IEEE P802.11
Wireless LANs

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| [S1G SG July Interim Meeting Minutes] |
| Date: 2010-07-22 |
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Abstract

Consolidated minutes of the three S1G sessions held at the Interim IEEE802.11 meeting in San Diego July 12-16, 2010

**S1G SC Tuesday 7-13-2010 EVE Minutes**

Chair – Dave Halasz

1. Chair called the meeting to order at 7:36
2. Attendance:

Name Affiliation Tuesday Wednesday Thursday

 7-14 EVE 7-15 AM1 7-16 PM2

Dave Halasz Aclara x x x

Garth Hillman OakTree x x x

Mark Thompson Aclara x x x

Jon Rosdahl CSR x x

Mark Wilbur Aclara x x

Lily Yang Intel x x

Minyoung Park Intel x x

Seung-Jae Lee LG Elecgtronics x

Chris Young Broadcom x

Bill Carney OakTree x x x

Roberto Aiello Itron x x

Mark Kobayashi Broadcom x

Brian Hugimo Taiyo Yuden x

Rohit Gaikwad Broadcom x

Shoichi Kitazawa ATR x

Suhwook Kim LG Electronics x x x

Bruce Kraemer Marvell x x

John Buffington Itron x x

Gary Birk Aclara x

HangSeok Oh LG Electronic x x

Bahareh Sadeghi Intel x

Larry Taylor DTC (UK) x

Kentako Sakamuto Tokyo Gas x

Jae-Hyung Song LG Electronics x x

Hiro Tanaka Toshiba x

Yukimasa Hagai Mitsubishi x

Kenichi Marukashi NEC x

Peter Ecclesine Cisco x x

Ron Porat Broadcom x x

Dorothy Stanley ArubaNetworks x

Julan Hsu Samsung x

Harish Ramamisthy Marvell x

Claude Giraud NXP x

Padam Kafle Nokia x

Dwight Smith Motorola x

George Bumiller RIM x

Rich Kennedy RIM x

Inhwan Choi LG Electronics x

Bonghoe Kim LG Electronics x

Jorjefr Jetchew Itron x

Jeff McCullough Elster x

Shu Kato NICT x

Colin Frank Motorola x

1. Agenda – 11-10-0685r0 was approved unanimously without comment
2. Comments did arrive by 5 PM today
3. Chair reviewed the IP policy
4. Motion to Approve May Meeting minutes in 11-10-684r0 by Jon Rosdahl was seconded by Mark Thompson passed unanimously without modification
5. Chair reviewed comments from:
	1. Individual from James Gilb
	2. 15 WG which were a repeat of James comments
	3. Individual from Roberto Aiello
	4. Specific comments from 15.4g TG
	5. Purva Mody on behalf of 802.22 (Chair will amend his agenda which stated Purva’s comments were on behalf of .15.4g)
6. Roberto was present to explain his comments:
	1. Make PAR more specific by adding:
		1. data rates as done by 15.4g
		2. applications such as outdoor
		3. simultaneous operation for at least 3 co-located orthogonal networks
		4. include coexistence specifically referencing 15.4g
		5. allow the creation of a new Phy and not limit to simply rebanding 802.11 OFDM phys. A new phy such as one based on narrow band modulation (e.g., FSK) may help mitigate the bandwidth limitations of the ISM bands below 1 GHz
7. It was generally agreed that you cannot just re-band .11 radios and drop into the ISM bands since the 20 MHz bandwidth will either not fit and/or not allow coexistence
8. In 5 GHz band we have to do DFS to support coexistence so if we really need 20 MHz of bandwidth in say the 915 band then techniques such as DFS would need to be supported for coexistence
	1. Chair reviewed the James Gilb comments and noted 15 WG made the exact same comments
	2. Add Target
		1. Range
		2. Data Rate
		3. Applications
		4. Compatibility
		5. Power
	3. 15.4g additional comments
		1. The PAR should clearly reference Utility requirements - until the 5c clearly defines how the requirements of the Smart Grid are addressed by this PAR, this particular application should be excluded
		2. Suggest removing from clause 5.5 of the PAR the requirement for " OFDM " from the phrase "OFDM operations below 1GHz"
		3. If OFDM remains, then there should be a better justification concerning the use of current proven indoor technology for outdoors in the 900MHz band
		4. We recommend including a stronger coexistence statement:
* "Provides mechanisms that enable coexistence with other systems in the band including IEEE 802.15.4-2006, 802.15.4c, 802.15.4d and 802.15.4g systems"
* there should be a limit to the bandwidth used by each channel within the band, for example "not to exceed 1.2MHz"
* simultaneous operation for at least 3 co-located orthogonal, non-interfering networks in the same band is a Smart Grid requirement.
* support of well-behaved coexistence method such as the 802.15.4g common signaling mode.
1. Chair then reviewed comments from .22
	1. Please replace the words "TV White Spaces" with words "TV frequency bands" in the Scope and the Purpose
	2. Please replace "P802.11af is limited to the TV White Space. This PAR is for other license-exempt bands below 1 GHz, excluding the TV White Space" with "P802.11af is limited to the TV White Space. This PAR is for other license-exempt bands below 1 GHz, excluding the TV frequency bands.”
	3. Please specify all the targeted bands below 1-GHz band where these systems are likely to operate
	4. Please specify the transmission distances / range over which these systems will operate
2. Group then discussed some possible responses to the comments:
	1. Response to vagueness
		1. Add to scope “maximize range in outdoor applications. It defines changes to existing IEEE802.11 OFDM Phys to maximize range in outdoor applications”
		2. Clause 17 (.11a) and clause 19 (.11n) specify 2 802.11 OFDM phys
		3. Why specify outdoor? Don’t specify either indoor or outdoor operation door but just maximize range
		4. Channel models are different indoors and outdoors and so it is unlikely .11 devices designed for indoor operation can simply be re-banded and operate outdoors effectively
		5. Start the Scope with “The standards define …..”
		6. Specify indoor and outdoor so as not to be vague
		7. ‘Extend’ range versus ‘improve’ or ‘maximize’ range
		8. Clarify that only those changes to the MAC needed to accommodate the phy changes will be considered
	2. Which OFDM clauses are we referring to 17 or 19
	3. Other OFDM phys?
		1. Should we include channelization in scope
	4. Start out with “This amendment defines changes to the 802.11 Media Access Control and to extend range in indoor and outdoor ……” and then use the first sentence as the second paragraph
	5. It was agreed that the intent was to not exclude changes to the .11 OFDM phy to changes that just support re-banding and channelization
	6. Does this imply a new Phy?
	7. It was agreed that this does indeed define a new OFDM PHY
	8. Coexistence – need to limit the bandwidth but if the BW is limited then the rate will be impacted of course.
	9. It was generally agreed that uniqueness is supplied by .11 MAC
	10. Agreed that reference to Smart Grid will be removed.
3. The group exhausted it time allotment and it was decided that an ad hoc team of whomever wanted to participate would continue to modify the PAR in response to the comments and craft official responses to the comments received.
4. Jon Rosdahl, Dave Halasz, Mark Thompson, Garth Hillman, Mark Wilbur remained to work on the PAR and responses

**S1G SC Wednesday 7-14-2010 AM1 Minutes**

The meeting was reconvened at 8 AM

Chair noted that operative documents were:

Agenda – 11-10-0685

Comments – 11-10-0871

Responses – 11-10-0878

PAR – 11-10-0001 r9

Discussion

1. PAR and 5Cs can be voted on as a set but the vote need to be recorded
2. Comment responses need to be voted on and votes recorded
3. Chair reviewed the responses prepared in revision 10-11-0878r0 as a result of the ad hoc
4. The group accepted the responses
5. Chair then reviewed the PAR and 5C
6. Comments:
	* + - 1. What is specific about the MAC that is PHY dependent?
				2. The MIB has OFDM capability references
				3. Changed Media to Medium in the definition of MAC
				4. Do we want the list of separate bands or just indicate a “qualified International License exempt bands below 1 GHz excluding TVWS bands” Let’s list the ones that make sense.
				5. Compromise – license exempt bands e.g., enumerated bands
				6. There were many word smith-ing made to fix grammar and format preferences
				7. Revised PAR/5C r10 was posted at 9:33 so that the PAR and 5C could be voted on at the mid-week plenary
				8. Motions:
				9. **#1 Having received comments that are contained in submission 10/871r1, approve comment responses in submission 10/878r0.**

**• S1G results - Moved:Jon Rosdahl, Seconded: Bill Carney, Result: 11-0-6**

* + - * 1. **#2 Believing that the PAR contained in the document 11-10/0001r10 meets IEEE-SA guidelines, request that the PAR contained in 11-10/0001r10 be posted to the IEEE 802 Executive Committee (EC) agenda for WG 802 preview and EC approval to submit to NesCom.**

**• S1G results - Moved: Mark Wilbur, Seconded: Dorothy Stanley, Result: 17-0-3**

* + - * 1. **#3 Believing that the Five Criteria contained in the document 11-10/0001r10 meets IEEE 802 guidelines, request that the Five Criteria contained in 11-10/0001r10 be posted to the IEEE 802 Executive Committee (EC) agenda for WG 802 preview and EC approval.**

**• S1G results - Moved: Mark Thompson, Seconded: Dorothy Stanley, Result: 17-0-2**

* + - * 1. Send motions on 3 slides and email to Adrian, Bruce, Jon in time for the mid-week plenary
				2. Thursday Agenda Items

Need a SG extension motion on Thursday since the TG cannot be officially started until the Nov plenary

Establish conference call schedule between now and the Sept Interim

Establish agenda for September meeting

**S1G SC Thursday 7-15-2010 PM2 Minutes**

1. Chair noted that the motions were approved in the mid-week plenary however additional comments have been received albeit after the accepted comment deadlines
	* + 1. Agenda 11-10-0685
				1. PAR & 5C 11-10-0001r10 approved in 802.11
				2. PAR comment response 11-10-0878 was also approved in the 802.11 mid-week planary
			2. The new comments were placed in 11-10-0924
				1. Chair noted he added “while maintaining the IEEE 802.11 WLAN user experience” based on other recent PARs
				2. Change ‘provides’ to ‘adds’ in the scope
				3. Apurva Mody, on behalf of .22 repeated the request to replace ‘TVWS’ with ‘TV frequency bands’ in the purpose.

The group decided in the scope statement to remove the all references to TV White Space.

In the purpose statement, “TV White Spaces” does properly refer to the unlicensed TV bands.”

* + - * 1. Lily Yang – PAR as written seems to indicate only the MAC would be changed and not the Phy.

There was agreement and a PAR phrase was shifted.

* + - * 1. More 15.4g TG comments

The PAR does not offer any uniqueness or advantages as compared to 802.15 TG4g draft standards activity on PHYs to meet the sub GHz requirement. TG4g has PHYs that work in these frequency bands which should be considered. Data rates should be consistent with existing 802.11 data rates. Below 1.2Mbps it is recommended that 802.15 TG4g PHY's be used

If this PAR is accepted as proposed, it is not justified to restrict the acceptable PHY modes to OFDM only. Other PHY modes currently under consideration in TG4g also meet the 802.11 S1G PAR requirement.

The statement "while coexisting with the 802 PHYs currently operating in the respective band. " is not strong enough. TG4g recommends using the wording adopted in 802.15.4g PAR and 802.11ad PAR.

[That is put the following statement in the scope statement:

“Provides mechanisms that enable coexistence with other systems in the bands including IEEE 802.15.4 and IEEE P802.15.4g” to replace the “while coexisting with 802 PHYs currently operating in the respective band”. The group accepted this change]

1. Motions:

Motion 1

**Believing that the PAR contained in the document 11-10/0001r13 meets IEEE-SA guidelines, request that the PAR contained in 11-10/0001r13 be posted to the IEEE 802 Executive Committee (EC) agenda for WG 802 preview and EC approval to submit to NesCom.**

**• Moved:**

**• S1G results - Moved: Jae-Hyung Song, Seconded: Peter Ecclesine, Result:16-0-1**

Motion 2

**Believing that the Five Criteria contained in the document 11-10/0001r13 meets IEEE 802 guidelines, request that the Five Criteria contained in 11-10/0001r13 be posted to the IEEE 802 Executive Committee (EC) agenda for WG 802 preview and EC approval.**

**• Moved:**

**• S1G results - Moved: Mark Thompson, Seconded: Richard Kennedy, Result: 16-0-1**

Group proceeded to craft formal responses:

Comment #1

Response – 802.11-10-0001r13 PAR scope statement removed all the references to TV White Space. In the purpose statement the term ‘TV White Space’ does properly refer to the unlicensed TV bands

Comment #2

Response - 802.11-10-0001r13 PAR scope statement was changed per the suggestion by Lily

Comment #3 (i)

Response - 802.11-10-0001r13 PAR scope statement provides for many WLAN applications in sub 1 GHz

Comment #3 (ii)

Response - 802.11-10-0001r13 PAR scope statement restricts to OFDM PHYs because they are best suited to WLAN applications. Also, the restrictive selection of OFDM was made to address concerns regarding vagueness in earlier versions of the PAR

Comment #3 (iii)

Response - 802.11-10-0001r13 PAR scope statement was amended to adopt the coexestence wording in the IEEE 802.11ad PAR

Motion to accept the responses in 11-10-0924r1 by Bill Carney and seconded by Peter Ecclesine passed (10,0,0)

1. Teleconferences: Monday July 26 at 6:30 PM EDT and August 23 at 6:30 PM EDT
2. Meeting was adjourned at 6 PM.