**IEEE P802.15**

**Wireless Personal Area Networks**

|  |  |  |
| --- | --- | --- |
| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) | |
| Title |  | |
| Date Submitted | 15 July, 2010 | |
| Source | [] [Kinney Consulting, LLC] [Chicago, IL] | Voice: [1.847.960.3715] Fax: [] E-mail: [pat.kinney@ieee.org] |
| Re: | 802.15 Plenary Meeting in San Diego | |
| Abstract | IEEE 802.15 Working Group Minutes | |
| Purpose | Official minutes of the Working Group Session | |
| Notice | This document has been prepared to assist the IEEE P802.15. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein. | |
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**IEEE 802.15 Plenary Meeting – Session #67**

**Manchester Hyatt, San Diego, California**

**July 11 - 15, 2010**

**Monday, 12 July 2010**

**11:01 AM** The chair, Bob Heile, called the meeting to order.

The chairasked for new attendees to raise their hands; 11 were present.

Announcements:

* Social on Wednesday at 6:30 pm

Chair informed the group of, and displayed the IEEE-SA patent policy presentation slides 0-5 (<http://standards.ieee.org/board/pat/pat-slideset.ppt>).

Chair asked the participants who wished to declare a Letter of Assurance (LoA) or to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) that the participant believes may be essential for any of the ongoing activities within the 802.15 WG. There were no attendant responses to this call. Chair noted that, previous to the meeting, Stephan McCann of RIM had submitted copies of LoAs covering 802.15.4e, 802.15.6, and 802.15.7.

Chair displayed and read the standard IEEE Anti-Trust statement.

Rick Alfvin stated the information (IEEE 802.15-10/038r04) on registration requirements and the network information. Basic topics covered were:

* Registration requirements
* Network information
* Attendance sheets
* Voting Tokens
* Voting Rights
* Meeting Video Audio recording – not allowed

802.15 Work Group Membership status:

* 184 voting members
* 70 nearly voters
* 100 aspirants

Future Sessions

* 12 – 17 Sep, 2010, Hilton Waikoloa Village, Big Island, HI, USA
* 7 – 12 Nov, 2010, Hyatt Regency Dallas, TX, USA
* 16 - 21 Jan, 2011, Hyatt Century Plaza, Los Angeles, CA, USA
* 13 - 18 Mar, 2011, Marina Bay Sands, Singapore
* 8 - 13 May, 2011, Hyatt Grand Champion, Palm Springs, CA, USA
* 17-22 July, 2011, Hyatt Regency, San Francisco, CA,USA
* 18-23 September, 2011, Convention Center, Okinawa, Japan (Pending)
* 6-11 November, 2011, Hyatt Regency, Atlanta, GA, USA

Chair presented the EC Meeting Report (IEEE 802.15-10-0531-00)

J Barr presented the Treasurer Report (IEEE 802.15-10-0514-00)

* May 16, 2010 - $350,325.42

IEEE Account: $289,019.42

Face-to-Face: $61,306

* July 10, 2010 - $350,514.43

IEEE Account: $289,019.42 + 189.01 = $289,208.43

Face-to-Face: $61,306

Chair asked to have the WG approve the agenda (document IEEE 15-10-0377-02-0000). Art Astrin moved *to approve the agenda*, with Mike McInnis seconding the motion. Following no objection the agenda was approved.

Ed Calloway moved *to approve the previous meeting minutes (document 15-10-0301-00-0000)* and Art Astrin seconded the motion. Following neither discussion nor objection the minutes were approved. No matters resulting from the previous minutes

802 Architecture report by James Gilb

* Includes 48 bit address, locally administrated address, and group address et al
* Current document is out of date and needs to be updated and cleaned up

Task group reports follow:

Pat Kinney gave TG4e (MAC enhancement) goals for week

* Resolve comments and send draft to letter ballot

Mike McInnis gave TG4f (RFID) goals

* Reviewing and drafting text

P Beecher gave TG4g (SUN)

* Resolve comments
* update draft

P Kinney gave TG4h (corrigenda)

* Review corrigenda document and send corrigenda to letter ballot

Arthur Astrin gave BAN TG6 review

* + - Successful LB55 (76.7%)
    - Will start resolving the 2418 comments this week

Eun Tae Won gave TG7 goals

* Finish comment resolution (96 comments) this week
* Send draft out for recirculation
* Sponsor ballot pool has just been opened

SG MBAN by Ray Krasinsk

* Revisit PAR

SG PSC by Peter Murray

* Working on PAR and 5C

LECIM IG by D Howard

* Objectives are to review application requirements and corresponding technical requirements and compare these against existing and developing task groups and to request to go to SG

TerraHz IG by D Britz

* + Presentations on channel modeling and amplifiers and WRC regulations

WNG by P Kinney

* Presentation on “Initiative to enable 802.15.4 to operate in the MBAN spectrum”

Rules

The following is an excerpt from the 802.15 P&P on rules changes:

The WG 802.15 policies and procedures are to be made publicly available and posted in the WG 802.15 area of the IEEE web site.  Suggestions for improvements should be submitted to the Vice-Chair who will bring them up for discussion at the following plenary.

Proposed changes to WG Policies and Procedures must be received no later than the day before the 802.15 opening plenary.  If there are any proposed changes a meeting shall be held to discuss the changes.  The changes shall then be circulated at least one week prior to the next plenary and an announcement shall be made at that WG opening plenary that a vote shall be taken on the changes at the WG closing plenary (see below).

Proposed changes shall be in written form and should include:

* The purpose, objective, or problem the proposed change is intended to address
* The specific text of the rule change
* The rationale for the chosen text

These policies and procedures of operation of WG 802.15 can be changed by either:

* A vote taken at the closing plenary of 802.15 WG, passing with a least 2/3 approval of those voting either for or against
* An affirmative WG 802.15 letter ballot.  This ballot shall adhere to the standard letter ballot requirements (see 2.7.2)

The Chair shall decide which of the above methods shall be used.  The SEC of the P802 committee must approve all changes.”

The WG chair informed the WG that he will ask the WG to decide whether to vote to approve the [802 WG Policies and Procedures](http://ieee802.org/PNP/2009-11/LMSC_WG_PandP_approved_091120_rev_100213.pdf)  at closing plenary meeting issue of TG membership versus just WG membership

802 PARs

* 802.11 PAR for subGHz has been discussed by TG4g ad hoc and challenged by J Gilb in an email to 802 EC.
* Motion that *802.15 WG adopt the position stated by J Gilb’s email to the EC* (Annex B) made by John Barr and seconded by Peter Murray.
  + Comment: TG4g straw poll on endorsing J Gilb passed with no objections
  + Comment: what is official range of 802.15.4? depends upon the application and amendment
  + Comment: TG4g suggested some minor changes to J Gilb’s position
  + Comment: what is meant by “off batteries”?
* Upon neither further comments nor objection the motion carries by unanimous consent.

EN 300 328

* TG11 is drafting new rules for coexistence in the European ISM band
  + Grandfather clauses for Bluetooth, ZigBee, and Wi-Fi may have been removed
* WG may have to take action if this adversely affects commercial interests of 802.15.4
* Comment: regulatory committee has been studying these rules for some time but change to remove grandfather clause is an issue

AoB

Clint Chaplin of Samsung: Operations manual requires WG affirmation of liaisons every July so WG should reaffirm the liaisons this session.

**12:07 PM** The chair recessed the meeting

Wednesday, 14 July 2010

**10:32** Bob Heile, WG chair called the meeting to order.

WG Chair made announcements concerning social and logistics.

**10:34** WG18 liaison by J Barr

* John discussed the need for a response to the ITU on 60 GHz operation as captured in doc 15-10-0569-00

Motion: *to approve 15-10-0569-00-0000-Response-to-itu-r-liaison-to-ieee-on-60-ghz.ppt for submission to RR TAG*.

* Moved by John Barr and seconded by Shu Kato. Upon neither further discussion nor objection the motion carries by unanimous consent.

**10:46** TG4e by Pat Kinney (Kinney Consulting LLC)

* Working on comment resolution
* Intention to go to LB after session

**10:52** TG4f

* Drafting text (549r2)
* Goal of completing draft in Hawaii session

**10:54** TG4g by Phil Beecher

* Working on comment resolutions
* Goal is to have draft for letter ballot after Hawaii session

**10:56** TG4h by Pat Kinney (Kinney Consulting LLC)

* 96% approval with 111 comments
* LB52 comments are currently being reviewed and enhanced

10:57 TG6-BAN by Art Astrin

* Working on resolving comments
* 600+ have been completed of the 2400 comments received

**10:41** TG7 by Eun Tae Won

* Comment resolution effort
* Will start drafting text this afternoon

**11:00** MBAN by Ray Krasinski (15-10-0575-01)

* Working on revising PAR and 5C

**11:01 PSC SG by P Murray**

**Hearing presentations**

**10:52** LECIM IG closing report by D Howard (15-10-0582-00)

* Presented a tutorial Monday evening
* LECIM IG approved a motion to request the WG to submit a request to the EC to form a SG with vote of 33/0/1

Motion: *that the 802.15 Working Group seeks approval from the 802 EC to form a study group to develop the PAR and 5c documents for the Low Energy Critical Infrastructure Monitoring applications*

* Moved by David Howard (OnRamp)
* Seconded by Steve Jillings (Semtech)
* Results: 79/0/2, motion carries

**11:10** Rules by Pat Kinney

* Need operations manual written by July 2010

**11:09** Revision PAR by Robert Heile

* Received 2 comments on PAR submission
  + Jon Rosdahl
  + James Gilb
* Changes to submitted PAR
  + Scope should be that which can be lifted word for word into finished document
  + PAR revision (15-10-0387-01)
    - RevCom submittal date changed to Oct 2011
    - Scope has been changed to a collection of amendment scopes
    - Purpose has been enhanced
    - Simplified title

Motion *to approve changes as captured in 15-10-387-02* moved by Ed Callaway and seconded by John Lampe

Upon no discussion the vote was taken with the results of 64/0/0, motion carries.

**11:21** WG chair recessed the meeting until Thursday evening.

**Thursday, 18 March 2009**

**18:07** WG chair called the meeting to order

**18:08** 802.18 liaison by J Barr

* Letter to ETSI to obtain documents for review
* Document sent out on harmful interference

**18:11** Closing report for TG4e by P Kinney

* > 90% technical comments have been resolved (321r6)
* Hopping support for Tg4g proposed
* Ready for LB after Hawaii

**18:12** Closing report for TG4f by M McInnis (15-10-0602-00-004f)

**18:14** Closing report for TG4g by P Beecher (15-10-0-0xx-004g)

715 T, 219 E, 55% complete

**18:16** Closing report for TG4h by P Kinney (15-10-0xxx-01-004h)

**18:17** TGi by R Heile

Received comments on PAR, working on revising PAR

**18:18** Closing report for TG6 by A Astrin (15-10-0-00-0006)

**18:26** Closing report for TG7 by Eun Tae Won (15-10-0612-00)

Motion: *TG7 requests the 802.15WG to conditionally start a WG letter ballot requesting approval to forward the P802.15.7 Draft D2 to Sponsor Ballot pending the inclusion of comment resolutions in 10-239-29 into the draft.*

Moved by Eun Tae Won and seconded by Phil Beecher

Upon neither discussion nor objection the motion carries by unanimous consent

**18:33** MBAN closing report by Ray Krasinski (15-10-0575-02)

Motion: *that 802.15WG request approval from the 802EC to renew the MBAN SG*

Moved by Ray Krasinski and seconded by Clint Powell

Upon no discussion the vote was taken with the results of 45/0/4, motion carries.

**18:37** PSC by Peter Murray (15-10-0559-00)

Motion *to request an extension from the 802EC for the PSC Study Group*

Moved by Peter Murray and seconded by John Barr

Upon no discussion the vote was taken with the results of 39/0/5, motion carries.

**18:41** IG THz group by Thomas Kürner (15-10-604-00)

**18:45** TG4i by Bob Heile (15-10-387-03)

Took out statement declaring it an aggregation of the amendments

Need section has been changed to reflect IEEE-SA requirements

Motion to *that 802.15 WG request that 802 EC forward PAR, document 15-10-387-03, to NesCom*

Moved by Rick Alfvin and James Gilb

Discussion: what about corrigenda? Bob is investigating how to move changes into revision and withdraw corrigenda

Upon no further discussion the vote was taken with the results of 40/0/0

**18:54** 802.15.1 reaffirmation by John Barr (15-10-584-01)

Motion *to forward the IEEE Std 802.15.1-2005 reaffirmation to RevCom* Moved by John Barr and Seconded by Phil Beecher

Upon no discussion the vote was taken with the results of 43/4/4, the motion carries.

**18:59** Bluetooth liaison by John Barr

LE has been approved

**19:00** ZigBee liaison report by B Heile

* Continues to drive aspects of the smart grid effort

**19:01** ISA100.11a liaison report by P Kinney

* ISA100.11a is undergoing a corrigenda revision

**19:02** P2030 report by B Heile

* Planning March for sponsor ballot

**19:03** SGIP working priority action plans

* OpenSG is in Detroit

**19:09** 802.19 liaison by Tuncer Baykas, NICT (802.19-10-0108r0)

**19:12** Motion to adjourn was made by Phil Beecher and seconded by James Gilb. Upon hearing no objection, the motion carries; the session is adjourned.**Annex A**

|  |  |  |  |
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| 242 Attendees |  | | |
| **Name** | | | **Declared Affiliation** |
| Afifi, Emad | | | Ensphere solutions |
| Aiello, Roberto | | | Independent |
| Ajito, Katsuhiro | | | *-MISSING AFFILIATION-* |
| Alfvin, Richard | | | VeriLAN |
| Asano, Takamasa | | | Fuji Electric |
| Astrin, Arthur | | | Astrin Radio |
| Bae, Taehan | | | Samsung Electronics |
| Bahr, Michael | | | Siemens AG |
| Barr, John | | | JRBarr, Ltd. |
| Batra, Anuj | | | Texas Instruments Incorporated |
| Baykas, Tuncer | | | NICT |
| Beecher, Philip | | | PG&E |
| Bender, Klaus | | | Utilities Telecom Council |
| Bhatia, Ashutosh | | | Samsung Electronics |
| Bhatti, Ghulam | | | Mitsubishi Electric Corporation |
| Birk, Gary | | | Aclara |
| Boytim, Mathew | | | Sensus |
| Bradley, Peter David | | | Zarlink Semiconductor, Inc. |
| Bravin, Nancy S | | | Self Employed |
| Britz, David | | | AT&T Labs Research |
| Brown, Monique | | | Silver Spring Networks Inc. |
| Brubk, Sverre | | | Texas Instruments Incorporated |
| Buchanan, Brian | | | ON Semiconductor |
| Buffington, John | | | Itron, Inc. |
| Buga, Walter | | | *-MISSING AFFILIATION-* |
| Bynam, Kiran | | | Samsung Electronics |
| Cain, Brent | | | Itron, Inc. |
| Callaway, Edgar | | | Sunrise Micro Devices, Inc. |
| Calvert, Chris | | | Landis+Gyr |
| Canchi, Radhakrishna | | | Kyocera |
| Cardozo, Ruben Salazar | | | Landis+Gyr Worldwide |
| Cha, Jaesang | | | SNUT |
| Chandler, Russell | | | Ubisense |
| Chang, Kapseok | | | ETRI |
| Chang, Kuor-Hsin | | | Elster Electricity, LLC |
| Chang, Soo-Young | | | California State University |
| Chaplin, Clint | | | Samsung Electronics |
| Chebbo, Hind | | | FUJITSU |
| Ching, Gilbert | | | Kozo Keikaku Engineering Inc. |
| Cho, Chihong | | | Samsung Electronics |
| Choi, In-Kyeong | | | ETRI |
| Choi, Jee-Yon | | | ETRI |
| Choi, Sangsung | | | ETRI |
| Chung, Hyun Kyu | | | ETRI |
| Connell, Ciaran | | | Decawave Limited |
| Cypher, David | | | NIST |
| Dahl, Matthew | | | Silver Spring Networks Inc. |
| Davenport, David | | | Texas Instruments Incorporated |
| Davis, Chantal | | | Industry Canada |
| Dawkins, Mark | | | Toumaz Technology Ltd. |
| De Ruijter, Hendricus | | | Silicon Laboratories |
| Ding, Gang | | | Olympus |
| Dixon, Paul | | | Watteco |
| Dolmans, Guido | | | Holst Centre / IMEC-NL |
| Dotlic, Igor | | | NICT |
| Dow, Michael | | | Freescale Semiconductor, Inc. |
| Ecclesine, Peter | | | Cisco Systems, Inc. |
| Eggert, Dietmar | | | Atmel Corporation |
| Evans, David | | | Philips Electronics |
| Farserotu, John | | | CSEM, Inc. |
| Fei, Qin | | | Datang Mobile Communication |
| Filippo, Will San | | | Silver Spring Networks Inc. |
| Fischbeck, Jeffrey | | | Stanley Associates, Inc. |
| Fischer, Michael | | | Fischer Consulting |
| Flammer, George | | | Silver Spring Networks Inc. |
| Fujiwara, Ryosuke | | | HITACHI |
| Fukatsu, Noriyasu | | | Mitsubishi Electric Automation Inc. |
| Fukui, Kiyoshi | | | Oki Electric Industry Co., Ltd. |
| Geiger, John | | | GE - General Electric Co |
| Gilb, James | | | SiBEAM, Inc. |
| Giustiniano, Domenico | | | Disney Research |
| Golmie, Nada | | | NIST |
| Gottlib, Elad | | | Silver Spring Networks Inc. |
| Hach, Rainer | | | Nanotron Technologies GmbH |
| Halasz, David | | | Aclara |
| Hall, Robert | | | RF Technologies, Inc. |
| Hara, Shinsuke | | | NICT |
| Harrington, Timothy | | | WhereNet - Zebra ESG |
| Hatauchi, Takaaki | | | *-MISSING AFFILIATION-* |
| Hayashi, Koichiro | | | NYK Line |
| Heile, Robert F | | | ZigBee Alliance |
| Hemminger, Rodney | | | Elster Solutions |
| Hernandez, Marco | | | NICT |
| Higashi, Ryoichi | | | Fuji Electric |
| Hillman, Garth | | | OakTree Wireless |
| Ho, Jin-Meng | | | Texas Instruments Incorporated |
| Hong, Wei | | | Arch Rock Corporation |
| Howard, David | | | Maxim Integrated Products |
| Hsu, Ju-Lan | | | Samsung Electronics |
| hu, Wendong | | | STMicroelectronics |
| Hwang, Jung-Hwan | | | ETRI |
| Hwang, Taeho | | | KETI |
| Imam, Donna | | | Freescale Semiconductor, Inc. |
| Iso, Akio | | | NICT |
| Jakubiec, Dan | | | Sensus |
| Jang, Il Soon | | | ETRI |
| Jang, Yeong Min | | | Kookmin University |
| Jeon, Young-Ae | | | ETRI |
| Jetcheva, Jorjeta | | | Itron, Inc. |
| Jillings, Steven | | | Semtech Corporation |
| Joo, Seong-Soon | | | ETRI |
| Kang, Chol | | | Dust Networks |
| Kang, Noh-Gyoung | | | Samsung Electronics |
| Kang, Tae-Gyu | | | ETRI |
| Kato, Shuzo | | | NICT |
| Kent, Jeritt | | | Analog Devices Inc. |
| Kim, Byung Moo | | | PicoCast Forum |
| Kim, Dae Ho | | | ETRI |
| Kim, Dae Young | | | ISO/IEC JTC1/SC 6 |
| Kim, Dong-Sun | | | KETI |
| Kim, Dukhyun | | | Samsung Electro-Mechanics |
| Kim, Young Kyun | | | ETRI |
| kim, yunjoo | | | ETRI |
| King, Jeffrey | | | Elster Electricity, LLC |
| Kinney, Patrick | | | Kinney Consulting LLC |
| Kitazawa, Shoichi | | | ATR Wave Engineering Laboratories |
| Klerer, S Mark | | | Qualcomm Incorporated |
| Ko, Young-Chai | | | Korea University |
| Kohno, Ryuji | | | NICT |
| Krasinski, Raymond | | | Philips Electronics |
| Kuerner, Thomas | | | TU Braunschweig |
| Kuroda, Masahiro | | | *-MISSING AFFILIATION-* |
| Lampe, John | | | Lampe Consulting |
| Lan, Zhou | | | NICT |
| Le, Khanh Tuan | | | Texas Instruments Incorporated |
| Lee, Hyungsoo | | | ETRI |
| Lee, Ki-Dong | | | *-MISSING AFFILIATION-* |
| Lee, Myung | | | CUNY - City University of NY |
| Lee, Seung-Jae | | | *-MISSING AFFILIATION-* |
| Lee, Wooyong | | | ETRI |
| Lee, Yuro | | | ETRI |
| Lewis, Daniel | | | Nicta |
| Li, Huan-Bang | | | NICT |
| Li, Liang | | | Huawei Technologies Co., Ltd. |
| Lim, Sang-Kyu | | | ETRI |
| Link, Jeremy | | | 54 Oaks Inc. |
| Liu, Dapeng | | | China Mobile Communications Corporation |
| Luo, Haiyun | | | China Mobile US Research Center |
| Lynch, Michael | | | Nortel Networks |
| Mason, Robert | | | Elster Solutions |
| McCullough, Jeff | | | Elster Electricity, LLC |
| Mcinnis, Michael | | | The Boeing Company |
| Millet, Charles | | | Analog Devices Inc. |
| Mirnezami, Siamak | | | SFM Systems |
| Monnerie, Emmanuel | | | Landis+Gyr Worldwide |
| Moskowitz, Robert | | | ICSA Labs |
| Moy, Hamilton | | | Silver Spring Networks Inc. |
| Murray, Peter | | | Self Employed |
| Myers, Theodore | | | On Ramp Wireless |
| Naganuma, Ken | | | Toko America Inc. |
| Ng, Put Fan | | | *-MISSING AFFILIATION-* |
| Ngo, Chiu | | | Samsung Electronics |
| Nguyen, Estelle | | | ACCENT |
| Oh, Jong-Ee | | | ETRI |
| Oh, Jung-Yeol | | | ETRI |
| Omeni, Okundu | | | Toumaz Technology Ltd. |
| Ouvry, Laurent | | | CEA-Leti |
| Oyama, Satoshi | | | Hitachi Technologies |
| Pace, James | | | Silver Spring Networks Inc. |
| Park, Hyung-Il | | | ETRI |
| Park, Jaewoo | | | ETRI |
| Park, Seung-Hoon | | | Samsung Electronics |
| Park, Taejoon | | | ETRI |
| Patro, Ranjeet | | | Samsung Electronics |
| Petrick, Albert | | | Jones-Petrick and Associates, LLC.- |
| Pokrajac, Dalibor | | | Silver Spring Networks Inc. |
| Popa, Daniel | | | Itron, Inc. |
| Pope, Steve | | | Self Employed |
| Powell, Clinton | | | Southern California Edison Company |
| Powell, Richard | | | Zarlink Semiconductor, Inc. |
| Priebe, Sebastian | | | TU Braunschweig |
| Qi, Emily H | | | *-MISSING AFFILIATION-* |
| Qu, Huyu | | | Honeywell International Inc. |
| Rajagopal, Sridhar | | | Samsung Electronics |
| Rajan, Reghu | | | Zarlink Semiconductor, Inc. |
| Ramasastry, Jayaram | | | Silver Spring Networks Inc. |
| Rannow, R K | | | Tyco Electronics |
| Razzell, Charles | | | Maxim Integrated Products |
| Reed, Marc | | | Sensus |
| Ress, David | | | Sensus |
| Reuss, Edward | | | Plantronics, Inc. |
| Roberts, Richard | | | Intel Corporation |
| Rodine, Craig | | | EPRI |
| Roh, June Chul | | | Texas Instruments Incorporated |
| Rolfe, Benjamin | | | Blind Creek Associates |
| Ryu, Seung-Moon | | | Casuh Corporation |
| Sagan, Didier | | | Zarlink Semiconductor, Inc. |
| Sakamoto, Kentaro | | | Tokyo Gas |
| Sakoda, Kazuyuki | | | Sony Corporation |
| Sanderford, H | | | Sensus |
| Sayrafian-Pour, Kamran | | | NIST |
| Schmidl, Timothy | | | Texas Instruments Incorporated |
| Schmidt, Michael | | | Atmel Corporation |
| Schwoerer, Jean | | | France Telecom |
| Seibert, Cristina | | | Silver Spring Networks Inc. |
| Shah, Kunal | | | Silver Spring Networks Inc. |
| Shearer, Steve | | | Silver Spring Networks Inc. |
| Shellhammer, Stephen | | | Qualcomm, Inc. |
| Shin, CheolHo | | | ETRI |
| Simon, Jonathan | | | Dust Networks, Inc. |
| Son, Jaeseung | | | Samsung Electronics |
| Song, Ho-Jin | | | NTT Corporation |
| Stadnik, Pal | | | Micro Systems Engineering |
| Sung, Hui-Hsia | | | NICT |
| Sungi, Gu | | | Samsung Electronics |
| Tabroff, Ronald | | | Mueller Systems |
| Tanaka, Hirokazu | | | TOSHIBA CORPORATION |
| Taylor, Larry | | | DTC (UK) & SSN |
| Thompson, Mark | | | Aclara RF |
| Timmons, Nicholas | | | WiSAR Lab |
| Toma, Ion | | | Nivis |
| Tomcik, James | | | Qualcomm Incorporated |
| Toyoda, Ichihiko | | | NTT |
| van Greunen, Jana | | | Silver Spring Networks Inc. |
| Van Wyk, Hartman | | | Itron, Inc. |
| Vaswani, Raj | | | Silver Spring Networks Inc. |
| Veillette, Michel | | | Trilliant Networks |
| Verso, Billy | | | Decawave Limited |
| Virk, Bhupender | | | Procubed Inc. |
| Waheed, Khurram | | | Freescale Semiconductor, Inc. |
| Walewski, Joachim | | | Siemens Corporation |
| Wang, Junyi | | | NICT |
| Wang, Qi | | | Broadcom Corporation |
| Wang, Xiang | | | Shanghai Institute |
| Ward, Andy | | | Ubisense |
| Weikel, Scott | | | Elster Electricity, LLC |
| West, Nicholas | | | Landis+Gyr Worldwide |
| Wilbur, Mark | | | Aclara |
| Winkel, Ludwig | | | Siemens Corporation |
| Wong, Alan Chi Wai | | | Toumaz Technology Ltd. |
| Wong, Eun Tae | | | Samsung Electronics |
| Xing, Tao | | | Shanghai Institute |
| Xu, Dongmei | | | CESI |
| Yang, Liuyang | | | *-MISSING AFFILIATION-* |
| Yang, Wen-Bin | | | NIST |
| Yang, Yang | | | Shanghai Institute |
| Yasukawa, Kazuyuki | | | Fuji Electric |
| Yazdandoost, Kamya | | | NICT |
| Yokoo, Kaoru | | | Fujitsu Limited |
| Zhao, Mu | | | Huawei Technologies Co., Ltd. |
| Zhen, Bin | | | NICT |
| Zhong, Yongfeng | | | Huawei Technologies Co., Ltd. |

**Annex B**

Dear Bruce and EC members.

(Bruce, please forward this to the S1G reflector.)

I disagree with the 802.11 sub 1 GHz PAR scope because it is too vague.

The scope says:

This amendment defines standard operation and channelization of license-exempt frequency bands below 1 GHz, except the TV White Spaces, for IEEE 802.11 networks while meeting legal requirements across regulatory domains.

So the only requirements are:

- wireless system

- uses license-exempt frequency bands below 1 GHz (except TVWS)

("meeting legal requirements" is implied by operating in the bands.)

There are no requirements for:

- range

- data rates

- power consumption (or an application that implies this)

- compatibility with 802.11 MAC (in fact, they could create a completely different MAC, according to the PAR).

Almost anything could meet these requirements, for example

- 100 b/s with 1 km range

- 100 Mb/s with 10 cm range

and almost anything in between.  Because of this, it is not possible to say that any of the 5Cs are met.  If the goal is 10 Mb/s at 100 km for mobile devices, then I don't think it is technically or economically feasible.  If it replicates the data rate and range of 802.15.4 in the 902-928 MHz band, then it is difficult to say it is unique.

If we are going to approve scopes like this, then there is no reason to bother voting on them as we are basically saying that anything goes with the group.

I recommend adding to the scope the following items:

- target range, e.g., 1 km

- target data rate, (examples: nominally 5 Mbs; > 100 kb/s; or < 2 Mb/s,)

- Uses the 802.11 MAC with only those changes required to support the new PHY.

- Specify a target application (i.e., is QoS required?  If so, what level?  Are they networks with only occasional transmissions?  Are the devices mobile?  Stationary but battery powered?  How long do they need to operate off of batteries.)

Without these clarifications, the EC cannot possibly evaluate the 5 C to say that it applies to this project.

Furthermore, I don't think these clarifications change the intention of the group.  Rather they are simply to put down in the scope the design target of the proposed amendment.

James Gilb

IEEE 802 Recording Secretary