in ISO/IEC 8802-11:2005 is designed to support physical layer units as they may be adopted dependent on the availability of spectrum. ISO/IEC 8802-11:2005 contains five physical layer units: four radio units, operating in the 2 400-2 500 MHz band and in the bands comprising 5.15-5.25 GHz, 5.25-5.35 GHz, 5.47-5.725 GHz, and 5.725-5.825 GHz, and one baseband infrared (IR) unit. One radio unit employs the frequency-hopping spread spectrum (FHSS) technique, two employ the direct sequence spread spectrum (DSSS) technique, and another employs the orthogonal frequency division multiplexing (OFDM) technique.

1. ISO/IEC 8802-11:2005, Information technology – Telecommunications and information exchange between systems – Local and metropolitan area networks – Specific requirements – Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications

¹ ISO/IEC 8802-11:2005, Information technology – Telecommunications and information exchange between systems – Local and metropolitan area networks – Specific requirements – Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications.

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Deleted: General guidance for broadband RLANS system design¶
1 Introduction¶

Emerging broadband RLANS standards will allow compatibility with wired LANs such as IEEE 802.3, 10BASE-T, 100BASE-T and 51.2 Mbit/s ATM at comparable data rates. Some broadband RLANS have been developed to be compatible with current wired LANs and are intended to function as a wireless extension of wired LANs using TCP/IP and ATM protocols. This will allow operation without the bottleneck that occurs with current wireless LANs. Recent bandwidth allocations by some administrations will promote development of broadband RLANS. This will allow applications such as audio/video streaming to be supported with high QoS.¶

A feature provided by broadband RLANS not provided by wired LANs is portability. New laptop and palmtop computers are very portable and have the ability when connected to a wired LAN to provide interactive services. However, when they are connected to wired LANs one loses the portability feature. Broadband RLANS allow portable computing devices to remain portable and operate at maximum potential.¶

Private on-premise, computer networks are not covered by traditional definitions of fixed and mobile wireless access and should be considered. The nomadic user of the future will no longer be bound to a desk. Instead, they will be able to carry their computing devices with them and maintain contact with the wired LAN in a facility.¶

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Speeds of notebook computers and hand-held computing devices are increasing steadily. Many of these devices are able to provide interactive communications between users on a wired network but sacrifice portability when connected. Multimedia applications and services require broadband communications facilities not only for wired terminals but also for portable and personal communications devices. W... [104]

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Modulation techniques in broadband RLANs¶

1 Introduction¶

RLAN systems are being marketed all over the world. There are several major standards for broadband RLAN systems and Table 3 provides an overview of these.¶

Broadband RLAN systems make it possible to move a computer within a certain area such as an office, a factory, and SOHO with high data rates of more than 20 Mbit/s. As a consequence of the great progress in this field, computer users are demanding free movement with bit rates equivalent to those of conventional wired LANs such as 10BASE-T Ethernet.¶

This Annex presents features of the modulation techniques used in the standards listed in Table 3.¶

2 Physical layer to realize high bit rate and stable wireless networks¶

The broadband radio channel is known to be frequency sele... [105]

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IETF [1993] Dynamic Host Configuration Protocol, RFC1541, 1531. Internet Engineering Task Force (IETF).¶

IETF [1994a] The Point-to-Point Protocol, RFC1661, 1548. Internet Engineering Task Force.¶

IETF [1994b] Generic Routing Encapsulation, RFC1701. Internet Engineering Task Force.¶

IETF [1996] INTERNET draft. IP Mobility Support Rev.17. Internet Engineering Task Force.¶

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Appendix 1 to Annex 3

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1 System composition¶

The functions needed for the mobile VLAN techniques are address resolution, terminal authentication, location registration for recognition of disconnection, and MAC frame encapsulation/de-encapsulation. The first two factors, i.e. address resolution and terminal authentication, are necessary over the entire network. The location registration function is required only in remote networks. The MAC frame encapsulation/de-encapsulation is necessary in both home networks and remote networks. Consequently, the usage of three kinds of servers may be proposed: the management server (MS), the home server (HS), and the client server (CS), a... [106]

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AFC	Automatic frequency control
AGA	Automatic gain amplifier
AGC	Automatic gain control

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ARA	Apple remote access
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ARP	Authentication request packet
ATM	Asynchronous transfer mode

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CCK	Complementary code keying
CDMA	Code division multiple access

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DCS	Dynamic channel selection
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DHCP	Dynamic host configuration protocol
DQPSK	Differential quaternary phase shift keying
DS	Direct sequence

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EY-NPMA

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Elimination-yield non-pre-emptive priority multiple access

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FDD	Frequency division duplex
FDMA	Frequency division multiple access
FFT	Fast Fourier transform
FH	Frequency hopping
FSK	Frequency shift keying
FWA	Fixed wireless access
GI	Guard interval
GMSK	Gaussian minimum shift keying
HBR	High bit rate HIPERLAN 1 for data period only

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Internet Engineering Task Force

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IFFT

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Inverse fast Fourier transform

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Intermediate frequency

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IP

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Internet protocol

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ISDN

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Integrated services digital network

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ISI

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Inter symbol interference

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LBR

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Low bit rate HIPERLAN 1 for signalling period only

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LMS

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Least mean square

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LSIC

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Large scale integrated circuits

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MAC

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Medium access control

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Normal

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Technical parameters for broadband RLAN applications

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Table_title

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**HIPERLAN 1
ETS 300-652**

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Access method	CSMA/CA, SSMA	CSMA/CA	TDMA/EY-NPMA	TDMA/TDD	TDMA/TDD
Modulation	CCK (8 complex chip spreading)	64-QAM-OFDM 16-QAM-OFDM QPSK-OFDM BPSK-OFDM 52 subcarriers (see Fig. 1)	GMSK/FSK	64-QAM-OFDM 16-QAM-OFDM QPSK-OFDM BPSK-OFDM 52 subcarriers (see Fig. 1)	64-QAM-OFDM 16-QAM-OFDM QPSK-OFDM BPSK-OFDM 52 subcarriers (see Fig. 1)

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Data rate

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1, 2, 5.5 and 11 Mbit/s

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6, 9, 12, 18, 24, 36, 48 and

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54 Mbit/s

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6, 9, 12, 18, 27, 36 and 54 Mbit/s

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6, 9, 12, 18, 27, 36 and 54 Mbit/s

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23 Mbit/s (HBR)

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1.4 Mbit/s (LBR)

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5 725-5 825 MHz

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5 150 to 5 300 MHz Limited in some countries to 5 150 to 5 250 MHz⁽³⁾

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spacing
3 channels

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20

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23.5294 MHz (HBR)

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3 channels in 100 MHz
and 5 channels in 150 MHz
1.4

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(LBR)

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z channel spacing
8 channels in 200 MHz
11 channels in 255 MHz

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channel spacing
4 channels in 100 MHz

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Network standard	IEEE Project 802.11b	IEEE Project 802.11a ⁽¹⁾	ETSI BRAN HIPERLAN 1 ETS 300-652	ETSI BRAN HIPERLAN 2 ^{(1), (2)}	MMAC HSWA HiSWAN a ⁽¹⁾
Tx power	1 000 mW e.i.r.p. ⁽⁴⁾ 100 mW e.i.r.p. ⁽⁵⁾ 10 mW/MHz e.i.r.p. density ⁽⁶⁾	5 150 to 5 250 MHz 10 mW/MHz 200 mW e.i.r.p. in 20 MHz channel 5 250-5 350 MHz 1 W e.i.r.p. 5 725-5 825 MHz 4 W e.i.r.p. ⁽⁷⁾	Three different classes of power levels depending on country administration 1 W e.i.r.p., 100 mW e.i.r.p., 10 mW e.i.r.p. Regulatory power limit in CEPT countries; 200 mW maximum mean e.i.r.p.	5 150-5 350 MHz: 200 mW maximum mean e.i.r.p. and use of transmitter power control. 5 470-5 725 MHz: 1 W maximum mean e.i.r.p. and use of transmitter power control	5 150 to 5 250 MHz 10 mW/MHz e.i.r.p. ⁽⁶⁾
Sharing considerations	<ul style="list-style-type: none"> - CDMA allows orthogonal spectrum spreading. - CSMA/CA provides "listen before talk" access etiquette 	<ul style="list-style-type: none"> - OFDM provides low power spectral density. - CSMA/CA provides "listen before talk" access etiquette. - In 5 150-5 250 MHz e.i.r.p. density limit should be subject to Recommendation ITU-R M.1454 	In 5 150-5 250 MHz e.i.r.p. density limit should be subject to Recommendation ITU-R M.1454	<ul style="list-style-type: none"> - OFDM provides low power spectral density. - In 5 150-5 250 MHz e.i.r.p. density limit should be subject to Recommendation ITU-R M.1454. <p>Use of dynamic frequency selection to ensure a near uniform spectrum loading and to facilitate sharing with radars in the bands 5 250-5 350 and 5 470-5 725 MHz.</p> <p>Regulatory restriction to indoor use only in 5 150-5 350 MHz in CEPT countries</p>	<ul style="list-style-type: none"> - OFDM provides low power spectral density. - "listen before talk" access etiquette is provided (Carrier Sense Rule). - In 5 150-5 250 MHz e.i.r.p. density limit should be subject to Recommendation ITU-R M.1454

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General guidance for broadband RLAN system design

1 Introduction

Emerging broadband RLAN standards will allow compatibility with wired LANs such as IEEE 802.3, 10BASE-T, 100BASE-T and 51.2 Mbit/s ATM at comparable data rates. Some broadband RLANs have been developed to be compatible with current wired LANs and are intended to function as a wireless extension of wired LANs using TCP/IP and ATM protocols. This will allow operation without the bottleneck that occurs with current wireless LANs. Recent bandwidth allocations by some administrations will promote development of broadband RLANs. This will allow applications such as audio/video streaming to be supported with high QoS.

A feature provided by broadband RLANs not provided by wired LANs is portability. New laptop and palmtop computers are very portable and have the ability when connected to a wired LAN to provide interactive services. However, when they are connected to wired LANs one loses the portability feature. Broadband RLANs allow portable computing devices to remain portable and operate at maximum potential.

Private on-premise, computer networks are not covered by traditional definitions of fixed and mobile wireless access and should be considered. The nomadic user of the future will no longer be bound to a desk. Instead, they will be able to carry their computing devices with them and maintain contact with the wired LAN in a facility.

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Speeds of notebook computers and hand-held computing devices are increasing steadily. Many of these devices are able to provide interactive communications between users on a wired network but sacrifice portability when connected. Multimedia applications and services require broadband communications facilities not only for wired terminals but also for portable and personal communications devices. Wired local area network standards, i.e. IEEE 802.3ab 1000BASE-T, are able to transport high rate, multimedia applications. To maintain portability, future wireless LANs will need to transport higher data rates. Broadband RLANs are generally defined as those that can provide data throughput greater than 10 Mbit/s.

2 Mobility

Broadband RLANs may be either pseudo fixed as in the case of a desktop computer that may be transported from place to place or portable as in the case of a laptop or palmtop devices working on batteries. Relative velocity between devices remains low. In warehousing applications, RLANs may be used to maintain contact with lift trucks at speeds of up to 6 m/s. RLAN devices are generally not designed to be used at automotive or higher speeds.

3 Operational environment and considerations of interface

Broadband RLANs are predominantly deployed inside buildings, in offices, factories, warehouses, etc. For RLAN devices deployed inside buildings, emissions will be attenuated by the structure.

RLANs utilize low power levels because of the short distance nature of inside building operation. Power spectral density requirements are based on a basic service area of a single RLAN defined by a circle with a radius from 10 to 50 m. When larger networks are required, RLANS may be logically concatenated via bridge or router function to form larger networks without increasing their composite power spectral density.

One of the most useful RLAN features is the connection of mobile computer users to his own LAN network without wires. In other words, a mobile user can be connected to his own LAN subnetwork anywhere within the RLAN service area. The service area may expand to other locations under different LAN subnetworks, enhancing the mobile user's convenience.

Annex 2 describes several remote access network techniques to enable the RLAN service area to extend to other RLANs under different subnetworks. Among these techniques, the mobile VLAN (virtual LAN) technique is a most promising enhancement.

To achieve the coverage areas specified above, it is assumed that RLANs require a peak power spectral density of approximately 12.5 mW/MHz in the 5 GHz operating frequency range. For data transmission, some standards use higher power spectral density for initialization and control the transmit power according to evaluation of the RF link quality. This technique is referred to as transmit power control (TPC). The required power spectral density is proportional to the square of the operating frequency. The large scale, average power spectral density will be substantially lower than the peak value. RLAN devices share the frequency spectrum on a time basis. Activity ratio will vary depending on the usage, in terms of application and period of the day.

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Broadband RLAN devices are normally deployed in high density configurations and may use an etiquette such as listen before talk and dynamic channel selection (referred to here as dynamic frequency selection, DFS), TPC to facilitate spectrum sharing between devices.

4 System architecture

Broadband RLANs are nearly always point-to-multipoint architecture. Point-to-multipoint applications commonly use omnidirectional, down looking antennas. The multipoint architecture employs two system configurations:

4.1 point-to-multipoint centralized system (multiple devices connecting to a central device or access point via a radio interface);

4.2 point-to-multipoint non-centralized system (multiple devices communicating in a small area on an ad hoc basis);

4.3 RLAN technology is sometimes used to implement fixed point-to-point links between buildings in a campus environment. Point-to-point systems commonly use directional antennas that allow greater distance between devices with a narrow lobe angle. This allows band sharing via channel reuse with a minimum of interference with other applications.

5 Spectrum reuse

RLANs are generally intended to operate in unlicensed or license-exempt spectrum and must allow adjacent uncoordinated networks to coexist whilst providing high service quality to users. In the 5 GHz bands, sharing with primary services must also be possible. Whilst multiple access techniques might allow a single frequency channel to be used by several nodes, support of many users with high service quality requires that enough channels are available to ensure access to the radio resource is not limited through queuing, etc. One technique that achieves a flexible sharing of the radio resource is DFS.

In DFS all radio resources are available at all RLAN nodes. A node (usually a controller node or access point (AP)) can temporarily allocate a channel and the selection of a suitable channel is performed based on interference detected or certain quality criteria, e.g. received signal strength, *C/I*. To obtain relevant quality criteria both the mobile terminals and the access point make measurements at regular intervals and report this to the entity making the selection.

DFS can be implemented to ensure that all available frequency channels are utilized with equal probability. This maximizes the availability of a channel to node when it is ready to transmit, and it also ensures that the RF energy is spread uniformly over all channels when integrated over a large number of users. The latter effect facilitates sharing with other services that may be sensitive to the aggregated interference in any particular channel, such as satellite-borne receivers.

TPC is intended to reduce unnecessary device power consumption, but also aids in spectrum reuse by reducing the interference range of RLAN nodes.

Annex 2

Modulation techniques in broadband RLANs

1 Introduction

RLAN systems are being marketed all over the world. There are several major standards for broadband RLAN systems and Table 3 provides an overview of these.

Broadband RLAN systems make it possible to move a computer within a certain area such as an office, a factory, and SOHO with high data rates of more than 20 Mbit/s. As a consequence of the great progress in this field, computer users are demanding free

movement with bit rates equivalent to those of conventional wired LANs such as 10BASE-T Ethernet.

This Annex presents features of the modulation techniques used in the standards listed in Table 3.

2 Physical layer to realize high bit rate and stable wireless networks

The broadband radio channel is known to be frequency selective, causing ISI in the time domain and deep notches in the frequency domain. A possible method to realize a high bit rate, wireless access system under frequency selective fading channels is to shorten the symbol period. A second way is to use bandwidth efficiently by multi-level modulation. The third way is to employ multicarrier modulation. The first and second solutions show serious drawbacks in multipath environments. In the first solution, as the symbol period decreases, ISI becomes a severe problem. Therefore, equalization techniques will be necessary. The second solution reduces the symbol distance in the signal space and hence the margin for thermal noise or interference is decreased, leading to intolerable performance degradation for high bit rate, wireless access systems. The third solution, the multicarrier method, is to increase the symbol period in order to compensate for ISI resulting from multipath propagation. As promising methods for multipath countermeasures, the first solution of single carrier with equalizer and the third solution using multicarrier methods (OFDM) are discussed below.

3 Single carrier with equalizer

In radiocommunications, the transmission is affected by the time-varying multipath propagation characteristics of the radio channel. To compensate for these time-varying characteristics, it is necessary to use adaptive channel equalization. There are two main groups into which adaptive equalizers can be subdivided; the LMS equalizer and the RLS equalizer. The LMS algorithm is the most commonly used equalization algorithm because of its simplicity and stability. Its main disadvantage is its relatively slow convergence. LMS converges in 100-1000 symbols. A faster equalization technique is known as an RLS method. There exist various versions of RLS with somewhat different complexity and convergence trade-off. RLS is more difficult to implement than

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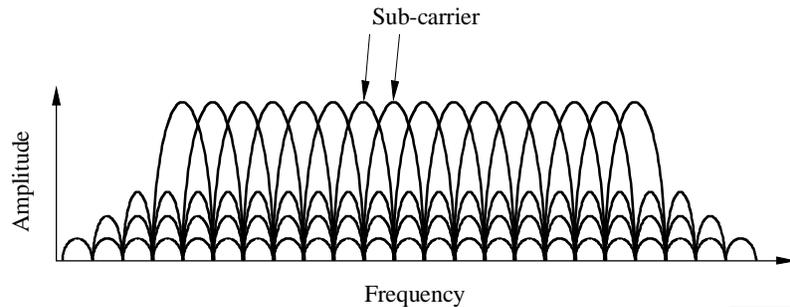
LMS, but converges in fewer symbols compared with LMS methods. Although much research has been conducted on RLS and LMS equalizers in the cellular systems, RLS and LMS are still a research topic in the points of fast convergence, stability and complexity for high bit rate wireless access applications.

4 Multicarrier OFDM

With multicarrier transmission schemes the nominal frequency band is split up into a suitable number of sub-carriers each modulated by QPSK modulation, etc., with a low data rate. In general, when dimensioning a multicarrier system, the maximum path delay should be shorter than the symbol time. An OFDM modulation scheme is one of the promising multicarrier methods. The power spectrum of this modulation is shown in Fig.

2. The development of fast and power saving LSIC and effective algorithms, FFT for signal processing today allows a cost-effective realization of OFDM schemes. The advantages of this system are given by a satisfactory spectral efficiency and in the reduced effort for equalization of the received signal. In the case of limited delay spread (~ 300 ns) of the multipath signals it is possible to dispense with an equalizer.

FIGURE 2
Spectrum of OFDM



1450-02

The multicarrier transmission scheme employed with OFDM causes envelope fluctuation like additive white Gaussian noise and the effect on the interference environment is negligible.

5 Configuration of OFDM system

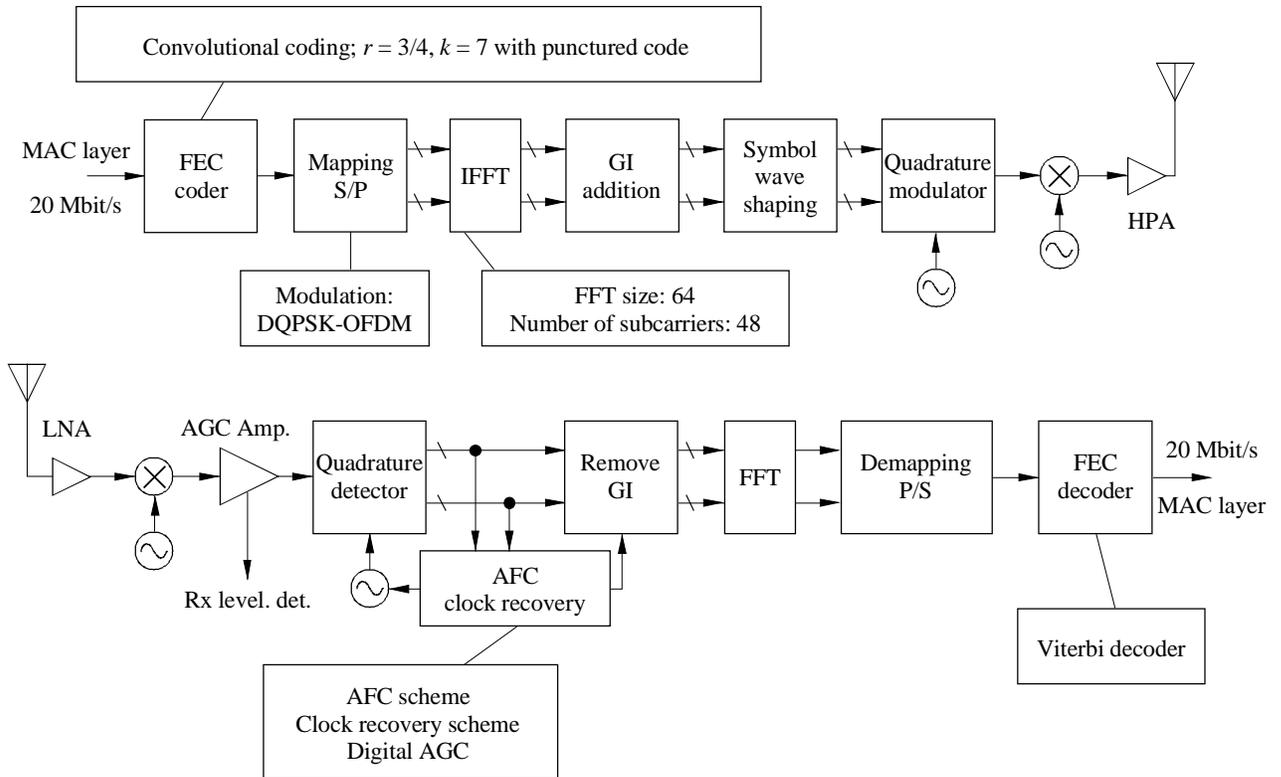
A simplified block diagram of an OFDM transmitter and receiver is shown in Fig. 3. In this example the data to be transmitted are coded by convolutional coding ($r = 3/4$, $k = 7$) and serial-parallel (S/P) converted and the data modulates the allocated subcarrier by DQPSK modulation. In the IEEE 802.11a and HIPERLAN/2 standards, data rates from 6 to 54 Mbit/s can be offered by using various signal alphabets for modulating the OFDM sub-carriers and by applying different puncturing patterns to a mother convolutional code. BPSK, PSK, 16-QAM and 64-QAM modulation formats are used. An IFFT of the modulated sub-symbols generates the OFDM signals. GI signals are added to the output signals of the IFFT. The GI added OFDM signals are shaped by roll-off amplitude weighting to reduce outband emission. Finally, the OFDM signals modulate IF. At the receiver side, received signals are amplified by the AGA and converted to the baseband

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signals. At this stage, frequency error due to instability of the RF oscillators is compensated by AFC and the timing of packet arrival is detected. After this synchronization processing, the GI signals are removed and the OFDM signals are demultiplexed by the FFT circuit. The output signals of the FFT circuit are fed to the de-

mapping circuit and demodulated. Finally, a Viterbi decoder decodes the demodulated signals.

FIGURE 3
Configuration of DQPSK-OFDM with convolutional coding



1450-03

6 Computer simulation

Major simulation parameters and the OFDM symbol format are shown in Table 4 and Fig. 4, respectively. Figure 5 shows that to achieve the packet error rate of 10%, the required E_b/N_0 is about 20 dB under the frequency selective fading channel with 300 ns delay spread. The proposed physical layer approach allows us to use this high bit rate RLAN system not only in indoor areas but also outdoor areas forming parts of locations such as universities, factories, and shopping malls, etc.

TABLE 4
Major simulation parameters

Raw data rate	26.6 Mbit/s
Modulation/detection	DQPSK/differential detection
FFT size	64 samples
Number of subcarriers	48
GI	12 samples
Number of T_{prefix} samples	4 samples
Symbol duration (T_s)	84 samples (= 3.6 μ s)
Carrier frequency offset	50 kHz (10 ppm at 5 GHz)

FIGURE 4
OFDM symbol format

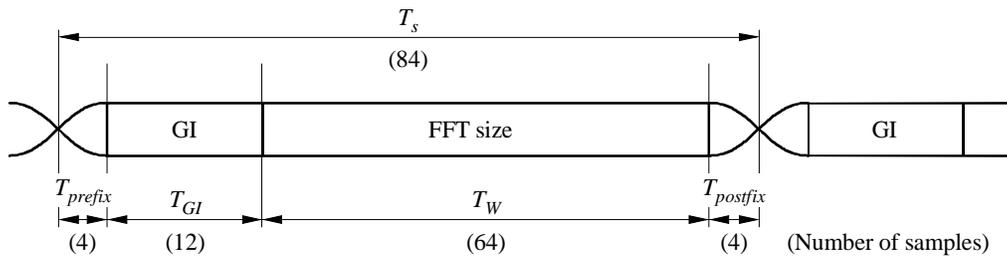
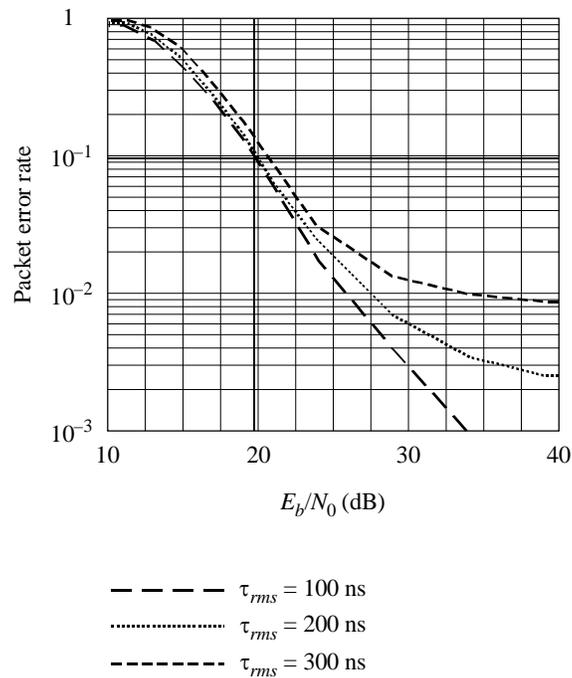


FIGURE 5
Packet error rate vs E_b/N_0



Packet length = 1 000 byte with ideal AGC
 3-bit soft decision
 Output backoff = 5 dB

1450-05

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Annex 3

Remote access techniques in RLANs

1 Introduction

One of the most beneficial usages of RLANs is that the RLAN terminals can be used without any additional operation at other company offices where they move. In order to realize such usage, it is very important to establish network techniques to virtually connect the RLAN terminals that are in other offices (other subnetworks) to their own subnetwork.

There are several approaches to support such remote access for RLAN terminals.

In the following sections, these techniques will be explained, and compared in the aspects of service performance and system composition.

2 Remote access techniques

2.1 Dial-up connection

Currently, the simplest way to connect a terminal from a remote place is a dial-up method. It does not need a LAN environment, but it is possible wherever the telephone network is available, using a modem or an ISDN adapter. Normally, the user sets up a telephone line in his home office, and connects a modem to a dial-up server. A mobile PC with a modem card can be connected to the home network server by a public wired or wireless telephone. In this connection PPP [IETF, 1994a], or ARA is mainly used.

On the other hand, the dial-up method has the following restrictions:

- additional software is necessary on mobile terminals;
- the network interface changes;
- communication bit rate is low;
- connection fee is generally expensive.

2.2 Dynamic Host Configuration Protocol (DHCP)

DHCP [IETF, 1993] is a technique using a new network address at a remote network. DHCP is originally a protocol for the auto-configuration of terminal network interfaces. It enables mobile RLAN terminals to connect to the home network via the Internet by searching for a DHCP server and obtaining a new address.

For DHCP, the following restrictions exist:

- additional software is necessary on mobile RLAN terminals;
- only TCP/IP is available;
- it is unavailable for networks with private IP addresses.

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2.3 Mobile IP

Mobile IP [IETF, 1996] is a technique that supports terminal mobility in networks. In mobile IP, IP packets transmitted to a mobile RLAN terminal are encapsulated by a home agent into other IP packets, and are forwarded to the foreign agent. In this way, the mobile RLAN terminal can be used at the home network. Because mobile IP works on the Internet, communication cost is low even for international communication.

However, the following are its restrictions:

- additional software is necessary on mobile RLAN terminals;
- only TCP/IP is available;
- it is unavailable for networks with private IP addresses.

2.4 VLAN

Recent advances in VLAN allow us to construct subnetworks or LAN segments independent of physical network topology, by using switching hubs, ATM switches, or

routers. The main purpose of VLAN is to adopt the following independently of the physical locations:

- unified administration;
- security;
- private IP address or multi-protocol;
- broadcast.

Some of them allow us to construct wide area VLANs, which are also called Internet VPNs [IETF, 1994b]. The wide area VLAN is a very recent technique and the standardization works are now under study in the IETF. In this technique, VLAN functions are necessary on remote network routers, or mobile RLAN terminals themselves.

When the function is on a router, advance registration is necessary. This means that access to Intranet is available only in limited remote networks. When the function is on a mobile RLAN terminal, additional software is necessary.

2.5 Mobile VLAN

Among the various mobile environment requirements, the mobile VLAN technique was developed to support the following features:

- low-cost communication;
- no operation for connection at the RLAN terminal;
- multi-protocol, private IP address;
- ubiquitous communication;
- high security.

In mobile VLAN, the MAC frame transmitted by a mobile RLAN terminal moves to a remote network. Next, it is encapsulated into an IP packet by the server at the remote network. The IP packet is then transferred to its home network (MAC over IP). Then the server at the home network de-encapsulates the received IP packet to the original MAC frame. Therefore, the mobile RLAN terminal can use the home network environment at the remote network.

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Mobile VLAN has such functions as terminal location registration, address resolution, authentication, and recognition of disconnection. In order to connect with no operation at the RLAN terminal, all of these functions are performed on the network side.

3 Evaluation

Table 5 summarizes the serviceability of the techniques mentioned above. The mobile VLAN realizes low-cost communication, connection with no operation at a RLAN terminal, support for multi-protocols, and ubiquitous communication without losing other technical advantages.

Appendix 1 to Annex 3 outlines the mobile VLAN system, which is considered most promising to support RLAN terminal mobility.

TABLE 5
Comparison of the mobility support techniques

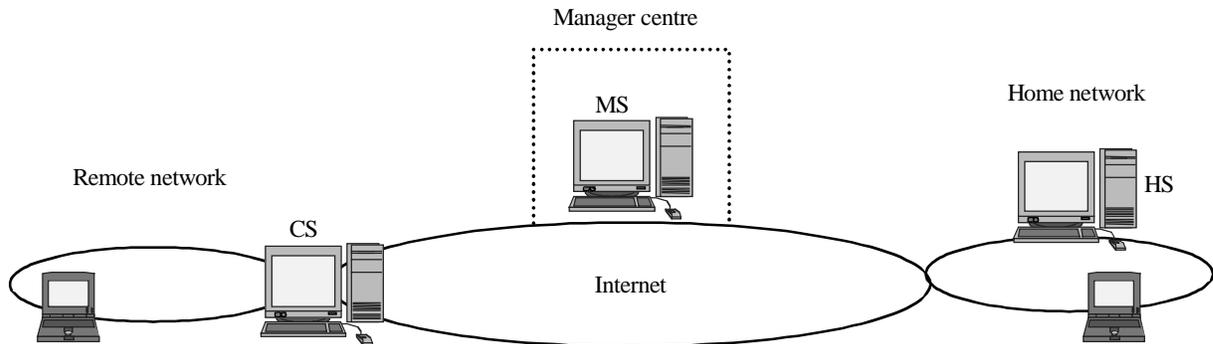
	Mobile VLAN	Dial-up connection	DHCP	Mobile IP	Wide area VLAN (in router)
Transport network	Internet	PSTN ISDN	Internet	Internet	Internet
Communication cost	Low	High	Low	Low	Low
Network interface modification	No	Yes	No	No	No
Network address modification	No	No	Yes	No	No
Additional software on terminal	No	Yes	Yes	Yes	No
Multi-protocol	Available	Unavailable	Unavailable	Unavailable	Available
Private IP address	Available	Available	Unavailable	Unavailable	Available
Ubiquitous communication	Available	Available	Available	Available	Unavailable

Outline of mobile VLAN system

1 System composition

The functions needed for the mobile VLAN techniques are address resolution, terminal authentication, location registration for recognition of disconnection, and MAC frame encapsulation/de-encapsulation. The first two factors, i.e. address resolution and terminal authentication, are necessary over the entire network. The location registration function is required only in remote networks. The MAC frame encapsulation/de-encapsulation is necessary in both home networks and remote networks. Consequently, the usage of three kinds of servers may be proposed: the management server (MS), the home server (HS), and the client server (CS), as shown in Fig. 6. One MS serves the whole network. It manages terminal authentication data and terminal location data, and resolves addresses. One HS is located in one home network, where it encapsulates and forwards MAC frames for mobile terminals. One CS is located in one remote network, where it recognizes mobile terminals, requests terminal authentication to the MS, establishes connection to the HS, and encapsulates MAC frames.

FIGURE 6
System composition of mobile VLAN



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2 Major techniques of mobile VLAN

In this section, the major techniques of mobile VLAN are introduced based on sequence charts.

2.1 Terminal authentication, location registration, connection

MAC addresses and the corresponding HS IP addresses have to be registered in advance in the MS. IP addresses of all HSs and CSs are also registered. TCP connections to all HSs and CSs are established. The mobile terminal can be connected to remote networks that are connected to the CSs. After connection, when the terminal sends a packet, e.g. an ARP, the CS captures the packet as a MAC frame. The CS sends the source MAC address to the MS, and the MS authenticates that the terminal is from the corresponding home network.

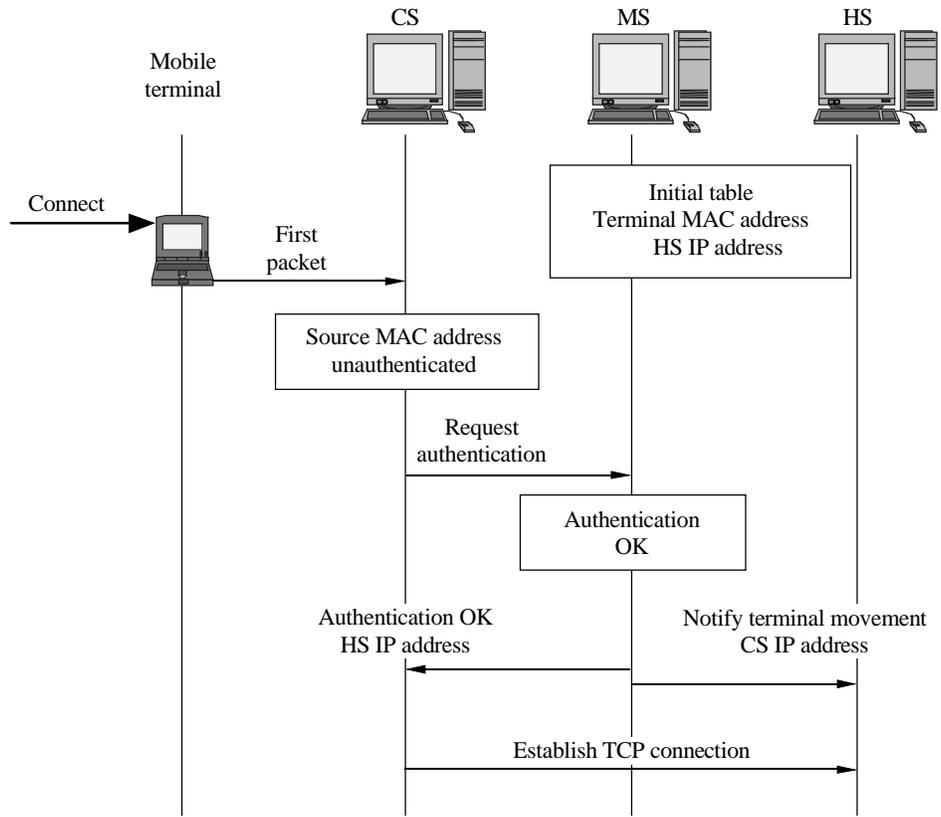
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Upon authentication, the MS registers the terminal location to itself, and notifies the CS and corresponding HS of terminal movement. Then, the CS establishes a TCP connection for MAC frame forwarding to the HS.

Because the destination HS differs depending on the source address of the MAC frame, a CS can belong to many HSs.

FIGURE 7

Sequence chart for terminal authentication, location registration, and connection

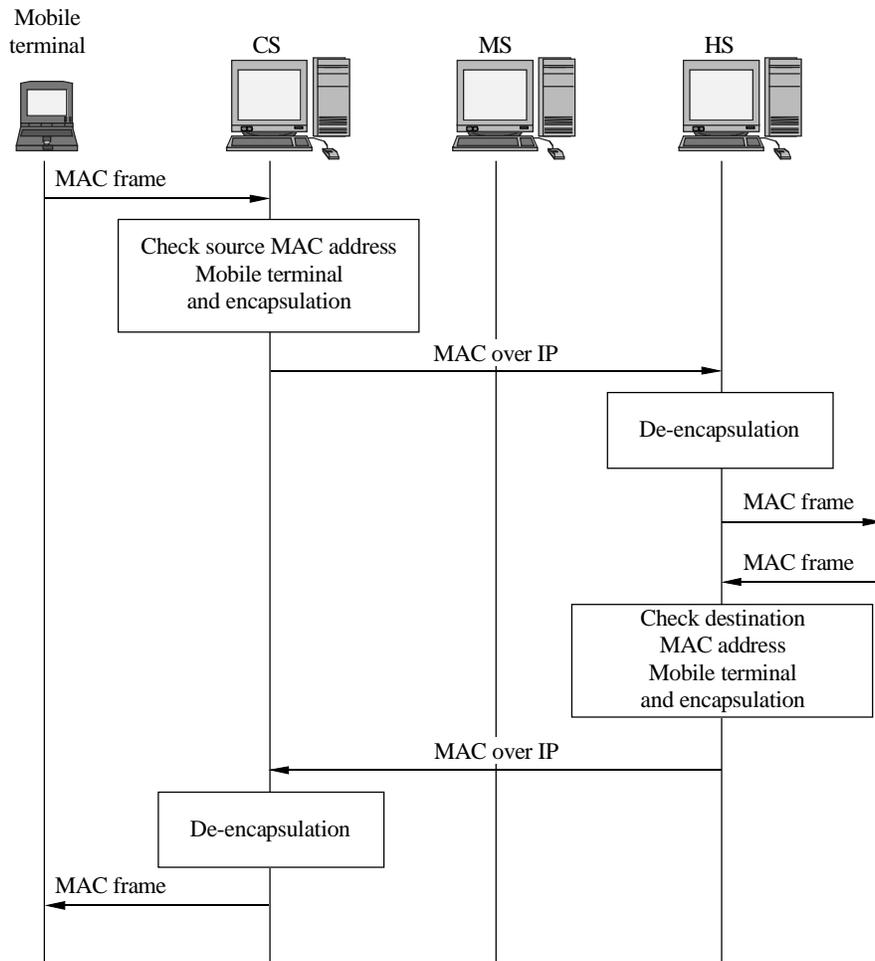


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2.2 Encapsulation/de-encapsulation

After TCP connection is established, the CS captures MAC frames with source MAC address of the mobile terminal, and the HS captures MAC frames with destination MAC address of the mobile terminal. Then they encapsulate MAC frames into IP packets. If they receive encapsulated MAC frames via the TCP connection, they de-encapsulate them and transmit extracted MAC frames to the LAN. If a MAC frame for another mobile terminal is captured, they encapsulate it again and send it to the corresponding CS. In this way, many CSs can belong to one HS.

FIGURE 8
Sequence chart for encapsulation/de-encapsulation

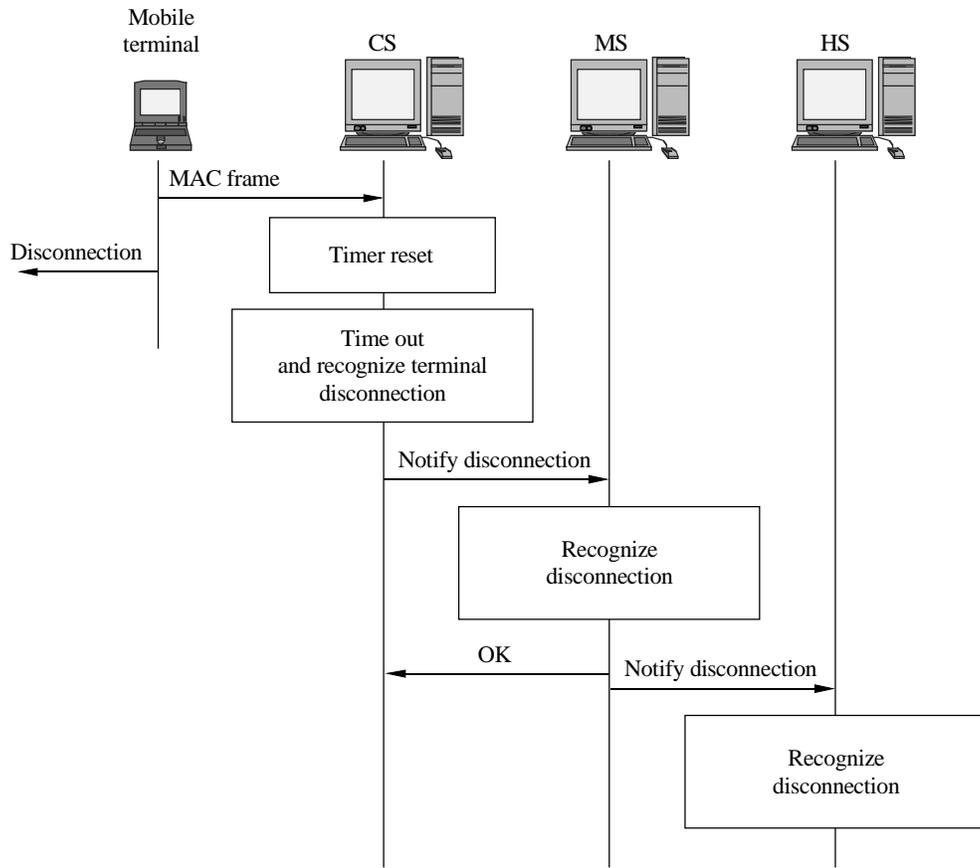


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2.3 Recognition of terminal disconnection

The CS has a timer, and if reception of MAC frames from the mobile terminal stops for a certain period, it recognizes this as disconnection.

FIGURE 9
Sequence chart for terminal disconnection



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9.03 ME Response to questions for clarification from WP8A

- Lynch

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CLARIFICATION ON THE REVISION OF RECOMMENDATION ITU-R M.1450

IEEE thanks WP8A for their liaison regarding the proposed revision of Recommendation M.1450-2. IEEE agrees that any amendment to the *recommends* of this Recommendation should be undertaken very carefully.

IEEE's contribution to the March WP8A meeting, [Document 8A/361](#), was meant to start the discussion on revising Recommendation M.1450-2. It was furnished as a starting point and foresaw the inputs that WP8A has asked ARIB and ETSI to provide.

The following information is provided in response to the questions from WP8A:

- The intent was that three of the recommends could be deleted, especially those that refer to the tutorials which IEEE proposes can be removed. However, *recommends* 6 should be kept in a modified form to reflect the outcome of work being undertaken in WP9B. That work seems likely to suppress Recommendation ITU-R F.1244 and replace it with a report. For the time being, as the revision to Recommendation ITU-R M.1450 is preliminary, an editorial note should be added to *recommends* 6 indicating that the reference to Recommendation ITU-R F.1244 may be replaced by a reference to the draft new Report [BWA-REQ], depending on the outcome of work in WP 9B and Study Group 9.
- The text following Table 1 was meant as a place holder for a high level description of RLAN functionality. This would replace the tutorials contained in the current version of M.1450-2. This text was meant to merely set the tone and needed to be completed and has now been completely removed.
- These values were inadvertently inserted during the editing process. IEEE did not feel it was the competent body to provide data on the ETSI HIPERLAN 2 and MMAC standards. It was envisioned that WP8A would ask ARIB and ETSI for the data on those standards.
- IEEE recommends that Table 2 on "Methods of multiple access and modulation techniques" be kept as it provides information on multiple access and modulation techniques.
- IEEE recommends that the three annexes be deleted. The information in them is dated and can be considered to be replaced by the text describing RLAN functionality mentioned in the second bullet point above.
- A new Annex 1 has been added which contains the information on how to obtain both the IEEE and the ETSI standards. A paragraph has also been added referencing the IEEE 802.11 standard. The information is very similar to that provided in the ETSI Liaison letter BRAN46d057r1.

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Attached here is an update of the proposed revision.

IEEE hopes that this clarifies for WP 8A the revisions proposed in [Document 8A/361](#). IEEE looks forward to working with WP8A on the revision of [Recommendation ITU-R M.1450-2](#).

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9.04 ME 802.16 ITU-R BWA Liaison Response

- Lynch

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Subject: [Question ITU-R 212-2/8](#), [Question ITU-R 8/238](#)

***** DRAFT 4 *****

Institute of Electrical and Electronics Engineers (IEEE)

BROADBAND WIRELESS ACCESS STANDARDS IN THE MOBILE SERVICE

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 thanks ITU-R for the liaison statement in Document [IEEE L802.16-06/010](#) requesting input for the completion of the PDNR on “Radio interface standards for broadband wireless access systems, including mobile and nomadic applications, in the Mobile Service operating below 6 GHz.”

We note that Attachment 1 to [IEEE L802.16-06/010](#) (Annex 17 to Document 8A/176) contains many standards and this contribution addresses only the parts covering the harmonized IEEE and ETSI standards for broadband wireless access in the mobile service.

IEEE 802.16 has also reviewed the technical details in the liaison contribution from ETSI BRAN in Attachments B and C to Doc. 8A/??? (Doc. [IEEE L802.16-06/012](#)) and confirms the accuracy of the information provided as it pertains to the IEEE 802.16 standard. This is shown in Attachment 1 including change marks to facilitate the update of the text, where editorial improvements have also been implemented. Attachment 2 confirms the technical information on the IEEE 802.16 standard for Annex 6 (to Annex 17 to Doc. 8A/376).

Regarding Annex 1 to Annex 17 to Doc. 8A/376, please refer to the updated information provided in Attachment 3. The values for the table in Annex 6 are provided in Attachment 2.

IEEE looks forward to continued cooperation with Working Party 8A on the development of future Recommendation(s) on broadband wireless access standards in the Mobile Service.

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Attachment 1

**Proposed Amendments to Annex 3
(to Annex 17 to Doc. 8A/376)**

IEEE and ETSI harmonized radio interface standards, for broadband wireless access (BWA) systems including mobile and nomadic applications in the mobile service

1 Overview of the radio interface

The IEEE standard 802.16 (including the 802.16e-2005 amendment), and ETSI HiperMAN standards define harmonized radio interfaces for the OFDM and OFDMA Physical layers (PHY) and MAC (Media Access Control) / DLC (Data Link Control) layer, however the ETSI BRAN HiperMAN targets only the nomadic applications, while the IEEE 802.16 standard also targets full vehicular applications.

The use of frequency bands below 6 GHz provides for an access system to be built in accordance with this standardized radio interface to support a range of applications, including full mobility, enterprise applications, and residential applications in urban, suburban and rural areas. The interface is optimized for dynamic mobile radio channels and provides support for optimized hand-off methods and comprehensive set of power saving modes. The specification could easily support both generic internet-type data and real-time data, including applications such as voice and videoconferencing.

This type of system is referred to as a wireless metropolitan area network (WirelessMAN in IEEE and HiperMAN in ETSI BRAN). The word "metropolitan" refers not to the application but to the scale. The design is primarily oriented toward outdoor applications. The architecture for this type of system is primarily point-to-multipoint, with a base station serving subscribers in a cell that can range up to a few km. Users can access various kinds of terminals, e.g. handheld phones, smart phone, PDA, handheld PC and notebooks in a mobile environment. The radio interface supports a variety of channel widths, such as 1.25, 3.5, 5, 7, 8.75, 10, 14, 15, 17.5 and 20 MHz for operating frequencies below 6 GHz. The use of orthogonal frequency division multiplex (OFDM) and orthogonal frequency division multiplexing access (OFDMA) offers considerable improvement in bandwidth efficiency due to combined time/frequency scheduling and flexibility when managing different user devices with a variety of antenna types and form factors. It brings a reduction in interference for user devices with omni-directional antennas and improved NLOS capabilities that are essential when supporting mobile subscribers. Sub-channelization defines sub-channels that can be allocated to different subscribers depending on the channel conditions and their data requirements. This gives the service providers more flexibility in managing the bandwidth and transmit power, and leads to a more efficient use of resources, including spectrum resources.

The radio interface supports a variety of channel widths and operating frequencies, providing a peak spectral efficiency of up to 3.5 bits/s/Hz in a single receive and transmit antenna (SISO) configuration.

The radio interface includes PHY as well as MAC/DLC. The MAC/DLC is based on demand-assigned multiple access in which transmissions are scheduled according to priority and availability. This design is driven by the need to support carrier-class access to public networks, through

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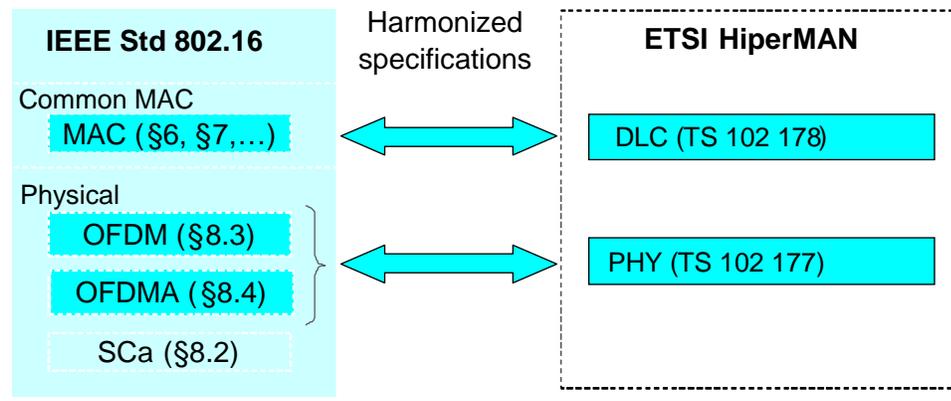
supporting various convergence sub-layers, such as Internet Protocol (IP) and Ethernet, with full quality-of-service (QoS).

The harmonized MAC/DLC supports the OFDM (orthogonal frequency-division multiplexing) and OFDMA (orthogonal frequency-division multiple access) PHY modes.

Figure 1 illustrates pictorially the harmonized interoperability specifications of the IEEE WirelessMAN and the ETSI HiperMAN standards, which include specifications for the OFDM and OFDMA physical layers as well as the entire MAC layer, including security.

FIGURE 1

BWA Standards harmonized for interoperability for frequencies below 6 GHz



The WiMAX Forum, IEEE 802.16 and ETSI HiperMAN define profiles for the recommended interoperability parameters. IEEE 802.16 profiles are included in the main standards document, while HiperMAN profiles are included in a separate document. TTA defines profile for WiBro service which is referred to WiMAX Forum profiles.

TTA maintains a standard TTAS.KO-06.0082/R1 for WiBro service, which is portable Internet service in Korea. The standard is a subset of IEEE Std 802.16 including the IEEE 802.16e-2005 amendment and the IEEE 802.16-2004/Cor1 corrigendum.

2 Detailed specification of the radio interface

2.1 IEEE 802.16

IEEE Standard for local and metropolitan area networks Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access Systems.

IEEE Std 802.16 is an air interface standard for broadband wireless access (BWA). The base standard, IEEE Std 802.16-2004, address fixed and nomadic systems only. The amendment IEEE 802.16e-2005 enables combined fixed and mobile operation in licensed frequency bands under 6 GHz. The current IEEE 802.16 (including the IEEE 802.16e amendment) is designed as a high-throughput packet data radio network capable of supporting several classes of IP applications and

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services based on different usage, mobility, and business models. To allow such diversity, the IEEE 802.16 air interface is designed with a high degree of flexibility and an extensive set of options.

The mobile broadband wireless technology, based on IEEE-802.16 standard offers scalability in air interface and network architecture thus enables flexible network deployment and service offerings. Some relevant key standard features are described below:

High Throughput, Spectral Efficiency and Coverage

Advanced multiple antenna techniques work with OFDMA signaling very well to maximize system capacity and coverage. OFDM signaling converts a frequency selective fading wideband channel into multiple flat fading narrow band sub-carriers and therefore smart antenna operations can be performed on vector flat sub-carriers. From receiver design perspective, this significantly simplifies the equalizer design otherwise required to compensate frequency selective fading impairment. Major multiple antenna technique features are listed here.

- 2nd, 3rd and 4th order Multiple Input Multiple Output (MIMO) and Spatial Multiplexing (SM) in Uplink and Downlink
- Adaptive MIMO switching between Spatial Multiplexing/Space Time Block Coding to maximize spectral efficiency with no reduction in coverage area
- UL Collaborative Spatial Multiplexing for single transmit antenna devices
- Advanced Beamforming and Null Steering.

QPSK, 16QAM and 64QAM modulation orders are supported both in up-link and downlink. Advanced coding schemes including Convolution Encoding, CTC, BTC and LDPC along with Chase Combining and Incremental Redundancy Hybrid ARQ and Adaptive Modulation and Coding mechanism enables the technology to support a high performance robust air link. Support of HARQ in particular is crucial to improve the robustness of data transmission over the fading wireless channel through fast retransmission.

IEEE 802.16 supports peak sector data rates up to 50 Mbps in a 10 MHz channel with MIMO (2x2). Higher throughputs are achieved by using higher order multiple antenna techniques.

Support for Mobility

The standard supports BS and MS initiated Optimized Hard Handoff for bandwidth-efficient handoff with reduced delay achieving a handoff delay less than 50 msec. The standard also supports Fast Base Station Switch (FBSS) and Marco Diversity Handover (MDHO) as options to further reduce the handoff delay.

Also is supported a comprehensive set of power saving modes including multiple power saving class types sleep mode and Idle mode.

Service Offering and Classes of Services

A set of QoS options such as UGS, Real-Time Variable Rate, Non-Real-Time Variable Rate, Best Effort and Extended Real-Time Variable Rate with silence suppression (primarily for VoIP) to enable support for guaranteed service levels including committed and peak information rates, minimum reserved rate, maximum sustained rate, maximum latency tolerance, jitter tolerance, traffic priority for varied types of internet and real time applications such as VoIP.

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Scope: This document provides enhancements to IEEE 802.16-2004 to support stations moving at vehicular speeds and thereby specifies a system for combined fixed and mobile broadband wireless access. Functions to support higher layer handover between base stations or sectors are specified. Operation is limited to licensed bands suitable for mobility below 6 GHz. The fixed subscriber capabilities given in IEEE Std 802.16-2004 are not compromised.¶

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Variable UL and DL subframe allocation supports inherently asymmetric UL/DL data traffic.

Multiple OFDMA adjacent and diversified subcarrier allocation modes enable the technology to trade off mobility with capacity within the network and from user to user. OFDMA with adjacent sub-carrier permutation makes it possible to allocate a subset of sub-carriers to mobile users based on relative signal strength. By allocating a subset of sub-carriers to each MS for which the MS enjoys the strongest path gains, this multi-user diversity technique can achieve significant capacity gains. Adaptive beamforming techniques effectively work with frequency selective scheduling on adjacent sub-carrier permutation.

Subchannelization and MAP-based signaling schemes provide a flexible mechanism for optimal scheduling of space, frequency and time resources for simultaneous control and data allocations (multicast, broadcast and unicast) over the air interface on a frame-by-frame basis.

MS and BS initiated Service Flow creation and Multicast and Broadcast Services with customized security support enables flexible service offering.

Scalability

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The IEEE-802.16 standard is designed to be able to scale to work in different channel bandwidth sizes from 1.25 to 20 MHz to comply with varied worldwide requirements as efforts proceed to achieve spectrum harmonization in the longer term.

Scalable Physical layer based on concept of Scalable OFDMA enables the technology to optimize the performance in a multipath fading mobile environment, characterized with delay spread and Doppler shift, with minimal overhead over a wide range of channel bandwidth sizes. The scalability is achieved by adjusting the FFT size to the channel bandwidth while fixing the sub-carrier frequency spacing. By fixing sub-carrier spacing to an optimal value of around 10 KHz, the performance is maximized with respect to multipath tolerance and mobility irrespective of channel bandwidth. More specifically, while large channel sizes and small sub-carrier spacing decreases the overhead required to mitigate degradation due to multipath delay spread, mobility link performance typically degrades due to Doppler shift. Scalable FFT sizes keeps subcarrier spacing fixed and as a result system performance in a mobile environment is maintained.

Flexible and Ease of Reuse Planning

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IEEE 802.16 OFDMA PHY supports various subcarrier allocation modes and frame structures such as Partially Used Sub-Channelization (PUSC), Fully Used Sub-Channelization (FUSC) and Advance Modulation and Coding (AMC). These options enable service providers to flexibly perform wireless network reuse planning for spectrally efficient reuse factor 1, interference robust reuse factor 3 or optimal fractional reuse deployment scenarios.

In the case of reuse factor 1, although system capacity can typically increase, users at the cell edge may suffer low connection quality due to heavy interference. Since in OFDMA, users operate on sub-channels, which only occupy a small fraction of the channel bandwidth, the cell edge interference problem can be easily addressed by reconfiguration of the sub-channel usage and reuse factor within frames (and therefore the notion of fractional reuse) without resorting to traditional frequency planning. In other words, the sub-channel reuse pattern can be configured so that in each frame users close to the base station operate on the zone with all sub channels available. While for the edge users, each cell/sector operates on the zone with a fraction of all sub-channels available. In this configuration, the full load frequency reuse factor 1 is maintained for center users with better link connection to maximize spectral efficiency while fractional frequency reuse is achieved for edge users to improve edge user connection quality and throughput. The sub-channel reuse planning

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can be adaptively optimized across sectors or cells based on network load, distribution of various user types (stationary and mobile) and interference conditions on a per frame basis. All the cells/sectors can operate on the same RF frequency channel and no conventional frequency planning is required.

Security sublayer

IEEE 802.16 supports Privacy and Key Management - PKMv1 RSA, HMAC, AES-CCM and PKMv2 – EAP, CMAC, AES-CTR, MBS Security

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Standard

The IEEE Standard is available in electronic form at the following address:

Base Standard: <http://standards.ieee.org/getieee802/download/802.16-2004.pdf>

Amendment 802.16e: <http://standards.ieee.org/getieee802/download/802.16e-2005.pdf>

[Editor's Note: A copy of the standard has been provided to the BR (SG 8 counsellor) so that it can be made available to members for review purposes as needed. The document will be attached electronically to the document to be submitted to SG 8 for adoption.]

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2.2 ETSI standards

The specifications contained in this section include the following standards for BWA, the last available versions being:

- ETSI TS 102 177 v1.3.2: Broadband Radio Access Networks (BRAN); HiperMAN; Physical (PHY) Layer.
- ETSI TS 102 178 v1.3.2: Broadband Radio Access Networks (BRAN); HiperMAN; Data Link Control (DLC) Layer.
- ETSI TS 102 210 v1.2.1: Broadband Radio Access Networks (BRAN); HiperMAN; System Profiles.

Abstract: The HiperMAN standards addresses interoperability for BWA systems below 11 GHz frequencies, to provide high cell sizes in non-line of sight (NLoS) operation. The standard provides for FDD and TDD support, high spectral efficiency and data rates, adaptive modulation, high cell radius, support for advanced antenna systems, high security encryption algorithms. Its existing profiles are targeting the 1.75 MHz, 3.5 MHz and 7 MHz channel spacing, suitable for the 3.5 GHz band.

The main characteristics of HiperMAN standards, which are fully harmonized with IEEE 802.16 are:

- All the PHY improvements related to OFDM and OFDMA modes, including MIMO for the OFDMA mode;
- Flexible channelization, including the 3.5 MHz, the 7 MHz and 10 MHz raster (up to 28 MHz);
- Scalable OFDMA, including FFT sizes of 512, 1 024 and 2 048 points, to be used in function of the channel width, such that the subcarrier spacing remains constant;
- Uplink and downlink OFDMA (sub-channelization) for both OFDM and OFDMA modes;
- Adaptive antenna support for both OFDM and OFDMA modes;

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Standards: All the ETSI standards are available in electronic form at:
<http://pda.etsi.org/pda/queryform.asp>, by specifying in the search box the standard number.

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Attachment 2

**Proposed Amendments to Annex 6
(to Annex 17 to Doc. 8A/376)**

System	Nominal RF channel bandwidth	Modulation/coding rate ² – upstream – downstream	Coding support	Peak channel transmission rate per 5 MHz channel	Beam-forming support (yes/no)	Support for MIMO (yes/no)	Duplex method	Multiple access method	Frame duration	Mobility capabilities (nomadic/mobile)
IEEE 802.16 WirelessMAN/ ETSI HiperMAN	Flexible from 1.25 MHz and above. Typical sizes are: – 3.5, – 5, – 7, – 8.75, – 10 and – 20 MHz	Up: – QPSK-1/2, 3/4 – 16QAM-1/2, 3/4 – 64QAM-1/2, 2/3, 3/4, 5/6 Down: – QPSK-1/2, 3/4 – 16QAM-1/2, 3/4 – 64QAM-1/2, 2/3, 3/4, 5/6	CC/CTC Other options: BTC/LDP C	Up to 35 Mbit/s with (2x2) MIMO	Yes	Yes	TDD/FD D/HFDD	OFDMA TDMA	5 msec Other options: 2, 2.5, 4, 8, 10, 12.5 and 20 msec	Mobile
IEEE 802.11-1999 (R2003) (802.11b)	22 MHz	Symmetric up and down: DOPSK CCK BPSK PBCC - 1/2 QPSK PBCC - 1/2	Uncoded CC	2.5 Mbit/s	No	No	TDD	CSMA/CA SSMA	Variable frame duration	Nomadic
IEEE 802.11-1999 (R2003) (802.11a)	20 MHz	Symmetric up and down: 64 QAM OFDM 2/3, 3/4 16 QAM OFDM -1/2, 3/4 QPSK OFDM -1/2, 3/4 BPSK OFDM -1/2, 3/4	CC	13.5 Mbit/s	No	No	TDD	CSMA/CA	Variable frame duration	Nomadic
IEEE 802.11-1999 (R2003) (802.11g)	20 MHz	Symmetric up and down: 64 QAM OFDM 2/3, 3/4 16 QAM OFDM -1/2, 3/4 QPSK OFDM -1/2, 3/4	CC	13.5 Mbit/s	No	No	TDD	CSMA/CA	Variable frame duration	Nomadic

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² Including all applicable modes, or at least the maximum and the minimum.

		<u>BPSK OFDM - 1/2, 3/4</u>								
		<u>8PSK PBCC - 2/3</u>								
		<u>64 QAM DSSS-OFDM - 2/3, 3/4</u>								
		<u>16 QAM DSSS-OFDM - 1/2, 3/4</u>								
		<u>QPSK DSSS-OFDM - 1/2, 3/4</u>								
		<u>BPSK DSSS-OFDM - 1/2, 3/4</u>								

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Attachment 3

**Proposed Amendments to Annex 1
(to Annex 17 to Doc. 8A/376)**

Broadband radio local area networks

RLANs offer an extension to wired LANs utilizing radio as the connective media. They have applications in commercial environments where there may be considerable savings in both cost and time to install a network; in domestic environments where they provide cheap, flexible, connectivity to multiple computers used in the home; and in campus and public environments where the increasing use of portable computers, for both business and personal use, while travelling and due to the increase in flexible working practices, e.g. nomadic workers using laptop personal computers not just in the office and at home, but in hotels, conference centres, airports, trains, planes and automobiles. In summary, they are intended mainly for nomadic wireless access applications, with respect to the access point (i.e. when the user is in a moving vehicle, the access point is also in the vehicle).

Recommendation ITU-R M.1450 recommends standards for broadband radio local area networks, which can be grouped as follows:

- IEEE 802.11
- ETSI BRAN HIPERLAN
- Japan MAC HSWA HiSWAN a

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IEEE 802.11 has developed a set of standards for RLANs, 802.11-1999 (R2003), which have been harmonized with IEC/ISO³. The medium access control (MAC) and physical characteristics for wireless local area networks (LANs) are specified in ISO/IEC 8802-11:2005, which is part of a series of standards for local and metropolitan area networks. The medium access control unit in ISO/IEC 8802-11:2005 is designed to support physical layer units as they may be adopted dependent on the availability of spectrum. ISO/IEC 8802-11:2005 contains five physical layer units: four radio units, operating in the 2 400-2 500 MHz band and in the bands comprising 5.15-5.25 GHz, 5.25-5.35 GHz, 5.47-5 725 GHz, and 5.725-5.825 GHz, and one baseband infrared (IR) unit. One radio unit employs the frequency-hopping spread spectrum (FHSS) technique, two employ the direct sequence spread spectrum (DSSS) technique, and another employs the orthogonal frequency division multiplexing (OFDM) technique.

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ETSI BRAN HIPERLAN

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Japan MAC HSWA HiSWAN a

[To be completed.]

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³ ISO/IEC 8802-11:2005, Information technology – Telecommunications and information exchange between systems – Local and metropolitan area networks – Specific requirements – Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications.

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features, including various hand-off types

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nomadic and mobile applications. This

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The radio interface includes

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physical layer (PHY) as well as a medium-access control layer (MAC).

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The MAC supports several PHY specifications, depending on the frequency bands of interest and the operational requirements. In particular, the alternatives include, typically, below 6 GHz.

WirelessMAN-OFDM and HiperMAN, the OFDM PHY mode: this specification is based on orthogonal frequency-division multiplexing (OFDM).

- ii) WirelessMAN-OFDMA and HiperMAN, the OFDMA PHY mode: this specification is based on orthogonal frequency-division multiple access (OFDMA).
- iii) WirelessMAN-Sca: this specification uses single-carrier transmission.

All of the PHYs use the same MAC, harmonized between

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(named DLC in HiperMAN).

The SDOs

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– Amendment for Physical and Medium Access Control Layers for Combined Fixed and Mobile Operation in Licensed Bands

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IEEE Std 802.16e-2005, an amendment to the IEEE Std 802.16-2004 base specification,

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This combination of IEEE Std 802.16-2004 and

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Moved: To approve document 18-06-0050-00-0000_ITU-R_BWA_Response.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

Motion to amend the main motion inserting “by EC email ballot” after “To approve document”.

Moved: Stevenson/Kerry

3/8/3 motion to amend fails

On the main motion: 13/1/1 Passes

9.05 II ITU-T/IEEE joint conference/workshop

- Parsons

5 04:10 PM

ITU-T / IEEE relationship

Glenn Parsons



Proposal



- In a spirit of cooperation, the ITU-T and IEEE jointly sponsor several activities on a topic of mutual interest.
- Initial joint activity be ‘Carrier Ethernet’
 - Co-locate with interim/plenary meetings
- Responsibility
 - ITU-T supplies facilities
 - IEEE organizes
 - Joint promotion of event

Agreed by ITU-T TSB & IEEE-SA BOG



- Proposed Joint Conference / Workshop on Carrier Ethernet – May 2007
- Preceded by proposed ITU-T hosted 802.1 & .3 interim meetings – May 2007
- Followed by ITU-T SG15 plenary June 4 – 16

Location: Geneva, Switzerland



Conference / Workshop



- IEEE Conference
 - Requires a ‘conference committee’
 - Will ask for volunteers from ITU-T, IEEE-SA & IEEE 802
 - Requires an IEEE OU ‘sponsor’
 - This may have a financial component
 - Marketing, Collateral, F&B, AV, etc.
 - Will ask IEEE 802 to be the ‘sponsor’ once the details are better understood

9.06 II RAC update - Jeffrey 5 04:17 PM

RAC is working with .16 to develop an Operator ID register for use in implementations of their standard.

RAC is developing an IEEE-wide Object Identifier register (based on ASN.1 Object Identifiers).

9.07 ME Letter to China - Kerry 5 04:20 PM

Withdrawn from the agenda. This issue will be taken to an EC email ballot.

9.08

9.09

10.00

LMSC Internal Business

10.01

MI

P&P "Editorial 2" revision approval

- Sherman 5 04:24 PM

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5
6
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IEEE PROJECT 802
LAN MAN STANDARDS COMMITTEE (LMSC)
POLICIES AND PROCEDURES

Revised effective January 4, 2006

1 **TABLE OF CONTENTS**

2 **TABLE OF CONTENTS** **1**

3 **1. INTRODUCTION** **1**

4 **1.1 Common Abbreviations** **2**

5 **2. LMSC SCOPE** **2**

6 **3. LMSC ORGANIZATION** **3**

7 **4. RESPONSIBILITIES OF THE SPONSOR** **5**

8 **5. OFFICERS** **5**

9 **6. MEMBERSHIP** **5**

10 **6.1 Voting Membership** **5**

11 **6.2 Application** **6**

12 **6.3 Review of Membership** **6**

13 **6.4 Membership Roster** **6**

14 **7. SUBGROUPS CREATED BY THE SPONSOR** **6**

15 **7.1 LMSC Executive Committee** **6**

16 **7.1.1 Function** **6**

17 **7.1.2 Membership** **7**

18 **7.1.3 Voting Rules** **8**

19 **7.1.4 Meetings** **10**

20 **7.1.5 Revision of the LMSC P&P** **11**

21 **7.1.6 Appeal and complaint process** **12**

22 **7.2 LMSC Working Groups** **15**

23 **7.2.1 Function** **15**

24 **7.2.2 WG Officers** **15**

25 **7.2.3 Membership** **16**

26 **7.2.4 Operation of the WG** **17**

27 **7.2.5 Deactivation of Working Group** **21**

28 **7.2.6 Working Group Financial Operations** **23**

29 **7.3 LMSC Technical Advisory Groups (TAGs)** **25**

30 **7.4 Study Groups** **26**

1	7.4.1	Study Group Operation -----	27
2	7.4.2	Voting at Study Group Meetings -----	27
3	7.5	Balloting Group -----	27
4	7.5.1	Interest Categories -----	28
5	8.	LMSC SESSIONS -----	28
6	8.1	Plenary Sessions -----	28
7	8.1.1	LMSC PLENARY -----	28
8	8.2	Interim Sessions -----	29
9	8.2.1	Interim Session Hosts -----	29
10	8.2.2	Interim Session Fees -----	30
11	8.2.3	Interim Session Financial Reporting -----	31
12	8.3	Registration Policy -----	31
13	9.	VOTE -----	32
14	9.1	Procedure for Establishing a Directed Position -----	33
15	10.	COMMUNICATIONS -----	33
16	10.1	Formal Internal Communication -----	33
17	11.	INTERPRETATIONS -----	34
18	12.	APPEALS -----	34
19	13.	PARLIAMENTARY PROCEDURES -----	34
20	14.	POSITION STATEMENTS FOR STANDARDS -----	34
21	14.1	Procedure for Coordination with Other Standards Bodies -----	34
22	14.1.1	IEEE 802 communications -----	34
23	14.1.2	WG or TAG communications -----	35
24	14.2	Procedure for Communication with Government Bodies -----	35
25	14.2.1	IEEE 802 Communications -----	35
26	14.2.2	WG or TAG Communications -----	35
27	15.	STANDARDS PUBLICITY -----	36
28	16.	USE OF LMSC FUNDS -----	36
29	17.	PROCEDURE FOR PARS -----	37

1	<u>17.1 IEEE-SA Standards Board Approval</u> -----	37
2	<u>17.2 LMSC Approval</u> -----	37
3	<u>17.3 Plenary Review</u> -----	38
4	<u>17.4 Chair responsibilities</u> -----	39
5	<u>17.5 Criteria for Standards Development (Five Criteria)</u> -----	39
6	17.5.1 Broad Market Potential-----	39
7	17.5.2 Compatibility -----	39
8	17.5.3 Distinct Identity -----	40
9	17.5.4 Technical Feasibility-----	40
10	17.5.5 Economic Feasibility -----	40
11	17.5.6 Withdrawn PARs -----	41
12	<u>18. POLICY FOR DISTRIBUTION OF NEW IEEE LMSC STANDARDS</u>	
13	<u>PUBLICATIONS</u> -----	41
14	<u>19. IEEE LMSC DRAFT NUMBERING PLAN</u> -----	41
15	<u>20. PROCEDURE FOR CONDITIONAL APPROVAL TO FORWARD A DRAFT</u>	
16	<u>STANDARD</u> -----	42
17	<u>21. PROCEDURE FOR COEXISTENCE ASSURANCE</u> -----	43
18	<u>TABLE OF CONTENTS</u> -----	i
19	<u>1. INTRODUCTION</u> -----	1
20	<u>1.1 Common Abbreviations</u> -----	2
21	<u>2. LMSC SCOPE</u> -----	2
22	<u>3. LMSC ORGANIZATION</u> -----	2
23	<u>4. RESPONSIBILITIES OF THE SPONSOR</u> -----	4
24	<u>5. OFFICERS</u> -----	4
25	<u>6. MEMBERSHIP</u> -----	4
26	<u>6.1 Voting Membership</u> -----	4
27	<u>6.2 Application</u> -----	5

1	<u>6.3</u>	<u>Review of Membership</u>	<u>5</u>
2	<u>6.4</u>	<u>Membership Roster</u>	<u>5</u>
3	7.	<u>SUBGROUPS CREATED BY THE SPONSOR</u>	<u>5</u>
4	<u>7.1</u>	<u>LMSC Executive Committee</u>	<u>5</u>
5	<u>7.1.1</u>	<u>Function</u>	<u>5</u>
6	<u>7.1.2</u>	<u>Membership</u>	<u>6</u>
7	<u>7.1.3</u>	<u>Voting Rules</u>	<u>7</u>
8	<u>7.1.4</u>	<u>Meetings</u>	<u>9</u>
9	<u>7.1.5</u>	<u>Revision of the LMSC Policies and Procedures (P&P)</u>	<u>9</u>
10	<u>7.1.6</u>	<u>Appeal and complaint process</u>	<u>11</u>
11	<u>7.2</u>	<u>LMSC Working Groups (WGs)</u>	<u>14</u>
12	<u>7.2.1</u>	<u>Function</u>	<u>14</u>
13	<u>7.2.2</u>	<u>WG Officers</u>	<u>14</u>
14	<u>7.2.3</u>	<u>Membership</u>	<u>14</u>
15	<u>7.2.4</u>	<u>Operation of the Working Group</u>	<u>16</u>
16	<u>7.2.5</u>	<u>Deactivation of Working Group</u>	<u>20</u>
17	<u>7.2.6</u>	<u>Working Group Financial Operations</u>	<u>22</u>
18	<u>7.3</u>	<u>LMSC Technical Advisory Groups (TAGs)</u>	<u>24</u>
19	<u>7.4</u>	<u>Study Groups</u>	<u>25</u>
20	<u>7.4.1</u>	<u>Study Group Operation</u>	<u>26</u>
21	<u>7.4.2</u>	<u>Voting at Study Group Meetings</u>	<u>26</u>
22	<u>7.5</u>	<u>Balloting Group</u>	<u>26</u>
23	<u>7.5.1</u>	<u>Interest Categories</u>	<u>26</u>
24	8.	<u>LMSC SESSIONS</u>	<u>26</u>
25	<u>8.1</u>	<u>Plenary Sessions</u>	<u>27</u>
26	<u>8.1.1</u>	<u>LAN MAN STANDARDS COMMITTEE PLENARY</u>	<u>27</u>
27	<u>8.2</u>	<u>Interim Sessions</u>	<u>28</u>
28	<u>8.2.1</u>	<u>Interim Session Hosts</u>	<u>28</u>
29	<u>8.2.2</u>	<u>Interim Session Fees</u>	<u>29</u>
30	<u>8.2.3</u>	<u>Interim Session Financial Reporting</u>	<u>29</u>
31	<u>8.3</u>	<u>Registration Policy</u>	<u>30</u>
32	9.	<u>VOTE</u>	<u>31</u>
33	<u>9.1</u>	<u>Procedure for Establishing a Directed Position</u>	<u>31</u>
34	10.	<u>COMMUNICATIONS</u>	<u>32</u>
35	<u>10.1</u>	<u>Formal Internal Communication</u>	<u>32</u>

1	<u>11. INTERPRETATIONS</u>	32
2	<u>12. APPEALS</u>	33
3	<u>13. PARLIAMENTARY PROCEDURES</u>	33
4	<u>14. POSITION STATEMENTS FOR STANDARDS</u>	33
5	<u>14.1 Procedure for Coordination with Other Standards Bodies</u>	33
6	<u>14.1.1 IEEE 802 communications</u>	33
7	<u>14.1.2 Working Group or TAG communications</u>	33
8	<u>14.2 Procedure for Communication with Government Bodies</u>	34
9	<u>14.2.1 IEEE 802 Communications</u>	34
10	<u>14.2.2 Working Group or TAG Communications</u>	34
11	<u>15. STANDARDS PUBLICITY</u>	34
12	<u>16. USE OF LMSC FUNDS</u>	35
13	<u>17. PROCEDURE FOR PARS</u>	36
14	<u>17.1 IEEE SA Standards Board Approval</u>	36
15	<u>17.2 LMSC Approval</u>	36
16	<u>17.3 Plenary Review</u>	37
17	<u>17.4 Chair responsibilities</u>	37
18	<u>17.5 Criteria for Standards Development (Five Criteria)</u>	38
19	<u>17.5.1 Broad Market Potential</u>	38
20	<u>17.5.2 Compatibility</u>	38
21	<u>17.5.3 Distinct Identity</u>	38
22	<u>17.5.4 Technical Feasibility</u>	38
23	<u>17.5.5 Economic Feasibility</u>	39
24	<u>17.5.6 Withdrawn PARs</u>	39
25	<u>18. POLICY FOR DISTRIBUTION OF NEW IEEE LMSC STANDARDS</u>	
26	<u>PUBLICATIONS</u>	39
27	<u>19. IEEE LMSC DRAFT NUMBERING PLAN</u>	40
28	<u>20. PROCEDURE FOR CONDITIONAL APPROVAL TO FORWARD A DRAFT</u>	
29	<u>STANDARD</u>	40
30	<u>21. PROCEDURE FOR COEXISTENCE ASSURANCE</u>	42

1. Introduction

The IEEE Project 802 (IEEE P802) LAN MAN Standards Committee (LMSC) is the standards sponsor organization and focal point for IEEE Local and Metropolitan Area Network Standards Sponsor activities.

The operation of the LMSC is subject to regulations contained in a number of documents, including these Policies and Procedures (P&P).

The regulating documents are identified in the following list and are given in their order of precedence from highest to lowest. If any two documents in this list contain conflicting regulations, the conflict shall be resolved in favor of the document of higher precedence.

[New York State Not-for-Profit Corporation Law](#)

IEEE Certificate of Incorporation

[IEEE Constitution](#)

[IEEE Bylaws](#)

[IEEE Policies](#)

[IEEE Financial Operations Manual](#)

IEEE Board of Directors Resolutions

[IEEE Standards Association \(IEEE-SA\) Operations Manual](#)

IEEE-SA Board of Governors Resolutions

[IEEE-SA Standards Board Bylaws](#)

[IEEE-SA Standards Board Operations Manual](#)

[IEEE Computer Society \(CS\) Constitution](#)

[IEEE CS Bylaws](#)

[IEEE CS Policies and Procedures Manual \(PPM\), Section 10](#)

IEEE CS Board of Governors Resolutions

[IEEE CS Standards Activities Board Policies and Procedures \(SAB P&P\)](#)

~~LMSC Policies and Procedures (LMSC P&P) Policies and Procedures~~

~~Working Group/Technical Advisory Group Policies and Procedures (WG/TAG P&P)~~

Robert's Rules of Order Newly Revised (latest edition) is the recommended guide for parliamentary matters not covered in the documents identified above.

The order of precedence presented here has been derived from the [Model Operating Procedures for IEEE Standards Sponsors](#) developed by the IEEE-SA, augmented by documents identified within the ~~IEEE-CS-SAB P&P~~. While both the IEEE-SA, and, [IEEE Computer Society \(CS\)](#)~~IEEE-CS~~ (via the IEEE TAB) report to the IEEE Board of Directors independently, for purposes of standards development the ~~IEEE-CS~~ (via the IEEE CS [Standards Activities Board](#)~~SAB (SAB)~~) acts as a sponsor within the IEEE-SA, and its documents have been placed accordingly in the order of precedence.

1.1 Common Abbreviations

The following abbreviations are commonly used throughout these ~~Policies and Procedures~~ P&P.

<u>CS:</u>	<u>IEEE Computer Society</u>
<u>EC:</u>	<u>LMSC Executive Committee</u>
<u>ECSG:</u>	<u>Executive Committee Study Group(s)</u>
<u>IEEE:</u>	<u>Institute of Electrical and Electronics Engineers</u>
<u>SAB:</u>	<u>IEEE CS Standards Activities Board</u>
<u>IEEE-SA:</u>	<u>IEEE Standards Association</u>
<u>IEEE TAB:</u>	<u>IEEE Technical Activities Board</u>
<u>LAN:</u>	<u>Local Area Network</u>
<u>LMSC:</u>	<u>LAN/MAN Standards Committee</u>
<u>MAN:</u>	<u>Metropolitan Area Network</u>
<u>PAR:</u>	<u>Project Authorization Request</u>
<u>P&P:</u>	<u>Policies and Procedures</u>
<u>PAN:</u>	<u>Personal Area Network</u>
<u>RAN:</u>	<u>Regional Area Network</u>
<u>SG:</u>	<u>Study Group(s)</u>
<u>TAG:</u>	<u>Technical Advisory Group(s)</u>
<u>WG:</u>	<u>Working Group(s)</u>
<u>WGSG:</u>	<u>Working Group Study Group(s)</u>
<u>LMSC:</u>	<u>LAN/MAN Standards Committee</u>
<u>EC:</u>	<u>Executive Committee</u>
<u>WG:</u>	<u>Working Group</u>
<u>IEEE SA:</u>	<u>IEEE Standards Association</u>
<u>TAG:</u>	<u>Technical Advisory Group</u>
<u>PAR:</u>	<u>Project Authorization Request</u>
<u>MAN:</u>	<u>Metropolitan Area Network</u>
<u>LAN:</u>	<u>Local Area Network</u>
<u>IEEE:</u>	<u>Institute of Electrical and Electronics Engineers</u>
<u>P&P:</u>	<u>Policies and Procedures</u>
<u>IEEE CS:</u>	<u>IEEE Computer Society</u>
<u>IEEE CS SAB:</u>	<u>IEEE CS Standards Activities Board</u>
<u>IEEE TAB:</u>	<u>IEEE Technical Activities Board</u>
<u>PAN:</u>	<u>Personal Area Network</u>
<u>RAN:</u>	<u>Regional Area Network</u>
<u>ECSG:</u>	<u>Executive Committee Study Group</u>
<u>WGSG:</u>	<u>Working Group Study Group</u>

2. LMSC Scope

The scope of the ~~IEEE Project 802 (IEEE P802) LAN/MAN Standards Committee (LMSC)~~ is to develop and maintain networking standards and recommended practices for local, metropolitan,

1 and other area networks, using an open and accredited process, and to enable and advocate them
2 on a global basis.
3

4 **3. LMSC Organization**

5
6 | The ~~LAN/MAN Standards Committee~~ (LMSC) has grown significantly from the original IEEE
7 Project 802 that was its origin, but because of its roots and the family of standards it has
8 | developed; it is also widely known as “IEEE 802” ~~Standards~~. The terms “LMSC” and “LMSC
9 Standards” will be used in these P&P.

10
11 LMSC operates as a sponsor within the IEEE Standards Association, and LMSC has reporting
12 requirements to the Standards Activity Board (SAB) of the IEEE Computer Society (see Figure
13 1). LMSC is governed by an Executive Committee (EC) and LMSC procedures are designed to
14 minimize overlap and conflict between standards and to promote commonality and compatibility
15 | among the family of LMSC standards. LMSC standards are developed within a Working Group
16 | (WG) or Technical Advisory Group (TAG) (see Figure 2).

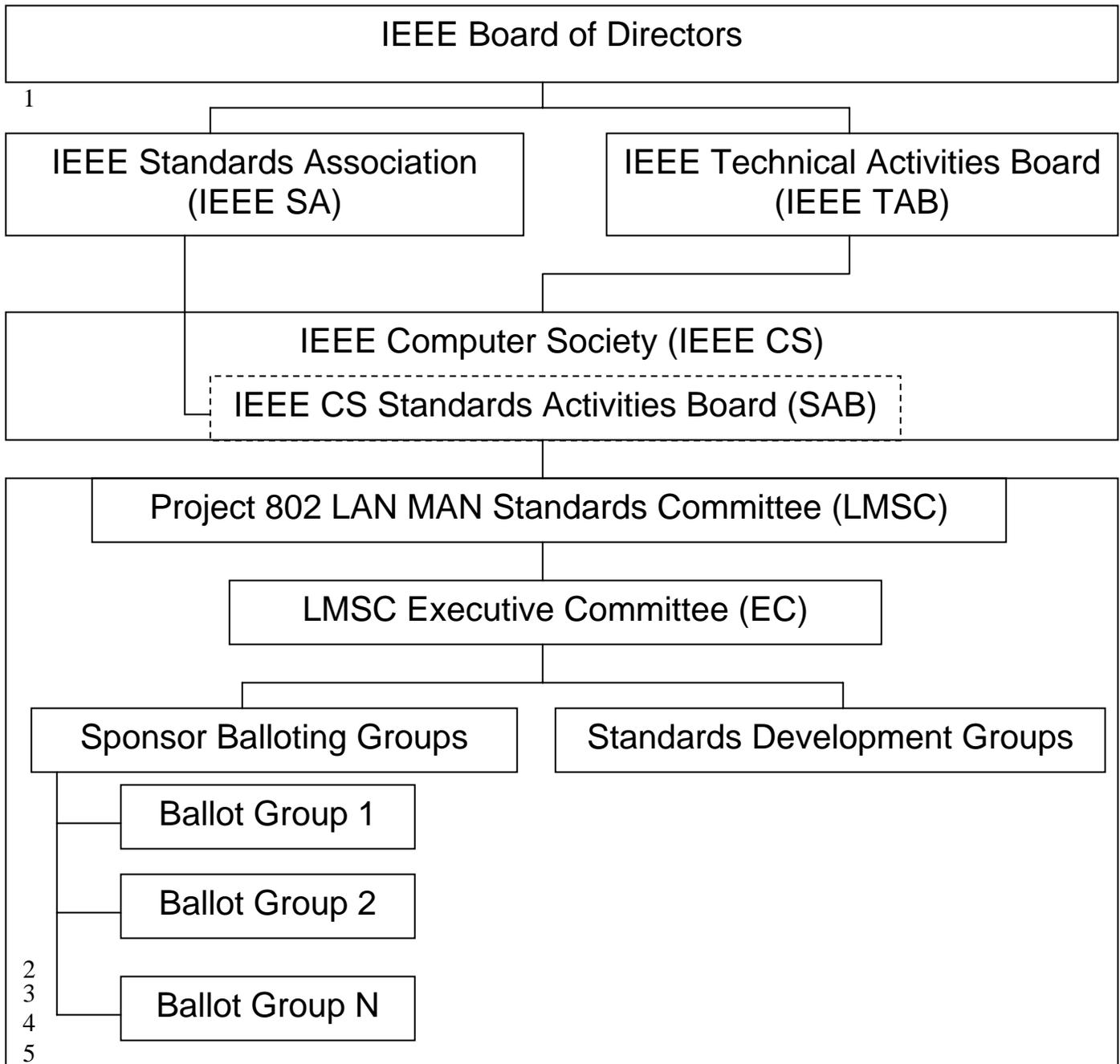


Figure 1 **IEEE PROJECT 802 LMSC REPORTING RELATIONSHIPS**

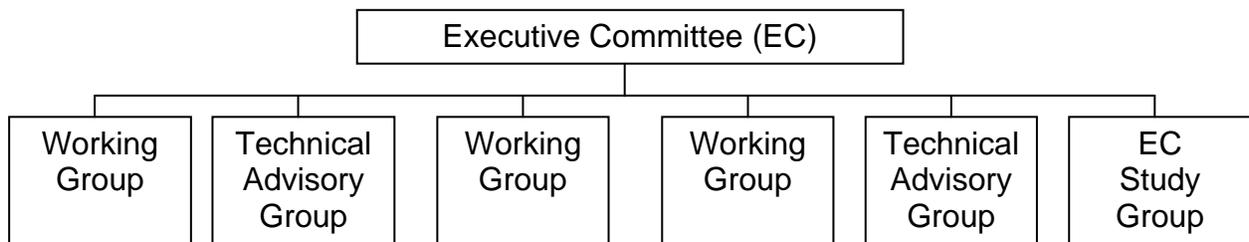


Figure 2 **STANDARDS DEVELOPMENT GROUPS**

1
2 Further details of the organization and officers of the LMSC are provided in section 5 and 7 of
3 this document.
4

5 **4. Responsibilities of the Sponsor**

6
7 The LMSC shall be responsible for the following:

- 8 a) Evaluating project proposals and deciding whether or not to generate a PAR
- 9 b) Developing LMSC proposed IEEE standards within its scope
- 10 c) Initiating Sponsor ballots of proposed standards within its scope
- 11 d) Maintaining the active standards developed by the LMSC
- 12 e) Responding to requests for interpretations of the standards developed by the LMSC
- 13 f) Acting on other matters requiring LMSC effort as provided in these procedures
- 14 g) Cooperating with other appropriate standards development organizations
- 15 h) Protecting against actions taken in the name of the LMSC without committee
16 authorization
17

18 **5. Officers**

19
20 The Chair, Vice Chairs, Executive Secretary, Recording Secretary, and Treasurer of the LMSC
21 | ~~Executive Committee~~EC serve respectively as the Chair, Vice Chairs, Executive Secretary,
22 Recording Secretary, and Treasurer of the LMSC. Further details on the duties of these offices
23 are provided in clause 7.1 of this document. These officers shall be members of any grade of the
24 IEEE and members of the IEEE-SA and shall organize the Sponsor, oversee the committee's
25 compliance with these procedures, and submit proposed standards approved by the balloting
26 group with supporting documentation for IEEE-SA Standards Board review and approval as
27 IEEE standards.
28

29 **6. Membership**

30
31 Membership in LMSC is established by establishing membership in one of its defined subgroups
32 (See clause 7 Subgroups Created by the Sponsor).
33

34 **6.1 Voting Membership**

35
36 Voting Membership is as defined for each of the subgroups of the LMSC (See clause 7
37 Subgroups Created by the Sponsor), and as further defined within established P&P of LMSC
38 subgroups.
39

1 **6.2 Application**

2
3 Parties interested in participating within LMSC should establish membership in accordance with
4 the procedures established in this P&P and any subordinate P&P for the LMSC subgroup of
5 interest. In some cases, membership may be established by application to the chair of a
6 subgroup, in accordance with this P&P and the P&P of the subgroup of interest.
7

8 **6.3 Review of Membership**

9
10 The proper authority for each subgroup shall regularly review membership in the subgroup to
11 ensure that the membership rules in this P&P and subordinate P&P are enforced.
12

13 **6.4 Membership Roster**

14
15 Membership rosters shall be maintained by each WG and TAG in accordance with the P&P of
16 that WG or TAG.
17

18 **7. Subgroups Created by the Sponsor**

19
20 The LMSC organization consists of the ~~EC~~Executive Committee, the ~~Working Groups~~WG and
21 ~~Technical Advisory Groups~~TAG (that develop the draft standards, recommended practices, and
22 guides), and ~~Study Groups~~SG.
23

24 **7.1 LMSC Executive Committee**

25
26 The LMSC Executive Committee functions as the Sponsor Executive Committee (SEC) and the
27 Executive Committee of the standards developing organization. It shall be referred throughout
28 this document as the Executive Committee (EC).
29

30 **7.1.1 Function**

31
32 The function of the EC is to oversee the operation of the ~~LMSC~~LAN MAN Standards
33 ~~Committee~~ in the following ways:
34

- 35 a) Charter the ~~Study Groups~~SG, ~~Working Groups~~WG, and ~~Technical Advisory~~
36 ~~Groups~~TAG.
37 b) Appoint the initial Chairs of the ~~Working Groups~~WG and ~~Technical Advisory~~
38 ~~Groups~~TAG. (The Chairs of ~~Working Groups~~WG and ~~Technical Advisory Groups~~TAG)

- 1 | are elected by the ~~Working Group~~WG and ~~Technical Advisory Group~~TAG members
2 | themselves.)
- 3 | c) Provide procedural and, if necessary, technical guidance to the ~~Working Groups~~WG and
4 | ~~Technical Advisory Groups~~TAG as it relates to their charters.
- 5 | d) Oversee ~~Working Group~~WG and ~~Technical Advisory Group~~TAG operation to ensure that
6 | it is within the scope of Project 802, and its established charter.
- 7 | e) Examine and approve ~~Working Group~~WG draft standards for proper submission to
8 | Sponsor ballot group (see subclause 9.1); not for technical content.
- 9 | f) Consider complaints of ~~Working Group~~WG and ~~Technical Advisory Group~~TAG
10 | members and the resolutions of the ~~p~~Plenary, ~~Working Groups~~WG, and ~~Technical~~
11 | ~~Advisory Groups~~TAG.
- 12 | g) Manage the Functional Requirements and other ~~global Project 802~~LMSC issues.
- 13 | h) Handle press releases and other external organization matters.
- 14 | i) Manage ~~Project 802~~LMSC logistics, i.e., concurrent ~~Working Group~~WG and ~~Technical~~
15 | ~~Advisory Group~~TAG meetings, finances, etc.
- 16 | j) Oversee formation of Sponsor ballot groups and Sponsor ballot process.
- 17 |

18 | 7.1.2 Membership

19 |

20 | The officers of the ~~EC~~Executive Committee by virtue of their office hold corresponding offices
21 | for the ~~LAN MAN Standards Committee~~(LMSC) and are referred to by that title. Membership
22 | of the ~~EC~~Executive Committee is composed of the following voting members:

23 |

24 | *LMSC Chair*

25 | The Chair is elected by the EC and confirmed by the Standards Activities Board. Duties include
26 | (but are not limited to) overseeing the activities of the LMSC, chairing EC and LMSC ~~p~~Plenary
27 | meetings, and representing the LMSC at ~~CS~~SAB, ~~IEEE~~-SA Standard Board, and at other
28 | organizations as required.

29 |

30 | *LMSC Vice Chair(s)*

31 | The LMSC Chair appoints a (1st) Vice Chair and may appoint a 2nd Vice Chair. Vice Chairs
32 | must be confirmed by the EC. In the case of unavailability or incapacity of the Chair, the 1st
33 | Vice Chair shall act in the capacity of the Chair.

34 |

35 | *LMSC Executive Secretary, Recording Secretary, and Treasurer*

36 | These positions are appointed by the LMSC Chair and confirmed by the EC.

37 |

38 | *Chairs of Active ~~Working Groups~~WG*

39 | *Chairs of the ~~Technical Advisory Groups~~(TAGs)*

40 |

41 |

42 | In addition, the ~~EC~~Executive Committee includes the following non-voting members:

43 |

44 | *Chairs of Hibernating ~~Working Groups~~WG*

45 | *Appointed WG or TAG Chairs*

1 | *Acting positions (prior to the close of the plenary ~~meeting-session~~ where appointed or elected)*

2
3 All appointed and elected positions become effective at the end of the plenary session where the
4 appointment/election occurs. Prior to the end of that plenary session, such persons filling
5 vacancies are considered ‘Acting’, and do not vote. Persons who are succeeding someone that
6 currently holds the position do not acquire any EC rights until the close of the plenary session.
7 | Membership is retained as in ~~Working Groups~~WG (see 7.2.3.2 Retention). All members of the
8 EC shall be members or affiliates of The IEEE-SA and either the IEEE or the IEEE Computer
9 Society.

10
11 | The term for all positions of the ~~EC~~Executive Committee ends at close of the first plenary
12 session of each even numbered year. Unless otherwise restricted by these P&P or the relevant
13 WG/TAG P&P, individuals may be confirmed for a subsequent term if reappointed or re-elected
14 to the position. Members appointed and affirmed maintain their appointments until the next
15 appointment opportunity unless they resign or are removed for cause.

16
17 | The 802 Chair will ensure that those EC members who are not Chairs of active ~~Working~~
18 ~~Groups~~WG have specific areas of interest to cover in order to encourage a wider view to be
19 taken than that specifically covered by the Chairs of active ~~Working Groups~~WG.

20
21 Any person to be confirmed by the EC shall, prior to confirmation by the EC, file with the
22 Recording Secretary a letter of endorsement from their supporting entity (or themselves if self
23 supporting). This letter is to document several key factors relative to their participation on the
24 | EC and is to be signed by both the ~~EC~~executive committee member and an individual who has
25 management responsibility for the EC member. This letter shall contain at least the following:

- 26
27 a) Statement of qualification based on technical expertise to fulfill the assignment
28 b) Statement of support for providing necessary resources (e.g., time, travel expenses to
29 meetings), and
30 c) Recognition that the individual is expected to act in accordance with the conditions stated
31 in subclause 7.1.3.1 Voting Guidance dealing with voting “as both a professional and as
32 an individual expert.”

33
34 In case an election or appointment is not confirmed by the EC, the person last holding the
35 position will continue to serve until confirmation of an election or appointment are achieved.
36 Should that person be unable or unwilling to serve, succession will proceed to the person who
37 would have succeeded just prior to the election or appointment. If no successor exists, the
38 position may be left vacant, or filled by temporary appointment by the EC Chair.

39

40 **7.1.3 Voting Rules**

41

42 Only members of the EC with voting rights are counted in the approval rate calculation in
43 determining the approval threshold for any EC vote. Unless specified otherwise in these P&P all
44 EC votes are in addition subject to the following provisions: Voting is by simple majority of
45 those voting approve divided by those voting approve or disapprove. The Chair may vote only if

1 his vote can change the outcome. Votes on disciplinary matters concerning EC members must
2 meet a 2/3 approval threshold.
3

4 **7.1.3.1 Voting Guidance**

5
6 It is expected that EC members will vote as both professionals and as individual experts, except
7 under the Directed Position provisions of this P&P, and *not* as a member of any affiliate block
8 (organization, alliance, company, consortium, special interest group, etc.). If substantive
9 evidence is presented to the LMSC Chair that this provision is violated, the EC will meet to
10 consider what, if any, action to take on the presented evidence up to and including suspension of
11 voting rights and removal from office.
12

13 **7.1.3.2 EC Quorum Requirements**

14
15 A Quorum for the purpose of conducting formal business shall be a majority of EC members
16 with voting rights.
17

18 **7.1.3.3 Voting at Meetings**

19
20 Except where otherwise noted in this P&P, approval of an EC motion is achieved if a simple
21 majority of EC members approve the motion (approve/(approve + disapprove)). The LMSC
22 Chair only votes if his vote can change the outcome of a vote. Proxy voting is not permitted.
23

24 The following actions have exceptional voting requirements:
25

- 26 • Approval of PARs and Drafts for forwarding to IEEE-SA shall require approval by a
27 majority of EC members present with voting rights.
28

29 **7.1.3.4 Electronic Balloting**

30
31 At times, it may become necessary for the EC to render a decision that cannot be made prior to
32 the close of one plenary but must be made prior to the opening of the following plenary. Such
33 decisions may be made using electronic balloting. Provision shall be made for the LMSC
34 membership to observe and comment on EC electronic ballots. All comments from those who
35 are not members of the EC shall be considered. Commenters who are not members of the EC are
36 urged to seek an EC voting member (normally their ~~Working Group~~WG or ~~Technical Advisory~~
37 ~~Group~~TAG Chair) to include the viewpoint of the commenter in their vote.
38

39 The LMSC Chair, or an EC member designated by the Chair (usually a Vice Chair), shall
40 determine the duration of the ballot, issue the ballot by e-mail and tally the votes after the ballot
41 is closed. EC voting members shall return their vote and comments by e-mail.
42

1 The minimum duration of an electronic ballot shall normally be 10 days. For urgent matters once
2 sufficient response is received to clearly decide a matter, the Ballot may be closed early. This
3 allows a decision to be reach in less than 10 days. Ballots where the possibility of an early close
4 exists must be clearly marked accordingly. Otherwise, the tally of votes shall not be made until
5 at least 24 hours after the close of the ballot to allow time for delivery of the e-mail votes.
6

7 The affirmative vote of a majority of all members of the EC with voting rights is required for an
8 electronic ballot to pass except when specified otherwise by these P&P. If at the end of the ballot
9 insufficient votes have been received to pass the ballot, the ballot fails.
10

11 **7.1.4 Meetings**

12

13 ~~EC~~~~Executive Committee~~ meetings are open to observers. An open discussion or
14 acknowledgement of a request to participate in a particular discussion is determined by the
15 Chair.
16

17 ***7.1.4.1 Procedure for Limiting the Length of the IEEE LMSC ~~EC~~Executive Committee*** 18 ***Meetings***

19

- 20 a) The reports from the ~~Working Groups~~WG and TAGs should deal primarily with issues
21 related to LMSC as a whole or inter-group coordination. Reports of those items that will
22 be covered in the plenary meeting should be minimized.
- 23 b) Roberts Rules of Order shall be used in ~~EC~~Executive Committee meetings. Issues
24 brought before the ~~EC~~Executive Committee for resolution by vote should be phrased as a
25 motion and distributed, if possible, to the ~~Executive Committee~~EC members before the
26 meeting.
- 27 c) The maker of the motion, after the motion has been seconded, has up to five minutes to
28 explain the motion and to answer questions about it.
- 29 d) Each ~~Executive Committee~~EC member has two minutes of uninterrupted time to state an
30 opinion about the motion. It is not necessary that all two minutes be used.
- 31 e) Motions needing concurrence of the ~~Working Group(s)~~WG will be tabled for review at
32 the next ~~Executive Committee~~EC meeting.
- 33 f) The opening ~~Executive Committee~~EC meeting shall start at 8:00 a.m. and end no later
34 than 10:30 a.m. on Monday morning and the closing ~~Executive Committee~~EC meeting
35 shall start at 1:00 p.m. and shall end no later than 6:00 p.m. on Friday of the plenary
36 session.
- 37 g) If the ~~Executive Committee~~EC so modifies a ~~Working Group~~WG's motion that the
38 ~~Working Group~~WG Chair believes the ~~Working Group~~WG membership may no longer
39 support the revised motion then the ~~Working Group~~WG should be given the opportunity
40 to reconsider what action it wishes to take and present it to the ~~Executive Committee~~EC
41 at the next ~~Executive Committee~~EC meeting. This action can be accomplished by a
42 Privileged Non-debatable "Request to Defer Action" made by the affected ~~Working~~
43 ~~Group~~WG Chair which will automatically cause all action on the motion to be deferred
44 until the end of the next regular ~~Executive Committee~~EC meeting.

1
2 **7.1.5 Revision of the LMSC ~~Policies and Procedures~~P&P (P&P)**

3
4 These P&P may be changed as described in this subclause.
5

6 **7.1.5.1 Initiation of Proposed P&P Revisions**

7
8 *Proposed changes shall be in written form and include:*

- 9
10 a) The objective of the proposed change.
11 b) The specific text of the proposed change and the rationale for the chosen text.
12

13 *Proposed changes may be created by:*

- 14
15 a) Any active ~~working group~~WG or ~~technical advisory group~~TAG. A proposal shall require
16 the affirmative vote of at least three fourths of the members present when the vote is
17 taken. Quorum requirements shall be as specified in subclause 7.2.4.2 (Voting).
18 b) Any EC Member.
19

20 Writers of proposed changes are encouraged to seek the advice of experienced members of the
21 EC to help form the wording in a manner appropriate for and consistent with these P&P.
22

23 **7.1.5.2 ~~Executive Committee~~EC Action on Proposed Changes to these P&P**

24
25 The proposed P&P revision shall be presented at an EC meeting in conjunction with a ~~p~~Plenary
26 ~~s~~Session.
27

28 Approval for Distribution and EC Ballot shall require the affirmative vote of at least two-thirds
29 of Committee members with voting rights who vote to approve or disapprove and will result in
30 the distribution of the proposal and an EC electronic ballot on the P&P revision.
31

32 **7.1.5.3 Distribution and ~~Executive Committee~~EC Ballot**

33
34 EC ballots on P&P Revisions shall be at least 30 days in duration and shall close at least 30 days
35 before the opening of the next plenary session (to allow time for comment resolution).
36 Distribution of ballots on P&P revisions to the LMSC membership shall be accomplished as
37 provided by subclause 7.1.3.4.
38

39 **7.1.5.4 LMSC Approval**

1 After distribution of a proposed P&P Revision and an EC electronic ballot has been conducted,
2 the EC member designated in accordance with subclause 7.1.3.4 shall tabulate the ballot results,
3 attempt to resolve the comments, and present the comments and proposed resolution at an EC
4 meeting in conjunction with a pPlenary sSession.

5
6 LMSC approval of the revised text of the proposed P&P revision shall require the affirmative
7 vote of at least two-thirds of all EC members with voting rights (regardless of whether they are
8 present). The vote shall be taken at a plenary closing EC meeting. LMSC approval will result in
9 the change becoming effective at the end of pPlenary sSession during which approval is voted.
10 The revised P&P shall be forwarded to the ~~Computer Society Standards Activities Board (CS~~
11 ~~SAB)~~ and the ~~IEEE Standards Association (IEEE-SA)~~ Audit Committee (AudCom).

12
13 If LMSC approval is not achieved, the proposed revision is rejected, and may not be considered
14 again until a future session. P&P revisions become effective at the end of the plenary session at
15 which they are approved. An up-to-date LMSC P&P should be maintained on the [IEEE 802](#)
16 [website](#).

18 **7.1.5.5 Editorial discretion**

19
20 In some circumstances minor revisions may be made to the LMSC P&P without a revision
21 ballot. These circumstances include

- 22
- 23 • Basic layout/formatting that does not change the meaning of any of the text
- 24 • Correction of spelling and punctuation
- 25 • Error in implementing approved changes
- 26

27 All other LMSC P&P revisions must be balloted in accordance with the process defined in
28 subclause 7.1.6. If any voting member of the EC protests an editorial change of the P&P within
29 30 days of its release, that editorial change will be without effect.

31 **7.1.6 Appeal and complaint process**

32
33 A significant attempt should be made to resolve concerns informally, since it is recognized that a
34 formal appeals process has a tendency to negatively, and sometimes permanently, affect the
35 goodwill and cooperative relationships between and among persons. If the informal attempts to
36 resolve a concern are unsuccessful and a formal complaint is filed, the following formal
37 procedure shall be invoked.

39 **7.1.6.1 Appeals pool**

40
41 The appeals pool consists of:
42

- 1 a) Current members in good standing of the EC who have attended both the opening and
- 2 closing EC meetings at two of the last four plenary sessions.
- 3 b) Former members of the EC who are members in good standing of an active WG/TAG
- 4 having qualified for member status through attendance.
- 5 c) Current WG/TAG Vice Chairs confirmed by the EC who are members in good standing
- 6 of an active WG/TAG having qualified for member status through attendance.
- 7

8 **7.1.6.2 Appeal brief**

9

10 | The appellant shall file a written appeal brief with the ~~EC~~LMSC Recording Secretary within 30

11 days after the date of notification/occurrence of an action or at any time with respect to inaction.

12 The appeal brief shall state the nature of the objection(s) including any resulting adverse effects,

13 the clause(s) of the procedures or the standard(s) that are at issue, actions or inaction that are at

14 issue, and the specific remedial action(s) that would satisfy the appellant’s concerns. Previous

15 efforts to resolve the objection(s) and the outcome of each shall be noted. The appellant shall

16 include complete documentation of all claims in the appeal brief. Within 20 days of receipt of the

17 | appeal brief, the LMSCEC Recording Secretary shall send the appellant a written

18 acknowledgment of receipt of the appeal brief, shall send the appellee (the Chair of the WG at

19 issue or the LMSC Chair) a copy of the appeal brief and acknowledgment, and shall send the

20 parties a written notice of the time and location of the hearing (“hearing notice”) with the appeals

21 panel. The hearing with the appeals panel shall be scheduled at the location set for, and during

22 the period of, the first LMSC plenary session (nominally Wednesday evenings) that is at least 60

23 | days after mailing of the hearing notice by the LMSCEC Recording Secretary.

24

25 **7.1.6.3 Reply brief**

26

27 Within 45 days after receipt of the hearing notice, the appellee should send the appellant and

28 | LMSCEC Recording Secretary a written reply brief, specifically addressing each allegation of

29 fact in the appeal brief to the extent of the appellee’s knowledge. The appellee shall include

30 complete documentation supporting all statements contained in the reply brief.

31

32 **7.1.6.4 Appeals Panel**

33

34 The IEEE 802 EC Chair shall appoint from the appeals pool an appeals panel consisting of a

35 chair and two other members of the panel who have not been directly involved in the matter in

36 dispute, and who will not be materially or directly affected by any decision made or to be made

37 in the process of resolving the dispute. At least two members shall be acceptable to the appellant

38 and at least two shall be acceptable to the appellee. If the parties to the appeal cannot agree on an

39 appeals panel within a reasonable amount of time, the whole matter shall be referred to the full

40 EC for Consideration.

41

1 **7.1.6.5 Conduct of the Hearing**

2
3 The hearing shall be open except under the most exceptional circumstances and at the discretion
4 of the EC chair. The appellant has the burden of demonstrating adverse effects, improper actions
5 or inaction, and the efficacy of the requested remedial action. The appellee has the burden of
6 demonstrating that the committee took all actions relative to the appeal in compliance with its
7 procedures and that the requested remedial action would be ineffective or detrimental. Each
8 party may adduce other pertinent arguments, and members of the appeals panel may address
9 questions to individuals before the panel. The appeals panel shall only consider documentation
10 included in the appeal brief and reply brief, unless

- 11
12 a) Significant new evidence has come to light; and
13 b) Such evidence reasonably was not available to the appellant or appellee, as appropriate,
14 at the time of filing; and
15 c) Such evidence was provided by the appellant or appellee, as appropriate, to the other
16 parties as soon as it became available.
17

18 This information shall be provided at least two weeks before the date of the appeals panel
19 hearing.
20

21 The rules contained in the current edition of *Robert's Rules of Order Newly Revised (latest*
22 *edition)* shall apply to questions of parliamentary procedure for the hearing not covered herein.
23

24 **7.1.6.6 Appeals Panel Decision**

25
26 The appeals panel shall render its decision in writing within 30 days of the hearing, stating
27 findings of fact and conclusions, with reasons there for, based on a preponderance of the
28 evidence. Consideration may be given to the following positions, among others, in formulating
29 the decision:
30

- 31 a) Finding for the appellant, remanding the action to the appellee, with a specific statement
32 of the issues and facts in regard to which fair and equitable action was not taken;
33 b) Finding against the appellant, with a specific statement of the facts that demonstrate fair
34 and equitable treatment of the appellant and the appellant's objections;
35 c) Finding that new, substantive evidence has been introduced, and remanding the entire
36 action to the appropriate group for reconsideration.
37

38 **7.1.6.7 Request for Re-hearing**

39
40 The decision of the appeals panel shall become final 30 days after it is issued, unless one of the
41 parties files a written notice of request for re-hearing prior to that date with the [LMSCEC](#)
42 Recording Secretary, in which case the decision of the appeals panel shall be stayed pending
43 review by the EC at its next meeting. At that time, the EC shall decide
44

- 1 a) To adopt the report of the appeals panel, and thereby deny the request for re-hearing; or
- 2 b) To direct the appeals panel to conduct a re-hearing.

3
4 Further complaints if a re-hearing is denied shall be referred to the Computer Society SAB.
5

6 **7.1.6.8 Further Appeals**

7
8 Appeals and complaints concerning ~~Executive Committee~~EC decisions shall be referred to the
9 Computer Society SAB.
10

11 **7.2 LMSC ~~WG~~Working Groups (WGs)**

12 If the IEEE-SA Standards Board approves a PAR, forwarded by the LMSC, that assigns the
13 work to a new LMSC ~~Working Group~~WG, that ~~Working Group~~WG immediately comes into
14 existence.

15 **7.2.1 Function**

16
17 The function of the ~~Working Group~~WG is to produce draft standards, recommended practices or
18 guides. This document must be within the scope of the LMSC, the scope of the ~~Working~~
19 ~~Group~~WG as determined by the EC and an approved PAR or a PAR approved by the EC that is
20 under consideration by the IEEE-SA Standards Board. After the approval of a ~~Working~~
21 ~~Group~~WG's standard, the ~~Working Group~~WG is responsible to revise and maintain its
22 documents.
23

24 The WG should periodically review and confirm that the five criteria used to approve its PAR
25 still reflect the state of the project. Should a WG need to modify the responses to the five criteria
26 during development in order to accurately reflect the state of the project, the modified responses
27 shall be submitted to the EC for approval.
28

29 **7.2.2 WG Officers**

30
31 LMSC ~~Working Group~~WG Chairs and Vice Chairs shall be elected by the ~~Working Group~~WG
32 and confirmed by the LMSC ~~Executive Committee~~EC. Terms shall end at the end of the first
33 plenary session of the next even numbered year. WG Chairs must also be members of any grade
34 of the IEEE and members of the IEEE-SA.
35

36 Initial appointments and temporary appointments to fill vacancies due to resignations or
37 removals for cause, may be made by the Chair of the LMSC, and shall be valid until the end of
38 the next plenary session.
39

40 An individual who has served as Chair or Vice Chair of a given ~~Working Group~~WG for a total of
41 more than eight years in that office may not run for election to that office again, unless the

1 question of allowing that individual to run for election again is approved by a 75% vote of the
2 ~~Working Group~~WG one plenary in advance of that election.

3
4 A ~~Working Group~~WG may elect a new Chair at any plenary session, subject to confirmation by
5 the LMSC ~~Executive Committee~~EC. A motion to hold an election must be passed by 75% of the
6 voting members of the ~~Working Group~~WG present.
7

8 **7.2.3 Membership**

9
10 Membership belongs to the individual, not an organization, and may not be transferred.
11

12 **7.2.3.1 Establishment**

13
14 All persons participating in the initial meeting of the ~~Working Group~~WG become members of
15 the ~~Working Group~~WG. Thereafter, membership in a ~~Working Group~~WG is established by
16 participating in the meetings of the ~~Working Group~~WG at two out of the last four plenary
17 sessions, and (optionally) a letter of intent to the Chair of the ~~Working Group~~WG. Participation
18 is defined as at least 75% presence at a meeting. Membership starts at the third plenary session
19 attended by the participant. One duly constituted interim ~~Working Group~~WG or ~~T~~task ~~G~~group
20 meeting may be substituted for the ~~Working Group~~WG meetings at one of the two pPlenary
21 sessions (See subclause 7.2.3.5 Meetings and Participation).
22

23 Attendees of the ~~Working Group~~WG who have not achieved member status are known as
24 observers. Liaisons are those designated individuals who provide liaison with other working
25 groups or standards bodies.
26

27 Although not a requirement for membership in the ~~Working Group~~WG, participants are
28 encouraged to join the IEEE, IEEE Standards Association (IEEE-SA) and the IEEE Computer
29 Society. Membership in the IEEE SA will also allow participants to join the sponsor level ballot
30 group. ~~Working Group~~WG members shall participate in the consensus process in a manner
31 consistent with their professional expert opinion as individuals, and not as organizational
32 representatives.
33

34 Membership may be declared at the discretion of the ~~Working Group~~WG Chair (e.g. for
35 contributors by correspondence or other significant contributions to the ~~Working Group~~WG).
36

37 **7.2.3.2 Retention**

38
39 Membership is retained by participating in at least two of the last four plenary session meetings.

40 One duly constituted interim ~~Working Group~~WG or task group meeting may be substituted for
41 one of the two plenary meetings.
42

1 **7.2.3.3 Loss**

2
3 | Membership may be lost if two of the last three ~~Working Group~~WG letter ballots are not
4 | returned, or are returned with an abstention other than “lack of technical expertise.” This rule
5 | may be excused by the ~~Working Group~~WG Chair if the individual is otherwise an active
6 | participant. Membership may be re-established as if the person were a new candidate member.
7

8 **7.2.3.4 Rights**

9
10 | The rights of the ~~Working Group~~WG members include the following:
11

- 12 a) To receive a notice of the next meeting.
- 13 b) To receive a copy of the minutes.
- 14 c) To vote at meetings if and only if present.
- 15 | d) To vote in ~~Working Group~~WG Letter Ballots.
- 16 e) To examine all Working Draft documents.
- 17 | f) To lodge complaints about ~~Working Group~~WG operation with the ~~Executive~~
18 ~~Committee~~EC.
- 19 | g) To petition the ~~Executive Committee~~EC in writing. (A petition signed by two-thirds of
20 | the combined members of all ~~Working Groups~~WG forces the ~~Executive Committee~~EC to
21 | implement the resolution.)
22

23 **7.2.3.5 Meetings and Participation**

24
25 | ~~Working Group~~WG meetings are open to anyone who has complied with the registration
26 | requirements (if any) for the meeting. Only members have the right to participate in the
27 | discussions. The privilege of observers to participate in discussions may be granted by the
28 | ~~Working Group~~WG Chair.
29

30 **7.2.4 Operation of the ~~Working Group~~WG**

31
32 | The operation of the ~~Working Group~~WG has to be balanced between democratic procedures that
33 | reflect the desires of the ~~Working Group~~WG members and the ~~Working Group~~WG Chair’s
34 | responsibility to produce a standard, recommended practice, or guide in a reasonable amount of
35 | time. *Robert’s Rules of Order Newly Revised* (latest edition) is the reference for parliamentary
36 | procedures.
37

38 | If, in the course of standards development, any ~~Working Group~~WG utilizes a standard developed
39 | or under development by another organization within Project 802, by another IEEE group, or by
40 | an external organization, the ~~Working Group~~WG shall reference that standard and not duplicate
41 | it.
42

1 If a standard cannot be utilized as is and modifications or extensions to the standard are
2 necessary, the ~~Working Group~~WG should:

- 3
- 4 a) Define the requirements for such changes,
- 5 b) Make these requirements known to the other organization, and
- 6 c) Solicit that organization for the necessary changes.
- 7

8 Only if the required changes cannot be obtained from the other organization, can the ~~Working~~
9 ~~Group~~WG, with the concurrence of the ~~Executive Committee~~EC, develop these changes itself.
10 Even in the latter case, the ~~Working Group~~WG should seek the concurrence of the other
11 organization by joint meetings, joint voting rights, or other mechanisms on the changes being
12 made.
13
14

15 **7.2.4.1 Chair's Function**

16
17 The Chair of the ~~Working Group~~WG decides procedural issues. The ~~Working Group~~WG
18 members and the Chair decide technical issues by vote. The ~~Working Group~~WG Chair decides
19 what is procedural and what is technical.
20

21 **7.2.4.2 Voting**

22
23 There are two types of votes in the ~~Working Group~~WG. These are votes at meetings and votes
24 by letter ballot.
25

26 7.2.4.2.1 Voting at Meeting

27
28 A vote is carried by a 75% approval of those members voting "Approve" and "Do Not
29 Approve". No quorum is required at meetings held in conjunction with the pPlenary session
30 since the pPlenary session time and place is established well in advance. A quorum is required at
31 other ~~Working Group~~WG meetings. The ~~Working Group~~WG Chair may vote at meetings. A
32 quorum is at least one-half of the ~~Working Group~~WG members.
33

34 7.2.4.2.2 Voting by Letter Ballots

35
36 The decision to submit a draft standard or a revised standard to the Sponsor Ballot Group must
37 be ratified by a letter ballot. Other matters may also be decided by a letter ballot at the discretion
38 of the ~~Working Group~~WG Chair. The ~~Working Group~~WG Chair may vote in letter ballots.
39

40 The ballot shall contain three choices:

- 41
- 42 • Approve. (May attach non-binding comments.)

- Do Not Approve. (Must attach specific comments on what must be done to the draft to change the vote to “Approve”.)
- Abstain. (Must include reasons for abstention.)

To forward a draft standard or a revised standard to the ~~Executive Committee~~EC for approval for Sponsor Ballot Group voting, a letter ballot (or confirmation letter ballot) must be done first within the ~~Working Group~~WG. A 75 percent approval of the ~~Working Group~~WG confirmation letter ballot is necessary with at least 50 percent of the members voting. The 75 percent figure is computed only from the “Approve” and “Do Not Approve” votes. Subsequent confirmation ballots to the Sponsor Ballot Group do not require ~~Executive Committee~~EC approval.

The ~~Working Group~~WG Chair determines if and how negative votes in an otherwise affirmative letter ballot are to be resolved. Normally, the ~~Working Group~~WG meets to resolve the negatives or assigns the task to a ballot resolution group.

There is a recirculation requirement. For guidance on the recirculation process see subclause 5.4.3.2 Resolution of comments, objections, and negative votes in the *IEEE-SA Standards Board Operations Manual*.

The letter ballot shall be conducted by electronic means. The response time shall be at least thirty days. However, for recirculation ballots, and for letter ballots not related to the submission of draft standards, the response time shall be at least fifteen days.

Submission of a draft standard or a revised standard to the ~~Executive Committee~~EC must be accompanied by any outstanding negative votes and a statement of why these unresolved negative votes could not be resolved.

7.2.4.2.3 Roll Call Votes

A roll call vote may be held at the discretion of the chair.

A roll call vote may be called for by any member of the group, without obtaining the floor, at any time after the question has been put, even after the vote has been announced and another has the floor and it is called for before another motion has been made. The call does not require a second, and cannot be debated, amended, or have any other subsidiary motion applied to it.

Upon a call for a roll call vote, the chair shall proceed according to these three options.

- The chair may hold the vote
- The chair may hold a vote on the question of whether to hold a roll call vote. This vote must achieve greater than 25% of the members voting Yes to pass. The 25% is counted by dividing the count of Yes votes by the sum of the Yes and No votes. This vote is not subject to a roll call vote.

1 c) The chair may refuse the request for a roll call vote if this privilege is being abused by
2 members repeatedly calling for a roll call vote. The chair shall allow both the majority
3 and minority reasonable and fair use of the roll call vote.
4

5 Each roll call vote and call for a roll call vote shall be recorded in minutes of the meeting. For
6 each roll call vote, the minutes shall include each member's name, their vote and the final result
7 of the vote. For each call for a roll call vote, the minutes shall include:
8

- 9 i. The name of the requestor of the roll call vote.
10 ii. The decision of the chair on the request and, when applicable, the results of the vote on
11 whether to hold the roll call or the reasons of the chair for denying the roll call vote.
12
13
14

15 **7.2.4.3 ~~Working Group~~WG Chair's Responsibilities**

16
17 The main responsibility of the ~~Working Group~~WG Chair is to enable the ~~Working Group~~WG to
18 operate in an orderly fashion, produce a draft standard, recommended practice, or guide, or to
19 revise an existing document. Responsibilities include:
20

- 21 a) Call meetings and issue a notice for each meeting at least four weeks prior to the meeting.
22 b) Issue meeting minutes and important requested documents to members of the ~~Working~~
23 ~~Group~~WG, the ~~Executive Committee~~EC, and liaison groups.
24

25 The meeting minutes are to include:

- 26 • List of participants
- 27 • Next meeting schedule
- 28 • Agenda as revised at the start of the meeting
- 29 • Voting record (Resolution, Mover / Second, Numeric results)
30

31 Minutes shall be made available within 45 days of the meeting to the attendees of the
32 meeting, all members, and all liaisons.

- 33 c) Maintain liaison with other organizations at the direction of the ~~Executive Committee~~EC
34 or at the discretion of the ~~Working Group~~WG Chair with the approval of the ~~Executive~~
35 ~~Committee~~EC.
36 d) Ensure that any financial operations of the WG comply with the requirements of Section
37 7.2.6 of these ~~Policies and Procedures~~P&P.
38 e) Speak on behalf of the ~~Working Group~~WG to the ~~Executive Committee~~EC and, in the
39 case of a "Directed Position", vote the will of the ~~Working Group~~WG in accordance with
40 the Directed Position Procedure of this P&P (See subclause 9.1 Procedure for
41 Establishing a Directed Position).
42 f) Establish ~~Working Group~~WG rules beyond the ~~Working Group~~WG rules set down by the
43 ~~Executive Committee~~EC. These rules must be written and all ~~Working Group~~WG
44 members must be aware of them.
45 g) Assign/unassign subtasks and task leaders (e.g., secretary, subgroup chair, etc.)

- 1 | h) Determine if the ~~Working Group~~WG is dominated by an organization and, if so, treat that
2 | organizations' vote as one (with the approval of the ~~Executive Committee~~EC).
3 | i) Manage balloting of projects (see 7.2.4.2.2).
4 |

5 | **7.2.4.4 Removal of ~~Working Group~~WG Chairs or Vice Chairs**

6 |
7 | The procedures specified in subclause 7.2.2 (WG Officers) are to be followed under normal
8 | circumstances. If a ~~Working Group~~WG or TAG feels it is being inappropriately led or
9 | significantly misrepresented by its Chair or a Vice Chair and is unable to resolve the issue
10 | internal to the ~~Working Group~~WG or TAG, then it is the responsibility of that ~~Working~~
11 | ~~Group~~WG to make and pass (75% of voting members present required) a motion to that effect
12 | and so notify the ~~EC802 Executive Committee~~ with the recommended action and all supporting
13 | rationale in written form. The process for removal of committee Chairs, Vice Chairs, and other
14 | officers is prescribed in the ~~IEEE Computer Society, Standards Activities Board "SAB Policies~~
15 | ~~and Procedures~~SAB P&P" subclause 4.8.3.1, Removal of Chairs and Vice Chairs, is included
16 | here with relative terminology (e.g., subsidiary committee) translated to LMSC terms (e.g.,
17 | ~~Working Group~~WG).
18 |

19 | The ~~ECLMSC Executive Committee~~ may remove the Chair or a Vice Chair of a ~~Working~~
20 | ~~Group~~WG or TAG for cause.

21 |
22 | The Chair of the ~~ECLMSC Executive Committee~~ shall give the individual subject to
23 | removal a minimum of thirty (30) days written mail notice, with proof of delivery, of a
24 | meeting of the ~~ECLMSC Executive Committee~~ at which the removal is to be decided.
25 | The individual subject to removal shall have the opportunity to confront the evidence for
26 | removal, and to argue in his or her behalf.
27 |

28 | In the clear and documented case of gross misconduct, the Chair of the ~~ECLMSC Executive~~
29 | ~~Committee~~ may suspend the Chair of a ~~Working Group~~WG, with the concurrence of the IEEE
30 | Computer Society VP of Standards. A meeting or teleconference of the ~~ECLMSC Executive~~
31 | ~~Committee~~ shall be convened as soon as practical, but in no case later than thirty (30) days, to
32 | review the suspension as provided for above.
33 |

34 | **7.2.4.5 Precedence of Operating Rules**

35 |
36 | If ~~Working Group~~WG operation conflicts with the LMSC ~~Policies and Procedures~~P&P, then the
37 | LMSC ~~Policies and Procedures~~P&P shall take precedence.
38 |

39 | **7.2.5 Deactivation of ~~WG~~Working Group**

40 |
41 | If the ~~Working Group~~WG has produced standards or recommended practices, the ~~WG~~Working
42 | ~~Group~~ should be hibernated. The ~~ECLMSC Executive Committee~~ may deactivate a ~~WG~~Working
43 | ~~Group~~ if it has not produced standards or recommended practices.

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7.2.5.1 Hibernation of a WGWorking Group

A WGWorking Group can be hibernated at the request of the WGWorking Group chair and the approval of the ECLMSC Executive Committee. The hibernating WGWorking Group can be returned to active status by the ECLMSC Executive Committee.

If at least 50% of the most recent membership roster attends the plenary session where the WG is reactivated, the membership shall be comprised of that roster, and the normal rules for gaining and losing membership will apply. If less than 50% of the membership attends, the procedure for developing membership in a new WG shall be followed.

7.2.5.1.1 Core of Experts

The chair of a hibernating WGWorking Group shall maintain a list of experts that are available to answer questions and provide clarification about the standards and/or recommended practices generated by the WGWorking Group.

7.2.5.1.2 Inquiries/Interpretations

Inquiries and interpretations of standards and recommended practices that were generated by a hibernating WGWorking Group shall be directed to the chair of the hibernating WGWorking Group. The chair shall attempt to resolve the inquiry or interpretation using the core of experts, as necessary. If the chair is unable to resolve the inquiry or interpretation, the chair may petition the ECLMSC Executive Committee to activate the WGWorking Group.

7.2.5.1.3 ~~Executive Committee~~EC Representation

Hibernating WGWorking Group Chairs become non-voting members of the EC after their WGWorking Group enters hibernation. The LMSC Chair may appoint new non-voting hibernating WGWorking Group chairs to replace vacancies as soon as practical, subject to confirmation by the ECLMSC Executive Committee at the next pPlenary meeting. A non-voting Hibernating WGWorking Group Chair of the Executive CommitteeEC shall be recognized as a full member of the EC, having all rights and meeting privileges except the right of voting on EC motions.

7.2.5.2 Disbanding a WGWorking Group

1 After all standards, recommended practices, and Technical Reports for which a hibernating
2 ~~working group~~WG is responsible are withdrawn or transferred to another group or groups, an
3 ~~Executive Committee~~EC electronic ballot of 30 days minimum duration will be conducted to
4 determine whether the hibernating ~~WG~~working group will be disbanded.

5
6 If the ~~Executive Committee~~EC electronic ballot on disbanding the group passes, the
7 ~~WG~~Working Group is disbanded. If the ballot fails, then the ~~Executive Committee~~EC Chair shall
8 determine a future date when the disbanding of the group will be rebaloted.
9

10 **7.2.6 ~~WG~~Working Group Financial Operations**

11
12 A WG may wish or need to conduct financial operations in order for it to host interim sessions
13 for itself or one or more of its sub groups or to acquire goods and/or services that it requires for
14 its operation.

15
16 A WG that claims any beneficial interest in or control over any funds or financial accounts
17 whose aggregate value is \$500 or more is determined to have a treasury and said to be “operating
18 with treasury”.

19
20 A WG may operate with treasury only if it requests permission and is granted permission by the
21 LMSC EC to operate with treasury and thereafter complies with the rules of this subclause. The
22 WG request to operate with treasury shall be supported by a motion that has been approved by
23 the WG. The WG may, again by WG approved motion, surrender EC granted permission to
24 operate with treasury. The LMSC EC may withdraw permission for a WG to operate with
25 treasury for cause.

26
27 A WG sub group shall not operate with treasury.
28

29 **7.2.6.1 WG Financial Operation with Treasury**

30
31 The financial operations of a WG operating with treasury shall comply with the following rules.

32
33 a) The WG shall conduct its financial operations in compliance with all IEEE, IEEE-SA,
34 and IEEE Computer Society rules that are applicable to the financial operations of
35 standards committees. As of January 2005, the documents containing these rules include,
36 but are not limited to, the following:

- 37
- 38 • IEEE Policies, Sections 11 IEEE Financial Matters and 12.6 Contracts with
- 39 Exclusive Rights
- 40 • IEEE Financial Operations Manual (FOM), Sections FOM.3 Asset/Liability
- 41 Management and FOM.8 Contract and Purchasing Orders
- 42 • Computer Society Policies and Procedures Manual, Section 16.7.1 Checking
- 43 Accounts

- 1 • IEEE-SA Standards Board Operations Manual 5.3 Standards development
- 2 meetings
- 3
- 4 b) The WG shall have a Treasurer who is responsible to the WG Chair for the operation of
- 5 the WG treasury, for ensuring that the operation of the WG treasury and the WG
- 6 financial accounts complies with these Policies and Procedures and follows prudent
- 7 financial procedures.
- 8 c) The WG shall have an Executive Committee (WG EC) comprised of, at minimum, the
- 9 WG Chair, Vice Chairs, Secretaries, and Treasurer. The WG Chair shall be the Chair of
- 10 the WG EC.
- 11 d) The WG shall open and maintain a WG bank account whose title shall begin with “IEEE”
- 12 followed by the numerical identity of the WG (e.g., IEEE 802.1). The LMSC Chair shall
- 13 be an authorized signer for the account. The LMSC Treasurer shall be notified within 30
- 14 days of the bank, account number, account title, and authorized signers for the account
- 15 when the account is opened and whenever any of these items change.
- 16 e) The WG may open and maintain one or more WG merchant accounts for the settlement
- 17 of credit card transactions. The title of each merchant account shall begin with “IEEE”
- 18 followed by the numerical identity of the WG (e.g., IEEE 802.1). Each WG merchant
- 19 account shall be linked to the WG bank account. The LMSC Treasurer shall be notified
- 20 within 30 days of each merchant account, account number, and account title when the
- 21 account is opened and whenever any of these items change.
- 22 f) All funds collected and/or received by a WG shall be deposited in the WG bank account.
- 23 g) All funds retained by a WG shall be held in the WG bank account or in IEEE approved
- 24 investments.
- 25 h) The WG may disburse and/or retain funds as appropriate to pay approved expenses and
- 26 maintain an approved operating reserve.
- 27 i) Signature authority for any WG financial account is restricted to those IEEE, IEEE-SA,
- 28 and Computer Society officers and/or staff that are required to have signature authority
- 29 by IEEE, IEEE-SA, and Computer Society regulations; to LMSC officers and to the
- 30 officers of the WG owning the account, with the sole exception that, at most, two other
- 31 individuals may be granted signature authority for the WG bank account for the sole
- 32 purpose of assisting the WG in conducting its financial operations, provided that each
- 33 such individual has provided agreements, indemnity, and/or bonding satisfactory to the
- 34 IEEE. The granting of signature authority to any individual other than the WG Treasurer
- 35 and those required by IEEE, IEEE-SA, Computer Society, or LMSC regulations shall be
- 36 by motion that is approved by the WG.
- 37 j) The WG shall prepare and maintain its own accounting and financial records.
- 38 k) The WG Treasurer shall prepare for each WG plenary session a financial report that
- 39 summarizes all of the WG financial activity since the last such report. The report shall be
- 40 submitted to the LMSC Treasurer before the opening of the session, shall be presented to
- 41 WG membership at the opening plenary meeting of the session, and shall be included in
- 42 the session minutes. The format and minimum content of the report shall be as specified
- 43 by the LMSC Treasurer.
- 44 l) The WG Treasurer shall prepare and submit an audit package for each calendar year
- 45 during any portion of which the WG operated with treasury, as required by IEEE
- 46 regulations. The package shall contain all material required by IEEE Audit Operations

1 for an IEEE audit and shall be submitted to the IEEE for audit or to the LMSC Chair for
2 local audit, as required by IEEE audit regulations. If the package is submitted to the
3 IEEE, a summary of the WG's financial operations for the audit year shall be submitted
4 to the LMSC Chair at the same time that the audit package is submitted to the IEEE. The
5 format and minimum content of the summary shall be as specified by the LMSC
6 Treasurer.

- 7 m) The maximum and minimum size of the WG operating reserve may be set by the LMSC
8 EC.
- 9 n) All WG expenditures require the approval of the WG EC, with the sole exception that
10 each WG EC member may be reimbursed from the WG treasury for up to \$200 of WG
11 expenses incurred between WG sessions without specific approval of the WG EC.
- 12 o) The location, date, and fees for each interim session hosted or co-hosted by the WG
13 require the approval of the WG EC.
- 14 p) For each interim session hosted or co-hosted by the WG, all reasonable and appropriate
15 direct expenses for goods and/or services for the session that are provided under
16 contract(s) and/or agreement(s) that are exclusively for that interim session are approved
17 when the WG EC approves the location, date, and fees for the session.
- 18 q) Any contract and/or agreement to which the WG is a party, whose total value is greater
19 than \$5000 and that is not for goods and/or services exclusively for a single interim
20 session hosted or co-hosted by the WG, requires the approval of the WG EC and the
21 LMSC EC before execution.
- 22 r) The WG shall maintain an inventory of each item of equipment that it purchases that has
23 a useful life of greater than 6 months and purchase price of greater than \$50. A copy of
24 the inventory shall be provided to the LMSC Treasurer during December of each year.
25

26 ***7.2.6.2 WG Financial Operation with Joint Treasury***

27
28 Two or more WG(s) and/or TAG(s), with the approval of the LMSC EC, may operate with a
29 single joint treasury. WG(s) and/or TAG(s) that operate with a joint treasury shall have no other
30 treasury. The merger of separate WG/TAG treasuries into a joint treasury or the splitting of a
31 joint treasury into separate WG/TAG treasuries requires approval of the LMSC EC. Each such
32 action shall be supported by a motion from each of the involved WG(s) and/or TAG(s) that
33 requests the action and that has been approved by the WG/TAG.
34

35 The operation of a joint treasury is subject to the same rules as a WG operating with treasury
36 with the following exception: The Executive Committee over seeing the joint treasury shall be a
37 Joint Executive Committee that is the union of the Executive Committees of the WG(s)/TAG(s)
38 operating with the joint treasury. The Chair of the Joint EC shall be selected by the Joint
39 Executive Committee and shall be the Chair of one of the participating WG(s)/TAG(s).
40

41 ***7.3 LMSC Technical Advisory Groups (TAGs)***

42

1 The function of a ~~Technical Advisory Group~~ TAG is to provide assistance to ~~WG~~ Working
2 ~~Groups~~ and/or the ~~Executive Committee~~ EC. The TAGs operate under the same rules as the
3 ~~WG~~ Working Groups, with the following exceptions:
4

- 5 a) A TAG may not write standards, but may write recommended practices and guides, and
6 documents on specialty matters within the purview of the TAG.
- 7 b) A TAG is established by the ~~Executive Committee~~ EC at the request of one or more
8 ~~WG~~ Working Groups, or at the discretion of the ~~Executive Committee~~ EC, to provide
9 assistance within a technical topic area.
- 10 c) The primary responsibility of a TAG is to provide assistance within its topical area as
11 specifically requested by one or more of the ~~WG~~ Working Groups and/or the ~~Executive~~
12 ~~Committee~~ EC.
- 13 d) The decision to submit a draft recommended practice or draft guide to Sponsor Ballot
14 Group voting shall be governed by the same rules as those governing the submission of a
15 draft standard (see subclause 7.2.4.2.2 Voting by Letter Ballots).
- 16 e) Any document that is represented as the position of a TAG must have attained approval
17 per the voting procedures in subclause 7.2.4.2.
- 18 f) Between ~~p~~Plenary and ~~i~~Interim meetings, the Chair of the TAG is empowered to
19 schedule teleconference meetings to allow the TAG to conduct business as required,
20 provided that the date and time of the teleconference and agenda are published on the
21 TAG website and e-mail reflector at least 5 calendar days before the meeting.
- 22 g) Votes on TAG documents other than recommended practices and guides may be
23 conducted verbally during teleconference meetings if a majority of the TAG members are
24 present.
- 25 h) Votes on TAG documents other than recommended practices and guides may be
26 conducted via electronic balloting. The minimum ballot period shall be 5 calendar days.
- 27 i) A TAG shall maintain an area on the LMSC web site to post the minutes, conference
28 announcements, submissions, drafts, and output documents.
- 29 j) A TAG shall maintain an e-mail distribution list of its members for making the
30 announcements of teleconferences and availability of important information on the
31 TAG's web site pages.
32

33 **7.4 Study Groups**

34

35 Study groups are formed when enough interest has been identified for a particular area of study,
36 such as a new access method or modified use of an existing access method. Two types of Study
37 Groups are specified:
38

- 39 a) An Executive Committee Study Group (ECSG) is initiated by vote of the ~~Executive~~
40 ~~Committee~~ EC and the ECSG Chair is appointed and approved by the ~~Executive~~
41 ~~Committee~~ EC. The ECSG Chair has the same responsibilities as a ~~WG~~ Working Group
42 Chair as specified in subclause 7.2.4.1 but does not have ~~Executive Committee~~ EC voting
43 rights.
44

1 | b) A Working Group Study Group (WGSG) is initiated by vote of the ~~WGWorking Group~~
2 | or TAG and approved by the ~~Executive CommitteeEC~~. The WGSG Chair is appointed
3 | and approved by the ~~WGWorking Group~~ or TAG.
4 |

5 | The Study Group shall have a defined task with specific output and a specific time frame
6 | established within which it is allowed to study the subject. It is expected that the work effort to
7 | develop a PAR will originate in an ECSG or WGSG. A Study Group shall report its
8 | recommendations, shall have a limited lifetime, and is chartered session-to-session. A study
9 | group is expected to submit a PAR to the EC for consideration within two plenary sessions of
10 | it's initiation. After the Study Group recommendations have been accepted by the parent body,
11 | the Study Group will be disbanded no later than the end of the next ~~pPlenary sSession~~.

12 |
13 | The decision of whether to utilize an existing ~~WGWorking Group~~ or TAG, or to establish a new
14 | ~~WGWorking Group~~ or TAG to carry out recommended work items shall be made by the
15 | ~~Executive CommitteeEC~~ with due consideration of advice from the Study Group.
16 |

17 | **7.4.1 Study Group Operation**

18 |
19 | Progress of each Study Group shall be presented at ~~oOpening pPlenary~~ meetings by the
20 | ~~WGWorking Group~~, TAG, or ECSG Chair. Study Groups may elect officers other than the
21 | Chair, if necessary, and will follow the general operating procedures for ~~WGWorking Groups~~
22 | specified in subclauses 7.2.3.5 and 7.2.4. Because of the limited time duration of a Study Group,
23 | no letter ballots are permitted.
24 |

25 | **7.4.2 Voting at Study Group Meetings**

26 |
27 | Any person attending a Study Group meeting may vote on all motions (including recommending
28 | approval of a PAR). A vote is carried by 75% of those present and voting "Approve" or
29 | "Disapprove."
30 |

31 | **7.5 Balloting Group**

32 |
33 | IEEE Standards Sponsor Balloting Groups are created in the IEEE Standards Association
34 | through the authorization of the LMSC Chair. Comments received during Sponsor Ballot are to
35 | be considered in a manner consistent with IEEE-SA requirements under a process and as
36 | determined by the ~~WGWorking Group~~.
37 |

38 | Comment resolution meeting leaders are reminded that members of the Balloting Group are
39 | interested parties with respect to comment resolution and shall be given the same notice for
40 | comment resolution meetings that is given to the formulating group. The WG Chair or designee
41 | shall ensure that the notification is sent to the Balloting Group.
42 |

1 **7.5.1 Interest Categories**

2
3 Interest Categories for Sponsor Ballots are determined on a per project/standard basis by the
4 responsible subgroup.
5

6 **8. LMSC SESSIONS**

7
8 | There is no membership requirement for attendance at an LMSC Pplenary session or an interim
9 session of an LMSC subgroup; they are open forums. However, anyone who attends any portion
10 | of a technical meeting that is part of an LMSC pPlenary session or an interim session of an
11 LMSC subgroup is obligated to comply with the registration requirements for the session.

12
13 | For the purposes of these ~~Policies & Procedures~~P&P, a “technical meeting” is defined as, but is
14 | not limited to, any meeting of an LMSC ~~WG~~Working Group, ~~Technical Advisory Group~~TAG,
15 | ~~Executive Committee Study Group~~ECSG, any of their subgroups, or any call for interest at an
16 LMSC session.
17

18 **8.1 Plenary Sessions**

19
20 Plenary sessions are the primary LMSC sessions. All active LMSC WGs and TAGs hold their
21 | plenary sessions during LMSC pPlenary sessions.

22
23 The LMSC may collect fees, usually a registration fee, from all attendees of any portion of any
24 | technical meeting that is a part of an LMSC pPlenary session to cover the expenses of the
25 plenary session and the expenses of operating the LMSC.
26

27 **8.1.1 ~~LAN MAN STANDARDS COMMITTEE~~LMSC PLENARY**

28
29 | The LMSC pPlenary session consists of the oOpening pPlenary meetings, ~~Executive~~
30 ~~Committee~~EC meetings and ~~Working Group~~WG meetings. The pPlenary session may also offer
31 | tutorial programs. If tutorials are offered on Monday, other meetings of 802 subgroups shall not
32 | be scheduled to overlap with the time of the tutorial programs. The pPlenary meeting is a
33 meeting of individuals interested in local and metropolitan area network standards. The function
34 of the plenary meetings is information dissemination:
35

- 36 | a) Status reports from the ~~WG~~Working Groups and ~~Technical Advisory Groups~~TAG.
- 37 | b) Liaison communications to 802 as a whole from other standards organizations such as
38 ASC X3, ECMA, etc.
- 39 | c) Reports on schedules for future Pplenary and ~~WG~~Working Group meetings.
- 40 | d) Announcements and general news.

41

1 | The main objective of the ~~o~~Opening ~~p~~Plenary meeting will be to welcome new attendees and to
2 | inform the 802 membership about what is being done in the ~~WG~~Working Groups and ~~Executive~~
3 | ~~Committee Study Groups~~ECSG. This report must include background on the relationship of the
4 | work to other Groups. It should not be a detailed statement about Standards Numbers and
5 | Progress.
6 |

7 | At most 10 minutes should be taken by each ~~WG~~Working Group for this material.
8 |

9 | Each ~~WG~~Working Group, ~~Technical Advisory Group~~TAG, and ~~Executive Committee Study~~
10 | ~~Group~~ECSG Chair shall provide a status report to the ~~Executive Committee~~LMSC Recording
11 | Secretary no later than one hour after the conclusion of the closing ~~Executive Committee~~EC
12 | meeting. This status report shall include a description of the progress made during the week, as
13 | well as plans for further work and future meetings. The Recording Secretary shall post these
14 | status reports on the 802 web page no later than one week after the close of the plenary
15 | ~~meeting~~session.
16 |

17 | The ~~p~~Plenary meetings are conducted by the LMSC Chair or a designated delegate.
18 |

19 | **8.2 Interim Sessions**

20 |
21 | In addition to plenary sessions, an LMSC WG/TAG or WG/TAG sub group may hold interim
22 | sessions. An interim session may be for a single LMSC WG/TAG or WG/TAG subgroup or it
23 | may be a joint interim session for any combination of LMSC WGs, TAGs, and WG/TAG sub
24 | groups.
25 |

26 | Interim sessions shall have as goals: 1) Reasonable notification (>30 days) in addition to any
27 | announcement given at a Plenary session, and 2) Few last minute shifts in location (<< 1 per
28 | year).
29 |

30 | **8.2.1 Interim Session Hosts**

31 |
32 | Each interim session and joint interim session shall have a Host. The Host is the entity that is
33 | responsible for the financial and logistical planning, and preparation for and execution of the
34 | session.
35 |

36 | An interim session or joint interim session may be hosted by the LMSC, an LMSC WG or TAG
37 | operating with treasury, several LMSC WGs and/or TAGs operating with a joint treasury, or a
38 | non-LMSC entity. LMSC WGs or TAGs not authorized to operate with treasury and LMSC WG
39 | or TAG subgroups may not host an interim session.
40 |

41 | Alternatively, an interim session or joint interim session may be co-hosted (jointly hosted) by
42 | any combination of an LMSC WG or TAG operating with treasury, several LMSC WGs and/or
43 | TAGs operating with a joint treasury, and a non-LMSC entity. Each of the entities co-hosting an
44 | interim session (Co-hosts) shall have approved a written agreement stating the responsibilities

1 and liabilities of each Co-host and the disposition of any surplus funds before any financial
2 commitments are made for the co-hosted session. When an interim session is co-hosted, the term
3 Host means all of the Co-hosts as a single entity.

4
5 The Host may contract with meeting planners and/or other entities to assist it in hosting the
6 session.

7
8 The responsibilities, authorities, and liabilities of a Host are defined in the following list.

- 9
- 10 a) The Host is solely responsible for the finances and the logistical planning, preparation for
11 and execution of the session.
 - 12 b) The Host will consult and coordinate with the Chair(s) of the WG(s)/TAG(s) or
13 WG/TAG sub group(s) participating in the session on the financial and logistical
14 planning, and preparation for and execution of the session.
 - 15 c) The Host is solely responsible for all contracts and agreements that are for goods and/or
16 services exclusively for the session.
 - 17 d) The Host is solely responsible for collecting the fees, if any, from attendees and for
18 paying the session expenses including any penalties.
 - 19 e) The Host is solely responsible for any session deficit and the disposition of any session
20 surplus funds.
- 21

22 **8.2.2 Interim Session Fees**

23
24 The Host of an interim session may collect fees from all attendees of any part of any technical
25 meeting that is part of the session. The fees, usually a registration fee, shall be used to cover the
26 direct expenses of the session and, in some cases, may also be used to cover other WG/TAG
27 operating expenses. The “direct expenses” of a session are those expenses, including penalties,
28 that are incurred for goods and/or services that are completely consumed by the planning,
29 preparation for and/or execution of the session.

30
31 If a WG operating with treasury, or several WGs and/or TAGs operating with a joint treasury,
32 are the Host of an interim or joint interim session, any fees collected from attendees should be
33 deposited respectively in the WG treasury or joint treasury. If several WGs operating with
34 treasury and/or several groups of WGs/TAGS operating with joint treasury co-host a joint
35 interim session, any fees collected from attendees should be deposited in the bank account of one
36 of the co-hosting WGs/TAGs, as specified in the co-hosting agreement.

37
38 If a WG/TAG operating with treasury hosts or co-hosts an interim session for only itself, or
39 several WG(s) and/or TAG(s) operating with a single joint treasury host or co-host a joint
40 interim session for only themselves, the collected fees, if any, may also be used to cover other
41 operating expenses of the participating WG(s)/TAG(s).

42

1 If a WG/TAG operating with treasury hosts or co-hosts a joint interim session for itself or its
2 subgroups and organization units from other WG(s)/TAG(s), or several WG(s)/TAG(s) operating
3 with a joint treasury host or co-host a joint interim session for themselves or their subgroups and
4 organization units from other WG(s)/TAG(s), the collected fees, if any, may also be used to
5 cover other operating expenses of the hosting WG(s)/TAG(s) if, and only if, the fees for the
6 session are agreed to by the Chairs of all of the WG(s)/TAG(s) with an organization unit
7 participating in the session. An “organization unit” of a WG/TAG is defined as the WG/TAG
8 itself or any of its subgroups.
9

10 **8.2.3 Interim Session Financial Reporting**

11
12 A WG/TAG or WG/TAG subgroup shall prepare and submit all financial reports required by
13 IEEE, IEEE-SA, Computer Society, and LMSC regulations on any of its interim sessions for
14 which fees were collected and that did not comply with all of the following requirements:
15

16 The WG/TAG or WG/TAG subgroup was not the Host of the session.

17 The Host complied with the definition of a host in subclause 8.2.1 of these P&P.
18

- 19 a) Neither the WG/TAG or WG/TAG subgroup nor any of its officers had any financial
20 responsibility for the session including any deficit or penalties.
- 21 b) Neither the WG/TAG or WG/TAG subgroup nor any of its officers handled and/or had or
22 exercised any control over any funds either received for the session or disbursed to pay
23 the expenses of the session including penalties.
- 24 c) Neither the WG/TAG or WG/TAG subgroup nor any of its officers had and/or exercised
25 any decision authority over the disposition of any surplus funds from the session.
- 26 d) Neither the WG/TAG or WG/TAG subgroup nor any of its officers have or had any
27 control over or beneficial interest in any surplus funds from the session.

28
29 In the case of an interim session that is hosted by a single non-IEEE entity and for which fees are
30 collected, the usual financial goal is for the session to be non-deficit with a minimum surplus. A
31 recommended way of achieving this is for the Host to commit to a contribution to the session and
32 then reduce that contribution as required to minimize any session surplus. It may be most
33 convenient for the Host to not make the contribution (transfer the funds) until the size of the
34 contribution needed to meet the non-deficit minimum surplus goal is known. If there is a surplus,
35 the Host may retain it or dispose of it in any manner it chooses that does not violate item 6
36 above.
37

38 **8.3 Registration Policy**

39
40 | In order for an individual to become registered for a given LMSC pPlenary or interim session of
41 an LMSC subgroup, the individual must:
42

- 1 a) Have complied with the registration requirements for all previously attended LMSC
2 | pPlenary sessions and interim sessions of LMSC subgroups, including payment of any
3 required registration fees, and
4 b) Have completed a valid registration for the session in question, including payment of any
5 required registration fee.
6

7 | An individual who attends any portion of a technical meeting that is part of an LMSC pPlenary
8 session or an interim session of an LMSC subgroup is obligated to comply with the registration
9 requirements for that session.
10

11 | An individual who attends any portion of a technical meeting that is part of an LMSC pPlenary
12 session or an interim session of an LMSC subgroup but does not comply with the registration
13 requirements for that session, and further has not complied with those requirements within 60
14 days after the end of the session, including payment of any required registration fees, shall be
15 subject to the following sanctions:
16

- 17 i) No participation credit will be granted for said session.
18 ii) Any participation credit acquired before said session toward membership in any LMSC
19 group is revoked.
20 iii) Membership in any 802 group is terminated.
21 iv) No participation credit will be granted for attendance at any subsequent LMSC session
22 until the individual has complied with the registration requirements for all previously
23 attended 802 sessions by the start of said subsequent session.
24

25 An individual who has lost membership in an LMSC group due to failure to comply with the
26 | registration requirements for an LMSC pPlenary or interim session of an LMSC subgroup may
27 again earn membership in an LMSC group as follows:
28

29 | First, comply with the registration requirements for all LMSC pPlenary and interim sessions
30 previously attended by the individual. An individual may not be granted membership in any
31 LMSC group until this requirement is fulfilled.
32

33 Second, acquire the participation credit required for group membership as required for an
34 individual that had never previously attended an LMSC session.
35

36 | The interpretation and implementation of the registration policy for LMSC pPlenary sessions and
37 LMSC hosted interim sessions shall be the responsibility of the LMSC Treasurer and the LMSC
38 | Executive Secretary. Unless otherwise specified in ~~Working Group WG, Technical Advisory~~
39 ~~Group TAG, or Executive Committee Study Group ECSG policies and procedures P&P~~, the
40 interpretation and implementation of the registration policy for interim sessions of LMSC
41 subgroups not hosted by the LMSC shall be the responsibility of the Chair and Treasurer (if any)
42 of the LMSC subgroup(s) holding the session.
43

44 9. Vote

45

9.1 Procedure for Establishing a Directed Position

Members of the ~~LMSC Executive Committee~~EC have a responsibility to act in the best interest of the LMSC as a whole. ~~WG Working Group~~ Chairs have a responsibility to represent their ~~WG Working Group~~ on the ~~Executive Committee~~EC. At times these responsibilities are in conflict with each other.

Decisions of a ~~WG Working Group~~ may be of such a nature that the ~~WG Working Group~~ members deem it necessary to “Direct” the ~~WG Working Group~~ Chair to vote a specific way on ~~Executive Committee~~EC motions related to a ~~WG Working Group~~ decision. When directed, through the process described below, the ~~WG Working Group~~ Chair shall vote as mandated by the ~~WG Working Group~~ resolution for the specified subject on any formal vote(s) in the ~~Executive Committee~~EC. It would be anticipated that the use of a directed (i.e., instructed) vote is an exceptional situation and hence used infrequently, e.g., critical PAR votes, formation of new ~~WG Working Groups~~ and Study Groups.

~~WG Working Group~~ developed positions are not to be considered as automatic "Directed Positions." After a ~~WG Working Group~~ motion has been passed that establishes the ~~WG Working Group~~'s position, a separate Directed Position (75% required to pass per subclause 7.2.4.2 Voting) motion is required to make that ~~WG Working Group~~ Position a Directed Position. A Directed Position motion applies only to a specific, bounded, ~~WG Working Group~~ issue that is to be brought before the ~~Executive Committee~~EC. Directed Position motions may not be combined, nor may any procedure be adopted that diminishes the extraordinary nature of establishing a “Directed Position.”

The ~~WG Working Group~~ Chair, however, has the freedom to express other views in an attempt to persuade members of the ~~Executive Committee~~EC to consider them, however, such views shall be identified as distinct from and not the formal ~~WG Working Group~~ Directed Position. The ~~WG Working Group~~ Chair is required to disclose to the ~~WG Working Group~~ his/her intent to offer a position contrary to a Directed Position. When presenting a Directed Position to the ~~Executive Committee~~EC, the ~~WG Working Group~~ Chair is obligated to present and support the ~~WG Working Group~~'s Directed Position Motion with voting results, along with pros and cons behind the motion.

10. Communications

All Sponsor officers should use Sponsor letterhead if available, or email notification, when corresponding on behalf of Sponsor activities.

10.1 Formal Internal Communication

If correspondence between subcommittees (~~working groups~~WG, task groups, task forces or other LMSC organization) involves issues or decisions (that is, non-routine matters) affecting other

1 subcommittees, copies should be sent to all affected subcommittee chairs, and the Secretary of
2 the lowest committee (EC, WG, etc) with authority over all affected subcommittees.
3

4 **11. Interpretations**

5
6 The policies of subclause [5.9](#) of the *IEEE-SA Standards Board Operations Manual* shall be
7 followed. The EC is the body that will take the required Sponsor vote to approve the proposed
8 interpretation.
9

10 **12. Appeals**

11
12 Appeals are achieved either using processes defined in WG/TAG P&P, or as defined in
13 subclause 7.1.6.
14

15 **13. Parliamentary Procedures**

16
17 On questions of parliamentary procedure not covered in these Procedures, Roberts Rules of
18 Order (revised) may be used to expedite due process.
19

20 **14. Position Statements for Standards**

21
22 All external communications shall comply with subclause [5.1.4](#) of the *IEEE-SA Standards Board*
23 *Operations Manual*.
24

25 ***14.1 Procedure for Coordination with Other Standards Bodies***

26
27 These procedures apply to communications with other standards bodies or similar entities.
28

29 **14.1.1 IEEE 802 communications**

- 30
- 31 • Communications from the LMSC to external standards bodies shall not be released
32 without prior approval by the EC. Such approval indicates that the communication
33 represents the position of IEEE 802.
 - 34 • All communications by IEEE 802 with external standards bodies shall be issued by the
35 LMSC Chair and shall be copied to the EC.
36

1 | **14.1.2 ~~Working Group~~WG or TAG communications**

- 2 |
- 3 | • ~~WG~~Working Group communications with external standards bodies that are not
 - 4 | "Information Only" should be copied to affected members of the EC.
 - 5 | • ~~WG~~Working Group communications with external standards bodies shall not imply that
 - 6 | they represent the position of IEEE or IEEE 802. They shall be issued by the
 - 7 | ~~WG~~Working Group or TAG Chair(s) and the LMSC Chair shall be included in the
 - 8 | distribution list.
- 9 |

10 | EC members receiving incoming liaison letters from external standards bodies shall forward a

11 | copy to the LMSC Chair, and, as applicable, the relevant ~~WG~~Working Group or TAG Chair.

12 |

13 | Informal communications shall not imply that they are a formal position of IEEE 802 or of the

14 | ~~WG~~Working Group or TAG.

15 |

16 | **14.2 Procedure for Communication with Government Bodies**

17 |

18 | These procedures apply to communications with government and intergovernmental bodies.

19 |

20 | **14.2.1 IEEE 802 Communications**

- 21 |
- 22 | • IEEE 802 communications to government bodies shall not be released without prior
 - 23 | approval by 2/3 of the EC.
 - 24 | • All IEEE 802 communications to government bodies shall be issued by the LMSC Chair
 - 25 | as the view of IEEE 802 (stated in the first paragraph of the statement). Such
 - 26 | communications shall be copied to the EC and the IEEE-SA Standards Board Secretary
 - 27 | and shall be posted on the IEEE 802 web site. The IEEE 802 web site shall state that all
 - 28 | such position statements shall expire five years after issue.
- 29 |

30 | **14.2.2 ~~Working Group~~WG or TAG Communications**

- 31 |
- 32 | • ~~Working Group~~WG or TAG communications with government bodies shall not be
 - 33 | released without prior approval by 75% of the ~~WG~~Working Group or TAG. Such
 - 34 | communications may proceed unless blocked by an EC vote. For statements not
 - 35 | presented for review in an EC meeting, EC members shall have a review period of at
 - 36 | least five days; if, during that time, a motion to block it is made, release of the statement
 - 37 | will be withheld.
 - 38 | • ~~WG~~Working Group or TAG communications shall be identified in the first paragraph as
 - 39 | the view of only the ~~WG~~Working Group or TAG and shall be issued by the ~~WG~~Working
 - 40 | Group or TAG Chair(s) and shall include the LMSC Chair in the distribution. Such
 - 41 | statements shall not bear the IEEE, the IEEE-SA, or IEEE 802 logos.
- 42 |

1 Incoming liaison letters to EC members shall be forwarded to the LMSC Chair and, as
2 applicable, the relevant WGWorking Group or TAG Chair.
3
4 Informal communications shall not imply that they are a formal position of the IEEE 802 or of
5 the WGWorking Group or TAG.
6
7 Proposed communications that need to be issued by other IEEE entities shall be forwarded to the
8 IEEE-SA Standards Board Secretary for further processing upon approval by the EC.
9

10 **15. Standards Publicity**

11
12 Any publicity issued within LMSC shall be in compliance with subclause [5.1.5](#) of the *IEEE-SA*
13 *Standards Board Operations Manual* and with item h) of 7.1.1.
14

15 **16. Use of LMSC Funds**

16
17 The purpose of the LMSC treasury is to allow the LMSC to collect and disburse funds for
18 activities that are appropriate to the orderly development of LAN/MAN standards. Use of such
19 funds includes:

- 20
21 • Payment for the expenses of conducting LMSC hosted sessions and related meetings and
22 for other LMSC operating expenses. Such expenses include, but are not limited to, the
23 expenses for:
 - 24 ○ meeting rooms
 - 25 ○ document reproduction
 - 26 ○ meeting administration
 - 27 ○ food and beverages
 - 28 ○ computer networking and Internet connectivity
 - 29 ○ goods and services needed for the efficient conduct of business
 - 30 ○ insurance
 - 31 ○ audits
- 32
33 • Reimbursement to individuals for appropriate expenses not covered by other sources,
34 such as corporations, other IEEE organizations, etc.

35
36 The primary source of funds for the LMSC is the registration fees collected from attendees of
37 LMSC hosted sessions.

38
39 Specific policies regarding the treasury are as follows:

- 40
41 a) The LMSC shall open and maintain an LMSC bank account that will be administered by
42 the LMSC Treasurer.

- 1 b) The LMSC may open merchant accounts as required for the processing of credit card
2 charges. Such accounts shall be administered by the LMSC Treasurer.
- 3 c) All funds received by the LMSC shall be promptly deposited in the LMSC bank account.
4 All funds retained by the LMSC shall be held in the LMSC bank account or, if
5 appropriate, in investments approved by the IEEE.
- 6 d) All LMSC expenditures require the approval of the EC with the sole exception that the
7 LMSC Chair, Vice Chairs, Secretaries, Treasurer, and each ~~WG Working Group~~ and TAG
8 Chair whose group is not operating with treasury, may be reimbursed from the LMSC
9 treasury for up to \$200 of appropriate expenses incurred between LMSC ~~p~~Plenary
10 sessions without specific approval of the EC.
- 11 e) The Treasurer will provide reports about LMSC finances to the LMSC membership at
12 large at LMSC ~~p~~Plenary sessions and to the ~~Executive Committee~~EC. The Treasurer will
13 provide additional reports and participate in audits as required by IEEE rules.
- 14 f) The LMSC Treasurer shall strive to maintain an operating reserve (uncommitted funds on
15 hand) sufficient for paying the worst-case expenses of canceling an LMSC ~~p~~Plenary
16 session.
- 17 g) ~~Executive Committee~~EC approval of the site for an LMSC hosted session constitutes
18 authority for the Treasurer to pay all ordinary expenses for that session and any
19 extraordinary expenses presented as part of the meeting site proposal.
- 20
21
22
23
24
25

26 **17. Procedure for PARs**

27

28 ***17.1 IEEE-SA Standards Board Approval***

29

30 Any standards activity whose aim is to produce a Standard, Recommended Practice, or Guide
31 must submit a PAR to the IEEE-SA Standards Board within six months of beginning work.

32

- 33 • Refer to the IEEE-SA Working Guide for Submittal of Project Authorization Request
34 (PAR) and PAR Form. (See <http://standards.ieee.org/guides/par/index.html>.)
35
- 36 • Add pages, as necessary, of more detailed information than is on the PAR form about the
37 Scope, Purpose, and Coordination of the proposed project, but include summary text
38 under Scope and Purpose.
39

40 ***17.2 LMSC Approval***

41

1 Submit proposed PAR and, if applicable, responses to the five criteria per 17.5 below to the
2 | ~~LMSC Executive Committee~~EC for approval prior to sending outside of LMSC.

3
4 Approval is contingent on inclusion of responses describing how the proposed PAR meets
5 **the five criteria** and a work plan for the development of managed object definitions, either
6 as part of the PAR or as a part of an additional PAR. PARs which introduce no new
7 functionality are exempt from the requirement to provide responses to the five Criteria.
8 Examples of such PARs are: Protocol Implementation Conformance Statements (PICS),
9 Managed Object Conformance Statements (MOCS), PARs to correct errors and PARs to
10 consolidate documents.

11
12 Complete PARs shall be circulated via the EC email reflector to all ~~Executive Committee~~EC
13 members no less than 30 days prior to the day of the Opening ~~Executive Committee~~EC meeting
14 of an LMSC ~~p~~Plenary session.

15
16 At the discretion of the LMSC Chair, PARs for ordinary items (e.g., Maintenance PARs) and
17 PAR changes essential to the orderly conduct of business (e.g., division of existing work items or
18 name changes to harmonize with equivalent ISO JTC-1 work items) may be placed on the
19 | ~~Executive Committee~~EC agenda if delivered to ~~Executive Committee~~EC members 48 hours in
20 advance.

21
22 Delivery may be assumed if sent by either FAX or e-mail one full working day prior to the
23 deadline. All PARs must be accompanied by supporting documentation, which must include:

- 24
25 • Explanatory technical background material
- 26
27 • Expository remarks on the status of the development of the PAR (e.g., approved by WG,
28 | Draft pending ~~Working Group~~WG approval at next meeting, etc.)

30 *17.3 Plenary Review*

31
32 In order to ensure wide consideration by the 802 members, PARs for significant new work (those
33 that will result in a new Standard/Recommended Practice/Guide or an addition to an existing
34 one) must pass through the following process during the plenary session week in which
35 | ~~Executive Committee~~EC approval is sought:

36
37 The PAR must be presented in summary at the opening plenary meeting to the general 802
38 membership. Supporting material must be available in sufficient detail for members of
39 | other ~~Working Groups~~WG to understand if they have an interest in the proposed PAR (i.e.,
40 if they would like to contribute to/participate in the proposed work, or identify if there is
41 | conflict with existing or anticipated work in their current ~~WG~~Working Group). It is highly
42 recommended that a tutorial be given at a previous plenary session for major new work
43 items.
44

1 | ~~WGWorking Groups~~, other than the proposing ~~WGWorking Group~~, must express concerns
2 | to the proposing ~~WGWorking Group~~ as soon as possible and must submit written
3 | comments to the proposing ~~WGWorking Group~~ and the ~~Executive CommitteeEC~~ not later
4 | than 5:00 p.m. on Tuesday.
5 |

6 | The proposing ~~WGWorking Group~~ must respond to commenting ~~WGWorking Groups~~ and
7 | to the ~~Executive CommitteeEC~~ together with a Final PAR not later than 5:00 p.m. on
8 | Wednesday. It will be assumed that insufficient coordination and/or inter ~~WGWorking~~
9 | ~~Group~~ consideration had occurred prior to the submission of the PAR if this deadline is not
10 | met, and the proposed PAR will not be considered by the ~~Executive CommitteeEC~~ at the
11 | closing ~~Executive CommitteeEC~~ meeting.
12 |

13 | ***17.4 Chair responsibilities***

14 |
15 | The ~~WGWorking Group~~ Chair shall sign the copyright acknowledgment.
16 |

17 | The LMSC Chair shall, as Sponsor, submit the PAR to the following:
18 |

- 19 | a) Chair, CS Standards Activities Board
 - 20 | b) IEEE-SA Standards Board New Standards Committee (NesCom) Administrator
- 21 |
22 |
23 |

24 | ***17.5 Criteria for Standards Development (Five Criteria)***

25 |

26 | **17.5.1 Broad Market Potential**

27 |

28 | A standards project authorized by IEEE 802 shall have a broad market potential. Specifically, it
29 | shall have the potential for:
30 |

- 31 | a) Broad sets of applicability.
 - 32 | b) Multiple vendors and numerous users.
 - 33 | c) Balanced costs (LAN versus attached stations).
- 34 |

35 | **17.5.2 Compatibility**

36 |

37 | IEEE 802 defines a family of standards. All standards shall be in conformance with the IEEE
38 | 802.1 Architecture, Management, and Interworking documents as follows: 802. Overview and
39 | Architecture, 802.1D, 802.1Q, and parts of 802.1f. If any variances in conformance emerge, they
40 | shall be thoroughly disclosed and reviewed with 802.
41 |

1 Each standard in the IEEE 802 family of standards shall include a definition of managed objects
2 that are compatible with systems management standards.
3

4 **17.5.3 Distinct Identity**

5
6 Each IEEE 802 standard shall have a distinct identity. To achieve this, each authorized project
7 shall be:
8

- 9 a) Substantially different from other IEEE 802 standards.
 - 10 b) One unique solution per problem (not two solutions to a problem).
 - 11 c) Easy for the document reader to select the relevant specification.
- 12

13 **17.5.4 Technical Feasibility**

14
15 For a project to be authorized, it shall be able to show its technical feasibility. At a minimum, the
16 proposed project shall show:
17

- 18 a) Demonstrated system feasibility.
 - 19 b) Proven technology, reasonable testing.
 - 20 c) Confidence in reliability.
- 21

22 ***17.5.4.1 Coexistence of 802 wireless standards specifying devices for unlicensed operation***

- 23
 - 24 • A ~~WG~~~~working group~~ proposing a wireless project is required to demonstrate coexistence
25 through the preparation of a Coexistence Assurance (CA) document unless it is not
26 applicable.
 - 27 • The ~~WG~~~~Working Group~~ will create a CA document as part of the WG balloting process.
 - 28 • If the ~~WG~~~~Working Group~~ elects not to create a CA document, it will explain to the EC
29 the reason the CA document is not applicable.
- 30

31 **17.5.5 Economic Feasibility**

32
33 For a project to be authorized, it shall be able to show economic feasibility (so far as can
34 reasonably be estimated) for its intended applications. At a minimum, the proposed project shall
35 show:
36

- 37 a) Known cost factors, reliable data.
 - 38 b) Reasonable cost for performance.
 - 39 c) Consideration of installation costs.
- 40

1 **17.5.6 Withdrawn PARs**

2

3 Occasionally a PAR is withdrawn. When a PAR is to be withdrawn, the responsible WG chair in
4 consultation with the WG shall consider whether the most current draft has content that should
5 be archived. If so, the WG chair shall ensure the most current draft of the proposed standard is
6 placed on the IEEE Document Distribution Service list. The WG chair shall add a cover page to
7 the draft alerting the reader that the PAR has been withdrawn for this work, giving the specific
8 date of the withdrawal and the rationale for the withdrawal.

9

10 The withdrawn draft shall be maintained on the IEEE Document Distribution Service list for a
11 period of 3 years after the time of withdrawal, after which it shall be removed from the list.

12

13 **18. Policy for Distribution of New IEEE LMSC Standards Publications**

14

15 CD-ROMs containing all IEEE 802 standards will be distributed on an annual basis to registered
16 attendees.

17

18 **19. IEEE LMSC Draft Numbering Plan**

19

20 | This numbering scheme applies to all LMSC ~~WG Working Groups~~ and TAGs.

21

22 It covers all IEEE 802 Drafts.

23

24 The format for the document numbers will be as follows:

25

Either P802.na-Di (formal draft standards)

26

Or P802.n{sc} (all other documents & correspondence)

27

28

Where:

29 |

n = a ~~WG Working Group~~/TAG Designator (i.e. 0, 1, ...),

30

a = a PAR Series Designator (i.e. _, A, B, C,...) for drafts of a document produced
31 under an active PAR, and must include the {/Di} field,

32

i = a Draft Revision Number for working documents produced under an active PAR.
33 Digits for the number may be separated by '-' but should not use any other
34 separators.

35

yy = a year designator (i.e. 87, 88, 89, ...) to indicate the year in which the document
36 number was assigned,

37

m = a sequence number which starts at 1 at the beginning of each year and is increased
38 by 1 each time a document number is assigned,

1 sc = an optional subcommittee designator to be used specifically for tracking
2 subcommittee submissions that are independent of the ~~WGWorking Group~~/TAG
3 as a whole. Documents relevant to the whole ~~WGWorking Group~~/TAG will use
4 the 802.n-yy/m form. The allowed formats for a subcommittee designator are: one
5 letter, two letters, or one letter followed by one number. All other characters are
6 specifically prohibited.

7
8 With the exception of the grandfathered 802.1 numbering scheme, IEEE 802 draft standards
9 documents shall follow the numbering protocols outlined in the *IEEE Standards Style Manual*.
10 One approved exception to these stated policies is that the numbering of draft standards
11 amendments that convert to a revision project shall contain the phrase “-REV” preceding the
12 alphabetical designation of the project.
13

14 **20. Procedure for Conditional Approval to Forward a Draft Standard**

15
16 This procedure is to be used when approval to forward a draft standard to LMSC letter ballot or
17 to RevCom is conditional on successful completion of a ~~WGWorking Group~~ or LMSC
18 recirculation ballot, respectively.

19
20 Seeking conditional approval is only appropriate when ballot resolution efforts have been
21 substantially completed and the approval ratio is sufficient.

22
23 The conditional approval expires at the opening of the next plenary.

24
25 Agenda Items and motions requesting conditional approval to forward when the prior ballot has
26 closed shall be accompanied by:

- 27
- 28 • Date the ballot closed
- 29 • Vote tally including Approve, Disapprove and Abstain votes
- 30 • Comments that support the remaining disapprove votes and ~~WGWorking Group~~
31 responses.
- 32 • Schedule for recirculation ballot and resolution meeting.
- 33

34 Where a voter has accepted some comment resolutions and rejected others, only the comments of
35 which the voter has not accepted resolution should be presented.

36
37 When conditional forwarding to LMSC ballot has been approved, the conditions shall be met
38 before initiating LMSC ballot. When conditional forwarding to RevCom has been approved by
39 the EC, the submittal may be forwarded to RevCom before the conditions have been fulfilled in
40 order to meet the submittal requirements for the next RevCom meeting. However, the submittal
41 shall be withdrawn from the RevCom agenda if the conditions have not been met one week
42 before the RevCom meeting.

43
44 Conditions:

- 1
2 a) Recirculation ballot is completed. Generally, the recirculation ballot and resolution
3 should occur in accordance with the schedule presented at the time of conditional
4 approval.
5 b) After resolution of the recirculation ballot is completed, the approval percentage is at
6 least 75% and there are no new DISAPPROVE votes.
7 c) No technical changes, as determined by the WGWorking Group Chair, were made as a
8 result of the recirculation ballot.
9 d) No new valid DISAPPROVE comments on new issues that are not resolved to the
10 satisfaction of the submitter from existing DISAPPROVE voters.
11 e) If the WGWorking Group Chair determines that there is a new invalid DISAPPROVE
12 comment or vote, the WGWorking Group Chair shall promptly provide details to the EC.
13 f) The WGWorking Group Chair shall immediately report the results of the ballot to the EC
14 including: the date the ballot closed, vote tally and comments associated with any
15 remaining disapproves (valid and invalid), the WGWorking Group responses and the
16 rationale for ruling any vote invalid.
17

18 **21. Procedure for Coexistence Assurance**

19
20 If indicated in the five criteria, the wireless WGworking group shall produce a coexistence
21 assurance (CA) document in the process of preparing for WGworking group letter ballot and
22 Sponsor ballot. The CA document shall accompany the draft on all wireless WGworking group
23 letter ballots.

24
25 The CA document shall address coexistence with all relevant approved 802 wireless standards
26 specifying devices for unlicensed operation. The WGworking group should consider other
27 specifications in their identified target band(s) in the CA document.
28

29 The 802.19 TAG shall have one vote in WGworking group letter ballots that include CA
30 documents. As part of its ballot comments, the 802.19 TAG will verify the CA methodology was
31 applied appropriately and reported correctly.
32

33 The ballot group makes the determination on whether the coexistence necessary for the standard
34 or amendment has been met.
35

36 A representative of the 802.19 TAG should vote in all wireless Sponsor ballots that are in the
37 scope of the 802.19 coexistence TAG.

Moved: To approve the P&P revision titled "Editorial 2" as described in the file named:

➤ **802.0-Editorial_2_-_LMSC_P&P_Revision_Ballot_proposed_resolution_060628_r0.pdf**

Moved: Sherman/Kerry

14/0/1 Passes

10.02 MI P&P "Document numbers" revision approval - Sherman 5 04:26 PM

1 **IEEE 802 LMSC Policy and Procedure Revision Ballot**
2 **on**
3 **Document Numbers**

4
5 **From:** Matthew Sherman, LMSC Vice Chair

6 **To:** LMSC Executive Committee

Date: 4/29/2006

7
8 **Duration:** Till May 31, 2006

9
10 **Purpose:** Fix current LMSC P&P text concerning Document Numbers

11
12 **Rationale for proposed change:**

13
14 The current Text in clause 19 (IEEE LMSC Draft Numbering Plan) is incorrect. The following changes
15 are recommended to correct and improve the existing text.

16
17
18 **Editorial instructions are highlighted in Pink.**

19
20
21
22
23
24 **Proposed Changes:**

25
26 **Delete the entire of clause 19 from the current P&P.**

Moved: To approve the P&P revision titled “Document Numbers” as described in the file named:

➤ **802.0-Document_Numbers_-_LMSC_P&P_Revision_Ballot_060430_r0.pdf**

Moved: Sherman/Kerry

14/2/0 Passes

10.03 MI approval to ballot P&P "WG Voting Procedures" revision - Sherman 5 04:28 PM

1 **Proposed IEEE 802 LMSC Policy and Procedure Revision Ballot**
2 **on**
3 **WG Voting Procedures**
4

5 **From:** Matthew Sherman, LMSC 1st Vice Chair

6 **To:** LMSC Executive Committee

Date: 7/20/2006

7
8 **Duration:** 30 Days

9
10 **Purpose:** Clarify WG Chair Function and WG Voting procedures

11
12 **Rationale for proposed change:**

13
14 Numerous issues have been raised with our current WG Voting procedures including:

15
16 Numerical vote tallies are required for all matters brought before the EC

17 Clarification of what the WG Chair determines for voting issues

18 Clarification of the definition of what are “technical” issues.

19 Clarification of the ballot form for issues other than submission to letter ballot.

20
21 This ballot addresses those issues.

22
23
24 **Proposed Change:**

25
26 Revise the LMSC P&P according to the following revised text (based on the Jan 06 P&P):

27 |
28
29
30 .
31 **7.2**

32 .
33 **7.2.3.4 Rights**

34 The rights of the Working Group members include the following:

35 a) To receive a notice of the next meeting.

36 b) To receive a copy of the minutes.

37 c) To vote at meetings if and only if present.

38 | d) To vote in Working Group Letter Ballots and other electronic ballots.

39 e) To examine all Working Draft documents.

40 f) To lodge complaints about Working Group operation with the Executive Committee

41 g) To petition the Executive Committee in writing; A petition signed by two-thirds of the

42 combined members of all Working Groups forces the Executive Committee to implement the
43 resolution.
44

1 **7.2.4.3 Chair's Function**
2

3 The Chair of the Working Group decides ~~procedural-non-technical~~ issues but may allow non-technical
4 motions. Technical issues are those that can impact the substance of output documents of the Working
5 Group. The Working Group members and the Chair decide technical issues by vote. The Working
6 Group Chair decides ~~what is procedural and what is~~ which issues are technical.
7

8 **7.2.4.2 Voting**
9

10 ~~There are two types of votes in the Working Group. These are votes at meetings and votes by letter-~~
11 ~~ballot.~~

12 7.2.4.2.1 Voting at Meetings
13

14 A technical vote is carried by a 75% approval of those members voting “Approve” and “Do Not
15 Approve”. Non-technical motions, when allowed, are determined in accordance with parliamentary
16 procedure. No quorum is required at meetings held in conjunction with the Plenary session since the
17 Plenary session time and place is established well in advance. A quorum is required at other Working
18 Group meetings. The Working Group Chair may vote at meetings. A quorum is at least ~~one-half~~
19 majority of the Working Group members. Numerical vote tallies must be taken on all Working Group
20 business that requires EC approval.
21

22 7.2.4.2.2 Voting by Letter Ballots

23 The decision to submit a draft standard or a revised standard to the Sponsor Ballot Group ~~shall~~must be
24 ratified by a letter ballot. ~~Other matters may also be decided by a letter ballot at the discretion of the~~
25 ~~Working Group Chair.~~ The Working Group Chair may vote in letter ballots.

26 The letter ballot shall contain three choices:

- 27 • Approve. ~~(The voter m~~May attach non-binding comments.)
 - 28 • Do Not Approve. ~~(The Voter m~~Must attach specific comments on what must be done to the
29 draft to change the vote to “Approve”.)
 - 30 • Abstain. ~~(The voter m~~Must include reasons for abstention.)
- 31

32 To forward a draft standard or a revised standard to the Executive Committee for approval for Sponsor
33 Ballot Group voting, a letter ballot ~~(or confirmation letter ballot)~~ must be done first within the Working
34 Group. A 75 percent approval of the Working Group ~~confirmation~~ letter ballot is necessary with at least
35 50 percent of the members voting. The 75 percent figure is computed only from the “Approve” and “Do
36 Not Approve” votes. Subsequent confirmation ballots to the Sponsor Ballot Group do not require
37 Executive Committee approval.
38

39 The Working Group Chair determines if and how negative votes in an otherwise affirmative letter ballot
40 are to be resolved. Normally, the Working Group meets to resolve the negatives or assigns the task to a
41 ballot resolution group.
42

1 There is a recirculation requirement. For guidance on the recirculation process see sub clause 5.4.3.2
2 Resolution of comments, objections, and negative votes in the *IEEE-SA Standards Board Operations*
3 *Manual*.

4
5 The letter ballot shall be conducted by electronic means. The response time shall be at least thirty days.
6 However, for recirculation ballots, ~~and for letter ballots not related to the submission of draft standards,~~
7 the response time shall be at least fifteen days.

8
9 Submission of a draft standard or a revised standard to the Executive Committee must be accompanied
10 by any outstanding negative votes and a statement of why these unresolved negative votes could not be
11 resolved.

13 14 7.2.4.2.3 Voting by Electronic Ballots

15 Other matters may also be decided by an electronic ballot at the discretion of the Working Group Chair.
16 The response time for these ballots shall be at least fifteen days.

19 **7.2.4.3 Working Group Chair's Responsibilities**

20
21 The main responsibility of the Working Group Chair is to enable the Working Group to operate in an
22 orderly fashion, produce a draft standard, recommended practice, or guide, or to revise an existing
23 document. Responsibilities include:

- 24
25 a) Call meetings and issue a notice for each meeting at least four weeks prior to the meeting.
26 b) Issue meeting minutes and important requested documents to members of the Working Group,
27 the Executive Committee, and liaison groups.

28
29 The meeting minutes are to include:

- 30 • List of participants
- 31 • Next meeting schedule
- 32 • Agenda as revised at the start of the meeting
- 33 • Voting record (Resolution, Mover / Second, Numeric results)

34
35 Minutes shall be made available within 45 days of the meeting to the attendees of the meeting,
36 all members, and all liaisons.

- 37 c) Maintain liaison with other organizations at the direction of the Executive Committee or at the
38 discretion of the Working Group Chair with the approval of the Executive Committee.
- 39 d) Ensure that any financial operations of the WG comply with the requirements of Section 7.2.6 of
40 these Policies and Procedures.
- 41 e) Speak on behalf of the Working Group to the Executive Committee and, in the case of a
42 "Directed Position", vote the will of the Working Group in accordance with the Directed
43 Position Procedure of this P&P (See subclause 9.1 Procedure for Establishing a Directed
44 Position).
- 45 f) Establish Working Group rules beyond the Working Group rules set down by the Executive
46 Committee. These rules must be written and all Working Group members must be made aware of
47 them.

- 1 g) Assign/unassign subtasks and task leaders (e.g., secretary, subgroup chair, etc.)
- 2 h) Determine if the Working Group is dominated by an organization and, if so, treat that
- 3 organizations' vote as one, ~~(with the approval of the Executive Committee).~~
- 4 i) Manage letter ballots~~ing of projects~~ (see 7.2.4.2.2).

7 7.2.4.4 *Removal of Working Group Chairs or Vice Chairs*

8
9 The procedures specified in subclause 7.2.2 (WG Officers) are to be followed under normal
10 circumstances. If a Working Group or TAG feels it is being inappropriately led or significantly
11 misrepresented by its Chair or a Vice Chair and is unable to resolve the issue internal to the Working
12 Group or TAG, then it is the responsibility of that Working Group to make and pass, ~~by~~ by 75% of voting
13 members present ~~required~~, a motion to that effect and so notify the 802 Executive Committee with the
14 recommended action and all supporting rationale in written form. The process for removal of committee
15 Chairs, Vice Chairs, and other officers is prescribed in the IEEE Computer Society, Standards Activities
16 Board "SAB Policies and Procedures" subclause 4.8.3.1, Removal of Chairs and Vice Chairs, is
17 included here with relative terminology (e.g., subsidiary committee) translated to LMSC terms (e.g.,
18 Working Group).

19
20 The LMSC Executive Committee may remove the Chair or a Vice Chair of a Working Group or
21 TAG for cause.

22
23 The Chair of the LMSC Executive Committee shall give the individual subject to removal a
24 minimum of thirty (30) days written mail notice, with proof of delivery, of a meeting of the
25 LMSC Executive Committee at which the removal is to be decided. The individual subject to
26 removal shall have the opportunity to confront the evidence for removal, and to argue in his or
27 her behalf.

28
29 In the clear and documented case of gross misconduct, the Chair of the LMSC Executive Committee
30 may suspend the Chair of a Working Group, with the concurrence of the IEEE Computer Society VP of
31 Standards. A meeting or teleconference of the LMSC Executive Committee shall be convened as soon as
32 practical, but in no case later than thirty (30) days, to review the suspension as provided for above.

Moved: To approve for distribution and executive committee ballot the P&P Revision titled “WG Voting Procedures” as described in the document titled:

➤ **802-0-WG_Voting_Procedures-Proposed_P&P_ballot_resolutions_r4_060720.pdf**

Moved: Sherman/Kerry

15/0/1 Passes

10.04	MI*	Extension of meeting planner contract	-	Hawkins	0	
10.05	MI	Authorization to produce 802 Standards CD-ROM	-	O'Hara	2	04:30 PM

SCHEDULE B-2

SESSION SCHEDULE - 2006-2007 extension

This Schedule sets forth the name, topic, dates and location of events at which services are to be provided and shall be incorporated by reference into the Agreement for Services between Face To Face Events, Inc. ("Service Provider") and the Institute of Electrical and Electronic Engineers, Inc. (IEEE) Project 802 LAN/MAN Standards Committee (LMSC) ("Customer") dated July 31, 2006 ("Agreement").

This Schedule shall be effective on the date last executed below. Such terms describing the scope of the Session are applicable only to the Sessions described below and in no way alter the terms and conditions applicable to other Sessions incorporated into the Agreement by addition of another schedule. All the terms used in the Schedule shall retain the same meaning as defined in the Agreement and such definitions are incorporated herein by reference.

I. Name of Events: IEEE 802 LMSC Hosted Sessions

II. Topic: Developing US and International Standards for Local and Metropolitan Area Networks

Deleted: Local Area Networks and Metropolitan
Deleted: for US and International
Deleted: Standardization

III. Scheduled Dates/Locations: (new dates added in bold text)

- November 10-14, 2003 Albuquerque, NM
January 12-16, 2004 Vancouver, BC, CANADA
March 14-19, 2004 Orlando, FL
July 11-16, 2004 Portland, OR
November 14-19, 2004 San Antonio, TX
March 13-18, 2005 Atlanta, GA
July 10-15, 2005 San Francisco, CA
November 13-18, 2005 Vancouver, BC, CANADA
March 5-10, 2006 Denver, CO
July 16-21, 2006 San Diego, CA
November 12-17, 2006 Dallas, TX
January 14-19, 2007 London, England, UK
March 11-16, 2007 Orlando, FL
July 15-20, 2007 San Francisco, CA

IN WITNESS WHEREOF, the parties have caused this Schedule to be signed by their duly authorized representatives.

FACE TO FACE EVENTS, INC. ("Service Provider")

IEEE 802 LMSC Hosted Sessions ("Customer")

by: Authorized Signatory

by: Authorized Signatory

Name: Dawn C. Slykhouse

Name: Dr. Everett O. Rigsbee, III

Deleted: ,

Title: President

Title: Executive Secretary, IEEE 802

Date: July 31, 2006

Date: July 31, 2006

Deleted: Executive Secretary
Deleted:

EC Motion

- Moved: to approve an expenditure, not to exceed \$2,000, for the production of the 802 Standards CD-ROM, to be distributed at the November 2006 plenary session.
- Moved: O'Hara
- Seconded: Hawkins

Moved: to approve an expenditure, not to exceed \$2,000, for the production of the 802 Standards CD-ROM, to be distributed at the November 2006 plenary session.

Moved: O'Hara/Hawkins

16/0/0 Passes

10.06 II EC executive session feedback

- Nikolich

15 04:31 PM

EC Executive Session feedback

- The executive meetings were convened with the objective of:
 - 1) attempt to identify the core issue or issues creating problems within 802
 - 2) attempt to identify remedies for those issues
- All invited meeting participants (EC members and SASB Chair) attended at least one of the sessions except for one EC member.
- Consensus on a single core issue was achieved:
 - 1) Dominating behavior by a few corporate alliances is preventing WGs from achieving consensus.
- Consensus on possible remedies was not achieved although some were discussed.

Bob Grow identified that he is the chair of the IEEE-SA Standards Board subcommittee on dominance and welcomes any correspondence on this issue.

10.07 II Results of EC email ballots

- Nikolich

5 04:39 PM

Email Ballot recap

- | | | (yes/no/abs/dnv) |
|----------|--------------------------------------|------------------|
| • 30 MAR | 802.19 Press Release | 10/0/0/6 |
| • 09 APR | 802.22 Press Release | 15/1/0/0 |
| • 24 APR | 802.3-2005/Cor1 Conditional Approval | 13/0/0/3 |
| • 30 JUN | 802.3an Press Release | ??????? |
- 802 Chair did not conduct an email ballot on question of application of CA documentation requirement
 - Chair delegates S. Shellhammer to resolve question via email ballot to close prior to the start of the during the week and bring to closing EC meeting for formal decision
 - Jeffree—wanted to know rules for access to WG reflectors at last plenary session—what happened to this item?

Exec Secy reorganization of responsibilities

- Current scope of work for ES is too broad for one individual to handle effectively
- LMSC Chair wants EC to consider splitting responsibility into three major functions
 - Rigsbee
 - Overall logistics responsibilities and contract negotiation
 - identification of North American venues
 - Heile
 - Identification of non-North American venues, preliminary negotiation and logistics (Heile)
 - CTO (new EC voting position)
 - Technical Infrastructure (network, attendance SW, documentation management, etc.)

A general sentiment was expressed by many members that the addition of a new appointed position with voting rights is not desirable. An alternative was described where the position might be filled by election in the EC. A concern was also expressed that, should Dr. Heile leave the EC, another appointed position might become necessary to pick up the additional responsibilities regarding non-North American venues.

10.09 MI 802.20 - moving forward

- Upton

10 04:54 PM

IEEE 802.20 Working Group - - Moving Forward

- Resolve the two outstanding appeals before next plenary
 - Completed one appeal hearing on Wednesday
 - Completed limited re-hearing on the other on Monday
- Obtain approval for the PAR Extension
 - Request New Vote on 802.20 PAR extension
- Address dominance and disruptive behavior in the Working Group
- Complete the Working Group Ballot and move to Sponsor Ballot

Motion: Move the 802 Executive approve the IEEE 802.20 Working Group PAR extension request and form for forwarding to NesCom and SASB for approval *with modification to limit the extension to six months.*

(approved amendment of original motion in italic font)

(Amendment vote in the minutes)

Main Motion Move by: Jerry Upton, Chair of 802.20

Seconded by: Bob Heile

Results: 9 Yes, 6 No, 1 Abstain

Roll call in the minutes

Original WG Motion For a PAR Extension in January 2006

The Following Motion moved by Mark Klerer was approved by the 802.20 WG at the January Interim with Quorum in attendance (66 of 79 Voters).

“The 802.20 Working Group approves the request for a two year extension of the current PAR. The chair will forward the completed PAR Extension Form to the 802 Executive Committee for approval. If approved, the request will be sent to NesCom for its approval. Two years is the customarily granted extension; however a one year extension shall also be acceptable if that is deemed appropriate by the 802 EC and NesCom.”

“Vote on the motion: 51 Yes, 8 No, 1 Abstain. Motion passes with 86.4%. Chair will send the extension form to the EC for approval in the March Plenary.”

Rationale for this request:

- This is a PAR Extension request with no change to the original PAR except the date. There is no technical content in this Extension request.
- The web-based form only requires an explanation of why the PAR should be extended and the expected date for sponsor ballot.
- Based on the Working Group motion, members direction is that they expected the Chair to complete the form and then submit it to the EC for approval and then to forward it to the SASB. The Motion mover also agrees. This direction by the Working Group is a legitimate charge to the WG Chair.
- This Working Group motion and direction does not violate the 802 P&P.
- Approval of the extension is consistent with the IEEE goal of 802.20 completing a standard.
- Approval of the extension at this time provides a message to all 802.20 participants that the WG will have time to complete a standard.

The 802 P&P extract below provides guidance for and authority for actions by a WG Chair in the event he determines domination by an organization

7.2.3.1 Establishment

Working Group members shall participate in the consensus process in a manner consistent with their professional expert opinion as individuals, and not as organizational representatives.

7.2.4.3 Working Group Chair's Responsibilities

h) Determine if the Working Group is dominated by an organization and, if so, treat that organizations' vote as one (with the approval of the Executive Committee).

The 802.20 Chair said he is considering bringing this motion to the Executive Committee in November 2006 depending on further evidence and status of appeals being heard elsewhere.

Move the 802 Executive Committee approve the 802.20 Chair's plan to treat all 802.20 members affiliated with the below companies, acting as one organization, as One Vote, effective immediately.

Moved by: Jerry Upton

Second by:

Roll Call Results:

Companies:

Intel Motorola

Samsung ETRI

Broadcom Siemens

Texas Instruments

Reference: IEEE 802 Policies and Procedures – 7.2.4.3 Working Group Chair's Responsibilities:

h) Determine if the Working Group is dominated by an organization and, if so, treat that organizations' votes as one (with approval of the executive Committee).

Moved: Move the 802 Executive approve the IEEE 802.20 Working Group PAR extension request and form for forwarding to NesCom and SAB for approval.

Moved: Upton/Heile

Steve Mills indicated that it is his intention not to penalize 802.20. He indicated that, though a formal decision has not been made, he believes the SB is in agreement with his position. It is the intent to find a way to allow the work to go forward to completion. He indicated that, should a way to allow 802.20 to continue productively, the PAR would not be allowed to expire before an opportunity to deal with this motion by the EC was allowed. Steve encouraged the members of the EC to provide their input to the SB on their opinions on this issue and their rationale.

A view was expressed that the EC is responsible to review the process used to bring a PAR before it. The opinion was that, though the chair acted according to the motion passed by the working group and the working group unambiguously desired a PAR extension, the working group did not actually vote on the PAR.

It was expressed that the LMSC P&P requires that the working group approve a PAR in clause 17, at the end of item 2. An alternative position was expressed that this item applies to only new PARs for significant work.

Another opinion was expressed that, because of obstructive behavior going on in the working group, sending the motion back to the working group would likely result in failure of the motion.

Moved to amend: at the end of the motion add: “with modification to limit the extension to six months” and replace “SAB” with “SASB”.

Moved: Sherman/Thaler

9/6/1 Passes

On the main motion, as amended:

Moved: Move the 802 Executive approve the IEEE 802.20 Working Group PAR extension request and form for forwarding to NesCom and SASB for approval with modification to limit the extension to six months.

Buzz Rigsbee	yes
Mat Sherman	yes
Roger Marks	no
Steve Shellhammer	yes
Mike Lynch	yes
Vivek Gupta	abstain
Bob Heile	yes
Pat Thaler	yes
Stuart Kerry	yes
Tony Jeffree	no
Carl Stevenson	yes
Bob Grow	no
Mike Takefman	no
John Hawkins	no
Bob O’Hara	no
Jerry Upton	yes

9/6/1 Passes

Jerry reported that he would be bringing a motion in November to limit several companies to a single vote.

10.10 MI Meeting planner RFQ process - Hawkins 5 05:40 PM

Motion: That the EC adopts the following work plan for requesting bids and subsequently adopting the meeting planner contract:

- **Executive Secretary and Treasurer to develop a comprehensive RFP document to be circulated to interested vendors by Jan 2, 2007.**
- **Vendor bids are to be accepted until Feb 28th, 2007.**
- **A subcommittee of EC volunteers to consider responses and recommend a vendor to the EC by the March 2007 plenary.**
- **EC would then authorize formal contract negotiations with selected vendor.**
- **Executive Secretary to formally negotiate a contract with the selected vendor**
- **Final contract presented to EC for approval June 15th, 2007 (>30 days prior to July plenary).**
- **EC will conduct a final vote on the contract at the July 2007 plenary.**
- **Exec Secretary and IEEE Procurement will execute final agreement and contract will become effective**

It is the expectation of the EC that this contract would be valid for 2 years, and be optionally extensible for 4 additional years after which time the RFQ cycle would be repeated.

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Moved: Hawkins/Rigsbee

14/1/0 Passes

Mr. Grow voted in the negative because the discussion was prematurely terminated.
It is the understanding of the EC that the process will be annually extensible up to four times.

10.11 II Meeting planner contract update - Rigsbee 5 05:45 PM
Buzz reported that the extension form was sent to the EC for review this week. It was approved on the consent agenda. There is a plan in place to complete the RFQ process.

10.12 II Attendance automation requirements update - Gilb 5 05:46 PM
James reported that he has sent a list of requirements to the individuals identified to respond from each of the working groups.

10.13 -
10.14 -
10.15 -
10.16 -
11.00 -

Information Items

11.01 II Open office hours feedback - Nikolich 5 05:50 PM

Open office hours feedback

- Meeting held 5-7pm Thursday 20JULY in Molly A/B
- Initial representatives in attendance: Nikolich, Mills, Carlo, Kenney
- Participants: Rashba, Tatiner, Camp, Takefman, Sherman, Lindsay, Gilb, Ho-in Jeon, Rigsbee
- Items of interest discussed:
 - 1) Informal feedback from 802 attendees:
 - anonymous letter should have been ignored
 - Number of staff attendees seemed excessive--in the future Nikolich should be told the reason for each staff member's participation
 - 2) Surprise by Rashba wrt a lack of awareness of the SA Corporate Advisory Group (CAG)
 - 3) Could 802 integrate a CAG type process under it's umbrella? Not likely.

Open office hours feedback

- 4) Patent policy
- 5) Group doesn't do anything fun for the social
- 6) Objective for social--force people to stop working to facilitate cross group and individual communications
- 7) Gilb given action to work with FtF to cost-effectively improve the fun factor of the Nov plenary session
- 8) Chinese sensor network group with unique PHY may be interested in 'using' an 802 MAC--is this permissible? If yes, how?
- Wrap up:
 - Lack of session attendee participation is a problem. Perhaps we should have the meeting in a more public place. Improve signage. Explain the goal and objectives better, e.g. IEEE 802 Q&A.
 - Jeffree's idea—hold the meeting during the social

Network Services Contract

Status Report

Buzz Rigsbee

July 21, 2006

Network Services Contract

- First Draft MSA reviewed with VeriLAN
- Some small improvements were discussed
- The current draft will be updated to reflect agreed improvements and clarifications
- Force Majeur & Divorce clauses to be added as per IEEE-SA guidelines
- Final agreement to run for 2 years: e.g. Nov 2006 through July 2008 incl. 1/2007

Next Steps

- Final Draft to completed next week
- To be sent to SEC and IEEE-SA for review
- Comments and/or suggestions to be addressed ASAP
- Final draft to be submitted for 1-week SEC approval email ballot
- Desire to complete and execute agreement as soon as ballot passes
- Target date July 31, 2006 or thereafter

11.03	II		-		
11.04	II		-		
11.05	II		-		
ADJOURN SEC MEETING			-	Nikolich	06:00 PM

The meeting was adjourned when the time for adjournment was reached.

11.06	II	802.3ar status update	-	Grow	3
11.07	II	802.3 interim meeting polls	-	Grow	2
11.08	II	802.16 Liaison letter to IETF	-	Marks	2
11.09	II	Joint 802.1/802.17 Liaison response to ITU-T SG15 on ring protection	-	Jeffree	2
11.10	II	ITU-T SG15 liaison response on Ethernet connection management	-	Jeffree	2
11.11	II	Liaison contribution to IETF, MEF, DSL Forum - combination of tags	-	Jeffree	2
11.12			-		
11.13			-		
11.14			-		
11.15			-		
11.16			-		
11.17			-		
11.18			-		
11.19			-		
11.20			-		
11.21			-		

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

Respectfully submitted,

Bob O'Hara
Recording Secretary, 802 LMSC