**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) |
| Title |  |
| Date Submitted | [28 July 2016] |
| Source | [][][Chicago, IL] | Voice: [+1.847.960.3715]Fax: [+1.847.790.3805]E-mail: [pat.kinney@ieee.org] |
| Re: | [802.15 Plenary Meeting in San Diego, California] |
| 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 #103**

**Manchester Grand Hyatt, San Diego**

**July 25-28, 2016**

**Monday, 25 July 2016**

**10:33 AM** The chair, Bob Heile, called the meeting to order (15-16-0488-00)

The chairasked for new attendees to raise their hands; there were none.

Announcements:

* Don’t forget to register for Warsaw

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 displayed and read the standard IEEE Anti-Trust statement.

C Powell moved to *approve the agenda (document 15-16-0419-06-0000)* with Ben Rolfe seconding the motion. Following no objection, the agenda was approved.

C Powell moved *to approve the previous meeting minutes (document 15-16-0380-00-0000)* and J Holcomb seconded the motion. Following neither discussion nor objection the minutes were approved. There were no matters resulting from the previous minutes.

B Rolfe presented the Treasurer Report (15-16-0487-00).

Future Sessions

* September 11-16, 2016, Marriott Warsaw, Warsaw, Poland, *802 Wireless Interim Session.* \*
* November 6-11, 2016, Grand Hyatt San Antonio, San Antonio, TX, USA, *802 Plenary Session.*
* January 15-20, 2017, Hyatt Regency Atlanta, Atlanta, GA, USA, *802 Wireless Interim Session.* \*
* March 12-17, 2017, Hyatt Regency Vancouver, *802 Plenary Session.*
* May 7-12, 2017, Daejeon Convention Center, Daejeon Korea (TBC), *802 Wireless Interim Session.* \*
* July 9-14, 2017, Estrel Hotel and Convention Center, Berlin, Germany, *802 Plenary Session.*
* September 10-15, 2017, Hilton Waikoloa Village, Kona, HI, USA, 802 Wireless Interim Session. \*
* November 5-10, 2017, Caribe Hotel and Convention Center, Orlando, FL, USA, 802 Plenary Session

B Heile presented a report on the EC meeting held just before this meeting (15-16-0497-00).

**Status Reports**

802.15

Task Group 3d –100Gbps THz PHY

1. Review and Discuss Contributions from CFP
2. Update Project Plan/Timeline

Task Group 3e – High Rate Close Proximity (HRCP)

1. Seek approval to start Sponsor Ballot
2. Update Project Plan/Timeline

Task Group 3m – 15.3 Revision

* Project complete awaiting publication

Task Group 4s – Spectrum Resource Utilization (SRU)

* 1. Work on Technical Guidance Doc (TGD)
	2. Work on parts of draft
	3. Update Project Timeline

Task Group 4t – 15.4 High(er) Rate PHY (HRP)

* + 1. Letter Ballot comment resolution
		2. Update Project timeline

Task Group 4u – PHY for 865-867 band in India

* + 1. Sponsor Ballot comment resolution
		2. Seek conditional approval to forward to RevCom
		3. Update project timeline as needed

Task Group 4v – Add/Update Regional Sub Gig Bands

1. Will be looking for WG to start letter ballot

Task Group 7m – Optical Wireless Communications (OWC)

* + 1. Review and discuss contributions
		2. Continue developing TGD
		3. Generate/Update Project Timeline

Task Group 8 – Peer Aware Communications

* + 1. Letter Ballot comment resolution
		2. Update Project Plan/Timeline

Task Group 9 – Key Management Protocol

* + 1. Project complete-awaiting publication

Task Group 10 – Layer 2 Routing (L2R)

* + 1. Sponsor Ballot comment resolution
		2. Update Project Plan/Timeline

Task Group 12 –Upper Layer Interface (ULI)

* + 1. Structure work plan and issue CFP
		2. Joint Meeting with 802.1
		3. Create Project Plan/Timeline

Study Group 4v –Add/Update Regional Sub Gig Bands

* + 1. Review work plan
		2. Review draft proposals
		3. Update Project Plan/Timeline

Interest Group THz:

* + 1. Hear contributions relating to THz comms.
		2. Review ongoing mission/goals/new project potential

Interest Group Dependability

* + Discuss Contributions
	+ Evaluate if Study Group is warranted

Interest Group High Rate Railroad Communications

* + Discuss opportunities for standards work
	+ Review ongoing mission of the group

Standing Committees (SCm, SC IETF, SCwng)

* 1. Maintenance contributions for standards and operation manual
	2. IETF96 updates on 6tisch, 6lo, core, roll, and lp-wan
	3. Joint Mtg with 802.1-WiFi request for 802.11/802.15.4g bridge
	4. WNG- Two presentations: "History and Implementation of the IEEE 802 Security Architecture”, “IEEE Standards for Low Power Wide Area Networks”

**AoB** none

**11:35 PM** The chair recessed the meeting

**Wednesday, 27 July 2016**

**10:31** Bob Heile, WG chair called the meeting to order.

WG Chair made announcements concerning social, logistics, and registration for Warsaw.

**10:33** 802.18 Tag liaison by J Holcomb

* Reviewed India consultation
* Reviewed public notice from FCC on mmW, will do comments at PM2 ad hoc today

**10:35** TG3d report by Thomas Kürner

* Listened to preliminary proposals, good chance of having them merge

**10:36** THZ IG closing report by T Kürner (15-16-0515-00)

**10:37** TG 3e by Andrew Estrada

* Passed 2 motions in TG: BRC formation and request to go to sponsor ballot

**10:38** TG4s by S Kitazawa

* Will be looking to send draft out for letter ballot at closing plenary

**10:40** TG4t by C Powell

* Concluded comment resolution and approved comment database

*Move that 802.15 WG start a WG Letter Ballot requesting approval to forward document P802.15.4t/D01 Draft Standard, edited in accordance with the instructions in document [15-16-0448-06], and CA document [15-16-0408-01] to Sponsor Ballot pending the completion and inclusion of the edits in the draft.*

Moved by C Powell, seconded by E Callaway

Following no discussion the vote was taken as 34/0/0/, motion carries

*Motion: that 802.15 has reviewed and approves the CSD [15-16-0739-02] and requests unconditional approval from the EC to submit P802.15.4t/D02 to Sponsor Ballot.*

*Moved By: C Powell*

*Seconded By: M Lee*

Upon no discussion the vote was taken with the results 45/0/0

**10:44** TG4u by P Beecher

* Passed sponsor ballot with 15 comments, all have been resolved, draft is being updated

**10:45** TG 4v by P Beecher

* Expects to go to letter ballot after session

**10:46** TG7.1 LED by Yeong Min Jang

* Discussing
* *Motion:  request that the PAR change contained in document [15-16-0505-00-007a], be approved by the IEEE 802.15 WG and that the EC be requested to forward the PAR change to NesCom*.
* Moved by Yeong Min Jang, seconded by Rick Roberts
* Following no discussion the vote was taken with the results of 43/0/1

**10:53** TG8 by M Lee

* Working on comment resolution

*Move that the WG seek EC approval to forward a request for a 1 year PAR extension for 802.15.8 to NesCom*

* Moved by Myung Lee and seconded by C Powell
* Upon no discussion the vote was taken with the results 45/0/0, motion carries

**10:55** TG10 by C Powell

* Finishing up SB comment resolution

**10:56** TG 15.12 ULI by P Kinney

Working on the architecture and multiplexing mechanisms

**11:00** SC reports by P Kinney

* SC Maintenance; no issues reported for Standards nor Operation Manual
* SC IETF: reviewed 6tisch, 6lo, core, roll, and lp-wan
* SC WNG: two presentations:
	+ "History and Implementation of the IEEE 802 Security Architecture” byMeareg Abreha
	+ “IEEE Standards for Low Power Wide Area Networks” by Jörg Robert

**11:01** IG Dependability report by R Kohno

* Working on efforts required for SG focusing on the automotive industry

**11:04** WG chair recessed the meeting until Thursday evening.

**Thursday, 28 July 2016**

**18:30** WG chair called the meeting to order

**18:32** TG3d closing report by T Kürner (15-16-516-00)

**18:35** TG3e closing report by A Estrada (15-16-309-01)

*Motion: IEEE 802.15 has reviewed and approves the CSD [15-14-0716-07-003e] and requests unconditional approval from the EC to submit P802.15.3e\_D04 to Sponsor Ballot.*

*Moved By: A. Estrada*

*Seconded By: B Rolfe*

Upon no discussion the vote was taken with the results of 36/0/0

*Move that 802.15.3e TG approve the formation of a Ballot Resolution Committee (BRC) for the Sponsor balloting of the P802.15.3e\_D04 with the following membership: Andrew Estrada (Chair), Ko Togashi, Itaru Maekawa, Jae Seung Lee, Keitarou Kondou, Keiji Akiyama, and Ken Hiraga. The 802.15.3e BRC is authorized to approve comment resolutions and to approve the start of recirculation ballots of the revised draft on behalf of the 802.15 WG. Comment resolution on recirculation ballots between sessions will be conducted via reflector email and via teleconferences announced to the reflector as per the LMSC 802 WG P&P*

*Moved By: A. Estrada*

*Seconded By:*

Upon neither discussion nor opposition the motion carries.

**18:37** TG4s closing report by S Kitazawa (15-16-0550-00)

*Move that 802.15 WG start a WG Letter Ballot requesting approval to forward document P802-15-4s-D01, and CA document 15-16-536r1 to Sponsor Ballot.*

* Moved By: Shoichi Kitazawa
* Seconded By B Rolfe

Upon neither discussion nor opposition the motion carries.

*Move that 802.15 WG approve the formation of a Ballot Resolution Committee (BRC) for the WG balloting of the P802.15.4s-D01 with the following membership: Shoichi Kitazawa, Hidetoshi Yokota, and Shusaku Shimada. The 802.15.4s BRC is authorized to approve comment resolutions and to approve the start of recirculation ballots of the revised draft on behalf of the 802.15 WG. Comment resolution on recirculation ballots between sessions will be conducted via reflector email and via teleconferences announced to the reflector as per the LMSC 802 WG P&P.*

* *Moved By: Shoichi Kitazawa*
* Seconded By B Rolfe

Upon neither discussion nor opposition the motion carries.

**18:43** TG4t closing report by C Powell (15-16-0490-01)

*Move that 802.15 WG approve the formation of a Ballot Resolution Committee (BRC) for the WG balloting of the P802.15.4t/D01 with the following membership:* Clint Powell, Henk de Ruijter, Monique Brown, Ed Callaway. *The 802.15 TG4t BRC is authorized to approve comment resolutions and to approve the start of recirculation ballots of P802.15.4t/D01 on behalf of the 802.15 WG. Comment resolution on recirculation ballots between sessions will be conducted via reflector email and via teleconferences announced to the reflector as per the LMSC 802 WG P&P.*

Moved by C Powell, seconded by B Rolfe

Upon neither discussion nor objection the motion carries.

**18:46** TG10 (L2R) closing report by Clint Powell (15-16-0491-01)

*Move that 802.15 WG approve the formation of a Ballot Resolution Committee (BRC) for the WG balloting of the TG10 draft recommended practice with the following membership: Clint Powell, Verotiana Rabarijaona, Fumihide Kojima, Noriyuki Sato, Kiyoshi Fukui, Soo-Young Chang, Jaehwan Kim, SangSung Choi, Charlie Perkins. The 802.15 TG10 BRC is authorized to approve comment resolutions and to approve the start of recirculation ballots of the TG10 draft on behalf of the 802.15 WG. Comment resolution on recirculation ballots between sessions will be conducted via reflector email and via teleconferences announced to the reflector as per the LMSC 802 WG P&P.*

Upon neither discussion nor objection the motion carries with unanimous consent

Moved by C Powell, seconded by B Rolfe

**18:50** TG4u closing report by P Beecher (15-16-0511-01)

*Move that 802.15 WG start a Sponsor Ballot recirculation requesting approval to forward document P802.15.4u\_D4 Draft\_Standard to RevCom*

Moved by: Phil Beecher

Seconded by: B Rolfe

Upon neither discussion nor objection the motion carries.

*Motion: The 802.15 WG has reviewed and approves the CSD [*15-15-0755-02-0000\_15.4u\_India\_CSD ] and *requests conditional approval from the EC to submit P802.15.4u\_D4 to RevCom.*

 Moved By: P Beecher

Seconded By: B Rolfe

Upon no discussion the vote was taken with the results of 35/0/0, motion carries

*Move that 802.15 Working Group approve the formation of a Ballot Resolution Committee (BRC) for the Sponsor balloting recirculation of the P802.15.4u-D4 with the following membership: Phil Beecher (chair), Kunal Shah, Amarjeet Kumar, Benjamin Rolfe, Chris Calvert and Gary Stuebing. The 802.15.4u BRC is authorized to approve comment resolutions and to approve the start of recirculation ballots of the revised draft on behalf of the 802.15 WG. Comment resolution on recirculation ballots between sessions will be conducted via reflector email and via teleconferences announced to the reflector as per the LMSC 802 WG P&P*

*Moved By: Phil Beecher*

*Seconded By: B Rolfe*

Upon neither discussion nor objection the motion carries.

**18:55** TG4v closing report by P Beecher (15-16-0512-01)

*Move that the 802.15 WG start a WG Letter Ballot requesting approval to forward document P802.15.4v-D1 to Sponsor Ballot*

Moved By: Phil Beecher

Seconded By: B Rolfe

Upon neither discussion nor objection the motion carries.

*Move that 802.15 WG approve the formation of a Ballot Resolution Committee (BRC) for the Sponsor ballot recirculation of the P802.15.4v-D1 with the following membership: Phil Beecher (Chair), Kunal Shah, Amarjeet Kumar, Chris Calvert, Clint Powell, Jay Holcomb and Gary Stuebing. The 802.15.4v BRC is authorized to approve comment resolutions and to approve the start of recirculation ballots of the revised draft on behalf of the 802.15 WG. Comment resolution on recirculation ballots between sessions will be conducted via reflector email and via teleconferences announced to the reflector as per the LMSC 802 WG P&P*

Moved By: Phil Beecher

Seconded By: B Rolfe

Upon neither discussion nor objection the motion carries.

**18:59** TG7r1 closing report by R Roberts (15-16-0555-00)

**19:07** TG8 (PAC) closing report by M Lee (15-16-0559-00)

Move that 802.15 WG approve the formation of a Ballot Resolution Committee (BRC) for the WG balloting of the P802.15.8-D01 with the following membership: Myung Lee (chair), Huan-bang Li, BJ Kwak, Marco Hernandez, Billy Verso, and Seong-Soon Joo. The 802.15.8 BRC is authorized to approve comment resolutions and to approve the start of recirculation ballots of the revised draft on behalf of the 802.15 WG. Comment resolution on recirculation ballots between sessions will be conducted via reflector email and via teleconferences announced to the reflector as per the LMSC 802 WG P&P

Moved By: Myung Lee

Seconded By: B Rolfe

Upon discussion the vote was taken with the results of the motion carries.

**19:12** TG 12 (ULI) closing report by P Kinney (15-16-0479-05)

**19:14** SC maintenance closing report by Pat Kinney (15-16-0476-03)

**19:15** 802.1/802.15Joint Meeting closing report by Pat Kinney (15-16-0476-03)

*Move that the 802.15 WG approve document 15-16-0548-01 as the IEEE 802.15 WG response to the request from the Wi-Fi Alliance for the IEEE 802.1 Working Group to consider developing a general solution to bridging IEEE 802.15.4g devices using 64-bit MAC addresses with IEEE 802.11ah devices, as well as IEEE 802.3 devices using 48-bit MAC addresses and related issues such as frame format, timing adaptation and dealing with sleeping nodes.*

Move: Pat Kinney, Seconded by Ben Rolfe

Upon no discussion the vote was taken with the results of 32/0/0, motion carries

**19:17** SC IETF closing report by P Kinney (15-16-0476-03)

**19:18** SC WNG closing reportP Kinney (15-16-0476-03)

**19:19** 802.11 liaison report by A Petrick (15-16-0547-01)

**19:28** 802.18 liaison report by J Holcomb (15-16-0552-00)

**19:31** 802.24 liaison by T Godfrey

* White papers are now complete

**19:34** IG HRRC byJunhyeong Kim (15-16-0546-00)

**19:36** IG dep byR Kohno (15-16-0543-00)

**19:42** Motion *to adjourn* was made by Ben Rolfe and seconded by Clint Powell. Upon hearing no objection, the motion carries; the session is adjourned.

**Annex A** Attendance = 81

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| **Last Name** | **First Name** | **Affiliation** |

|  |  |  |
| --- | --- | --- |
| Abdallah | Mohamed | Texas A&M University |
| Akhavan | Koorosh | Qualcomm Incorporated |
| Akiyama | Keiji | Sony Semiconductor Solutions Corporation |
| Aoyama | Hideki | Panasonic Corporation |
| Beecher | Philip E | Wi-SUN Alliance |
| Berrios | Victor | ZigBee Alliance |
| Brown | Monique | M. B. Brown Consulting |
| Callaway | Edgar | ARM, Ltd. |
| Canchi | Radhakrishna | Kyocera International Inc. |
| Cha | Jaesang | SNUT |
| Chang | Soo-Young | California State University, Sacramento (CSUS) |
| De Ruijter | Hendricus | Silicon Laboratories |
| Dolmans | Guido | Holst Centre / IMEC-NL |
| Donapati | Rakesh | Anritsu Company |
| Estrada | Andrew | Sony Corporation |
| Evans | David | Philips Lighting |
| Fischer | Michael | NXP Semiconductors |
| Gilb | James | Myself |
| Gillmore | Matthew | Itron Inc. |
| Godfrey | Tim | Electric Power Research Institute, Inc. (EPRI) |
| Haapola | Jussi | Centre for Wireless Communications / University of Oulu |
| Heile | Robert | Wi-SUN Alliance |
| Hernandez | Marco | National Institute of Information and Communications Technology (NICT) |
| Hett | Christopher | Landis Gyr Group Worldwide |
| Hiraga | Ken | NTT |
| Hirota | Tomoyuki | Panasonic Corporation |
| Holcomb | Jay | Itron Inc. |
| Hosako | Iwao | National Institute of Information and Communications Technology (NICT) |
| Jang | Yeong Min | Kookmin University |
| Joo | Seong-Soon | Electronics and Telecommunications Research Institute (ETRI) |
| Jungnickel | Volker | Fraunhofer Heinrich Hertz Institute |
| Kato | Toyoyuki | Anritsu Company |
| Kim | Junhyeong | Electronics and Telecommunications Research Institute (ETRI) |
| Kinney | Patrick | Kinney Consulting LLC |
| Kitazawa | Shoichi | ATR Wave Engineering Laboratories |
| Kohno | Ryuji | YNU/CWC-Nippon |
| Kojima | Fumihide | National Institute of Information and Communications Technology (NICT) |
| Kondou | Keitarou | Sony Corporation |
| Krieger | Ann | US Department of Defense |
| Kuerner | Thomas | TU Braunschweig |
| Kumar | Amarjeet | Procubed Inc. |
| Lee | Jae Seung | Electronics and Telecommunications Research Institute (ETRI) |
| Lee | Moon-Sik | Electronics and Telecommunications Research Institute (ETRI) |
| Lee | Myung | CUNY - City University of NY |
| Leicht | Suzanne | National Security Agency |
| Li | Huan-Bang | National Institute of Information and Communications Technology (NICT) |
| Li | Qiang | HUAWEI |
| Liu | Qian |  |
| Lynch | Michael | Nortel Networks |
| Ma | Jing | National Institute of Information and Communications Technology (NICT) |
| Matsumura | Hiroyuki | Sony Corporation |
| Millet | Charles | Analog Devices Inc. |
| Mori | Kenichi | Space-Time Engineering |
| Nekoui | Mohammad | Olympus Communication Technology of America, Inc. |
| Nguyen | Trang | Kookmin University |
| Oshima | Mitsuaki | Panasonic Corporation |
| Perkins | Charles | Futurewei Technologies |
| Petrick | Albert | Jones-Petrick and Associates, LLC. |
| Polland | Joe | CommScope, Inc. |
| Powell | Clinton | Powell Wireless Consulting, LLC |
| Rabarijaona | Verotiana | National Institute of Information and Communications Technology (NICT) |
| Rey | Sebastian | Technische Universitat Braunschweig |
| Robert | Joerg | University of Erlangen-Nuremberg |
| Roberts | Richard | Intel Corporation |
| Rolfe | Benjamin | Blind Creek Associates |
| Roy | Michel |  |
| Sadeghi | Bahareh |  |
| Salazar Cardozo | Ruben E | Landis Gyr Group Worldwide |
| Sato | Noriyuki | Oki Electric Industry Co., Ltd. |
| Serafimovski | Nikola | pureLiFi |
| Shah | Kunal | Silver Spring Networks Inc. |
| Shimada | Shusaku | Schubiquist Technologies |
| Stuebing | Gary | Cisco Systems, Inc. |
| Sturek | Don | Silver Spring Networks Inc. |
| Togashi | Kou | TOSHIBA Corporation |
| Tsonev | Dobroslav | pureLiFi |
| Verso | Billy | DecaWave |
| Woodward | Graeme | University of Canterbury, Christchurch, New Zealand |
| Xing | Weimin |  |
| Yokota | Hidetoshi | Landis Gyr Group Worldwide |
| Zuniga | Juan Carlos | SIGFOX |