**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 | [17 Sep 2015] |
| Source | [][][Chicago, IL] | Voice: [+1.847.960.3715]Fax: [+1.847.790.3805]E-mail: [pat.kinney@ieee.org] |
| Re: | [802.15 Interim Meeting in Bangkok, Thailand] |
| Abstract | [IEEE 802.15 Working Group Minutes] |
| Purpose | [Official minutes of the Working Group Session] |
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 **IEEE 802.15 Interim Meeting – Session #98**

**Centara Hotel**

**Bangkok, Thailand**

**September 13 - 17, 2015**

**Monday, 14 Sept 2015**

**8:00** 802.11, 802.15, 802.18, 802.19, and 802.24 Chairs called the joint meeting to order. IEEE 802.15 attendance is included as Annex A.

General announcements:

* No photography, no audio recording
* Social – tickets still available for Wednesday’s river cruise
* Don’t forget, book your room and register for November’s session

Straw Poll of new attendees: 0

**8:03**  IEEE patent policy

802.15 WG chair read the IEEE-SA instructions and displayed the four slides explaining patent policy and informed the attendees that additional information could be found on the PatCom web site: ([**http://standards.ieee.org/board/pat/pat-slideset.ppt**](http://standards.ieee.org/board/pat/pat-slideset.ppt)**)**.

802.15 WG chair read IEEE anti-trust policy.

**8:10** Financial report by Jon Rosdahl (CSR) docs [11-15-00995-00](https://mentor.ieee.org/802.11/dcn/15/11-15-0995-00-0000-treasurer-report-may-2015.pptx), [15-15-0677-00](https://mentor.ieee.org/802.15/dcn/15/15-15-0677-00-0000)

**8:17** Wireless and IMAT announcements by R Alfvin (Verilan) ([15-15-0182-03](https://mentor.ieee.org/802.15/dcn/15/15-15-0182-03-0000-opening-plenary-information-2015.pptx))

**8:21** WG15 Chair informed the group that the Wireless Chairs Standing Committee (WCSC) met yesterday. Chair noted that this is an open meeting, all are encouraged to attend.

* Approval from 802 EC for direction on defining the processes and procedures

**8:24** Review future sessions (document # [15-15-0654-03](https://mentor.ieee.org/802.15/dcn/15/15-15-0654-03-0000-september-2015-802-15-wg-agenda-graphic.xls))

* **November 8-13, 2015, Hyatt Regency Dallas, Dallas, TX, USA,***802 Plenary Session.*
* **January 17-22, 2016, Hyatt Regency Atlanta, Atlanta, GA, USA,***802 Wireless Interim Session.*\*
* **March 13-18, 2016, Sands Venetian Hotel, Macau, PRC,***802 Plenary Session.*
* **May 15-20, 2016, Hilton Waikoloa Village, Kona, HI, USA,** *802 Wireless Interim Session.\**
* **July 24-29, 2016, Grand Hyatt, San Diego, CA, USA,** *802 Plenary Session*
* **September 18-23, 2016, Europe (Athens, Budapest, Prague, or Warsaw),** 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 13-18, 2017, Daejeon Convention Cente, 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

**8:26 Working Group Updates**

802.11 by Adrian Stephens (Intel), (document 11-15-985-00)

* 347 voters
* IEE 802.11 Revisions and Standards Pipeline slides are included as Annex B

802.15 by B Heile (document [15-15-0654-03](https://mentor.ieee.org/802.15/dcn/15/15-15-0654-03-0000-september-2015-802-15-wg-agenda-graphic.xls))

* 110 voters
* 802.15.4 revision on track to be published in 2015 including 4e, 4f, 4g, 4j, 4k, 4m, 4p

TG3d: 100G

TG3e: HRCP (High Rate Close Proximity)

TG4n: Chinese Medical Band (CMB) - in Sponsor Ballot

TG4q: ULP (Ultra Low Power) in WG LB

TG4r: Ranging standardized

TG4s: SRU (Spectrum Resource Utilization)

TG 7r1: Optical Wireless Communications

TG8: PAC (Peer Aware Communications) – finishing draft document

TG9: KMP (Key Management Protocol) – WG Letter Ballot

TG10: L2R (Layer 2 Routing) – in WG Letter Ballot

SG LLC for 802.15.4

15.4 High(er) rate amendment

15.4 India amendment

IG 6tisch

IG Dependability

IG High Rate Rail Communications

IG THz

IG 15.4 Guide

802.18 by M Lynch

* 9 voters
* looking at items cited on slide 3 of doc 18-15-0053-000

802.19 S Shellhammer (doc #19-15-076-01)

* 30 voters
* 3GPP Liaison –
	+ LAA Workshop was held on 29 August in Beijing
	+ Coexistence Testing was discussed as a topic
* Task Group 1a –
	+ no meetings are scheduled this session
* Coexistence in the Automotive Environment – Interest Group
	+ Will meet at November Plenary

802.21 Subir Das (doc # 21-15-098-00)

* 20 voters
* TG21m – revision project – discuss draft document update and changes
* TG21.1 –use cases and services – discuss draft document update and changes

802.24 Tim Godfrey (24-15-0025)

* 32 voters
* development of sub 1 GHz white paper

OmniRAN Max Riegel

* discussion of 802.11 as a component

Privacy ECSG by Juan Carlos

* working on privacy trials at these sessions
* meeting to allow wireless groups to discuss aspects of privacy

**AoB**

* Revised Working Group P&P will take effect after November session

**8:58** Joint meeting adjourned

**Working group opening plenary**

**9:32** B Heile (WiSUN Alliance), WG chair called the 802.15 WG plenary to order (15-15-0654-03)

Chair reminded attendees that highlights of the IEEE-SA Standards Board Bylaws on Patents in Standards. Chair referred those who wished to review these policies that the IEEE-SA patent policy presentation slides 1-5 and reading the instructions for the WG Chair. (<http://standards.ieee.org/board/pat/pat-slideset.ppt>).

Chair asked participants 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 the use of that standard:

* Don Sturek announced that Silver Springs Network has a patent conflicting with 802.15.10, further noting that Silver Springs has prepared necessary LoA documentation.
* Clint Powell stated that FreeScale and Elster have patents conflicting with 802.15.4q. WG chair will contact these companies requesting their LoAs.

Chair reminded participants of IEEE anti-trust rules and obligations.

Approve/modify joint opening agenda (15-15-0654-04)

* Moved by C Powell, seconded by Andrew Estrada. Following neither discussion nor objection the agenda was approved.

Review and approve 802.15 WG minutes from the Waikoloa session (15-15-0543-00-0000)

* Moved by C Powell, seconded by Ben Rolfe. Upon neither discussion nor objection the joint minutes were approved.

**9:48** WG recessed

**Wednesday 16 Sept 2015**

**802.15 mid-session plenary meeting**

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

**TG3d (100G)** by T Kürner

* Discussions about another group developing standards within the range of 3d
* Motion: *request that the PAR contained in 15-15-0682-01-003d-3d-par-change and the CSD contained in 15-15-0683-01-003d-tg3d-csd-change be approved the 802.15 WG and that the 802 EC be requested to forward the revised PAR to NesCom. The 802.15 working group chair and technical editor are authorized to make additional modifications to the PAR and CSD as needed to reflect EC discussion at its closing meeting.*
* Moved by: Thomas Kürner, seconded by Andrew Estrada
* Upon no discussion the vote was taken with the results of 40/0/0, motion carries

**TG3e** by Andrew Estrada

* 7 contributions made this week on a single unified proposal

**TG4n (CMB)** Closing Report by Kenichi Mori

**TG4q (ULP)** by Chu Ngo

* In Sponsor Ballot

**TG4r (ranging)** by B Rolfe (15-15-0706-00)

* Will now go into hibernation

**TG4s (SRU)** by Shoichi Kitazawa

* Working on coexistence mechanisms

**TG7r1 by Yeong Min**

* Updated the documents for channel modeling

**TG8 (PAC)** by Myung Lee (CUNY)

* Hearing presentations
* Working on draft

**TG9 (KMP) closing report** by P Yee (NIST) (15-15-0713-01)

Move that *802.15 WG reaffirm the constitution of a Ballot Resolution Committee (BRC) for the WG balloting of the 802.15.9 draft recommended practice with the following membership: Peter Yee, Tero Kivinen, Don Sturek, Peter Yee, Subir Das, Brian Weis, Gary Stuebing. The 802.15.9 BRC is authorized to approve comment resolutions and to approve the start of recirculation ballots of the 802.15.9 draft on behalf of the 802.15 WG. Comment resolution between sessions will be conducted via reflector email and via teleconferences announced to the reflector at least 30 days in advance.*

Moved by P Yee, Seconded by R Alfvin

Upon neither discussion nor objection the motion carries with unanimous consent

**TG10 (L2R)** by C Powell

* Working on comment resolution

**IG High Rate Rail Communications (HRRC)** by Junhyeong Kim (15-15-0697-00)

**IG dep** by R Kohno

* Discussing updating documents

**IG 6tisch** by P Kinney

* discussed IETF 6tisch status and issues
* agreed to draft a white paper on PAN ID and liaison letter to IETF

**SC Maintenance** by P Kinney

* finishing up all areas of contention

**SG LLC** by P Kinney

* reviewed proposed functionality for LLC
* agreed upon prioritized functions for first release

**SC WNG** by P Kinney

* + High(er) rate amendment by C Powell
	+ India band assignment amendment by P Beecher

**15.3 Revision** by J Gilb

* Sent out document
* WG LB planned for end of week

**AoB**

**11:05** Recessed until Thursday at 18:30

**Thursday, 17 Sept 2015**

**18:30** 802.15 WG chair called the meeting to order

**18:33** TG 3d by T Kürner (15-15-0566-00)

**18:36** TG 3e(HRCP) by A Estrada (15-15-0756-00)

**18:40** TG 3m by J Gilb (15-15-0690-01)

Move that *802.15 WG start a WG Letter Ballot requesting approval to forward document 802.15.3RevA-D00.pdf, edited in accordance with the instructions in document 15-15-0715-02-003m, to Sponsor Ballot pending the completion and inclusion of the edits in the draft.*

Moved: J Gilb Second: R Alfvin

Upon neither discussion nor objection the motion carries with unanimous consent

#### Move that *802.15 WG approve the formation of a Ballot Resolution Committee (BRC) for the WG balloting of the 802.15.3RevA draft standard with the following membership: James Gilb (Chair), Thomas Kürner, Andrew Estrada, Ko Togashi, Pat Kinney. The 802.15.3m BRC is authorized to approve comment resolutions and to approve the start of recirculation ballots of the 802.15.3RevA 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 at least 7 days in advance*.

#### Moved: J Gilb Second: R Alfvin

Upon neither discussion nor objection the motion carries with unanimous consent

**18:48** TG4n Closing Report by K Mori(15-15-0762-00)

*Move that 802.15 WG approve the formation of a Ballot Resolution Committee (BRC) for the Sponsor balloting of the 802.15.4n draft standard with the following membership: Arthur Astrin (chair), Liang Li, Shinsuke Hara, WeiXia Zou and Kenichi Mori. The 802.15.4n BRC is authorized to approve comment resolutions and to approve the start of recirculation ballots of the 802.15.4n draft on behalf of the 802.15 WG.*

Moved by: K Mori Seconded by: R Alfvin

Upon neither discussion nor objection the motion carries with unanimous consent

**18:53** TG4q (ULP) by C Ngo (15-15-0669-00)

*Move that the 802.15.4q TG requests 802.15 WG to approve the formation of a Ballot Resolution Committee (BRC) for the WG balloting of the 802.15.4q draft standard with the following membership: Chiu Ngo (Chair), Allan Zhu (Huawei), Hendricus De Ruijter (Silicon Lab), Youngsoo Kim (Samsung), Guido Dolmans (IMEC), Kiran Bynam (Samsung), Chandrashekhar Thejaswi PS (Samsung). The 802.15.4q BRC is authorized to approve comment resolutions on behalf of the 802.15 WG. Comment resolution between sessions will be conducted via reflector email and via teleconferences announced to the reflector at least 30 days in advance.*

Moved by C Ngo, seconded by R Alfvin

J Gilb opposed the motion due to the appearance of dominance, noting that 4 out of the 7 members were from the same company.

The vote was taken with the results of 12/4/7, motion carries

**19:00** TG4s (SRU) by S Kitazawa (15-15-0763-00)

**19:06** TG7r1 (OWC) by Yu Zeng (15-15-0759-00)

**19:09** TG8 (PAC) by Myung Lee (15-15-0748-00)

**19:12** TG10 (L2R) by Clint Powell (15-15-0751-01)

*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 TG10 BRC is authorized to approve comment resolutions and to approve the start of balloting 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 as announced to the reflector at least 30 days in advance.*

Moved by: Clint Powell, Seconded by: T Kürner

Upon neither discussion nor objection the motion carries with unanimous consent

**19:15** 15.4t PAR and CSD by C Powell (15-15-0738-00, 15-15-0739-00)

Motion: *request that the PAR and CSD contained in documents 15-15-738-00 and 15-15-739-00, respectively, be approved by the 802.15 WG and that the 802 EC be requested to forward the revised PAR to NesCom. The 802.15 working group chair and technical editor are authorized to make additional modifications to the PAR and CSD as needed to reflect EC discussion at its closing meeting.*

Moved by C Powell Seconded by A Estrada

The vote was taken with the results of 25/0/1, motion carries

**19:24** Sub-GHz proposal for India for 802.15.4 by P Beecher (15-15-0734-01)

Motion: *request that the PAR and CSD contained in documents 15-15-754-00 and 15-15-755-00, respectively, be approved by the 802.15 WG and that the 802 EC be requested to forward the revised PAR to NesCom. The 802.15 working group chair and technical editor are authorized to make additional modifications to the PAR and CSD as needed to reflect EC discussion at its closing meeting.*

Moved by P Beecher Seconded by R Alfvin

The vote was taken with the results of 24/1/1, the motion carries

**19:39** IG dep closing report by J Haapola (15-15-0745-00)

**19:42** IG 6tisch closing report by Pat Kinney (15-15-0704-01)

**19:48** SCclosing report by Pat Kinney (15-15-0689-01)

*Move that 802.15 WG approve the formation of a Ballot Resolution Committee (BRC) for the Sponsor Balloting of the 802.15.4 Revision draft standard with the following membership: Pat Kinney, James Gilb, Jussi Haapola, Jeritt Kent, Benjamin Rolfe, Clint Powell, Billy Verso, Kunal Shah, Fumihide Kojima, Tero Kivinen, and Tim Harrington. The 802.15.4 Revision BRC is authorized to approve comment resolutions and to approve the start of balloting the 802.15.4 Revision draft on behalf of the 802.15 WG. Comment resolution on recirculation ballots between sessions will be conducted via reflector email and via teleconferences as announced to the reflector.*

***Moved by Pat Kinney*** *on behalf of Standing Committee*

Upon neither discussion nor objection the motion carries with unanimous consent

**19:51** SG LLC closing report by Pat Kinney (15-15-0730-01)

**19:54** 802.18 by J Notor (15-15-0740-00)

**19:36** 802.24 by T Godfrey

* Response to ITU-R -36
* Work on sub-GHz white paper
* Progress on 802 student paper contest

**AoB**

**19:58** Motion *to adjourn* was made by C Powell, seconded by R Alfvin, upon no objection the motion carried, this session is adjourned.

**Annex A** Attendance = 73

|  |  |  |
| --- | --- | --- |
| **Last Name** | **First Name** | **Affiliation** |
| Alfvin | Richard | Verilan |
| Aoyama | Hideki | Panasonic Corporation |
| Baykas | Tuncer | Istanbul Medipol University |
| BEECHER | PHILIP E | Wi-SUN Alliance |
| Bynam | Kiran | SAMSUNG |
| Calvert | Chris | Landis Gyr Group Worldwide |
| Cha | Jaesang | SNUT |
| Chang | Soo-Young | California State University, Sacramento (CSUS) |
| Choi | Sangsung | Electronics and Telecommunications Research Institute (ETRI) |
| Chung | Hee-Sang | Electronics and Telecommunications Research Institute (ETRI) |
| De Ruijter | Hendricus | Silicon Laboratories |
| Dotlic | Igor | National Institute of Information and Communications Technology (NICT) |
| Estrada | Andrew | Sony Corporation |
| Fukui | Kiyoshi | Oki Electric Industry Co., Ltd. |
| Gilb | James | Pulse-LINK Inc. |
| Godfrey | Tim | Electric Power Research Institute, Inc. (EPRI) |
| Guan | Ke | Beijing Jiaotong University |
| Haapola | Jussi | Centre for Wireless Communications / University of Oulu |
| Heile | Robert | Wi-SUN Alliance |
| Hernandez | Marco | National Institute of Information and Communications Technology (NICT) |
| Hiraga | Ken | NTT |
| HOSAKO | IWAO | National Institute of Information and Communications Technology (NICT) |
| Hossain | Mohammad | Kookmin University |
| Hui | Bing | Electronics and Telecommunications Research Institute (ETRI) |
| Ikegami | Tetsushi | Meiji University |
| Jang | Yeong Min | Kookmin University |
| Jungnickel | Volker | Fraunhofer Heinrich Hertz Institute |
| Kato | Shuzo | Tohoku University |
| Kent | Jeritt | Analog Devices Inc. |
| Kim | Jaehwan | Electronics and Telecommunications Research Institute (ETRI) |
| Kim | Junhyeong | Electronics and Telecommunications Research Institute (ETRI) |
| Kim | Young-Hoon | Electronics and Telecommunications Research Institute (ETRI) |
| KINNEY | PATRICK | Kinney Consulting LLC |
| Kitazawa | Shoichi | ATR Wave Engineering Laboratories |
| Kivinen | Tero | INSIDE Secure |
| Kohno | Ryuji | YNU/CWC-Nippon |
| Kuerner | Thomas | TU Braunschweig |
| Kumar | Amarjeet | Procubed Inc. |
| lee | hoosung | Electronics and Telecommunications Research Institute (ETRI) |
| Lee | Hyeong Ho | Electronics and Telecommunications Research Institute (ETRI) |
| 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 |
| Li | Huan-Bang | National Institute of Information and Communications Technology (NICT) |
| Lynch | Michael | Nortel Networks |
| maekawa | itaru | Japan Radio Co., Ltd. |
| Matsumura | Hiroyuki | Sony Corporation |
| Mori | Kenichi | Space-Time Engineering Japan, Inc |
| Ngo | Chiu | SAMSUNG |
| Nguyen | Trang | Kookmin University |
| Noda | Makoto | Sony Corporation |
| Notor | John | Notor Research |
| Ogawa | Hiroyo | National Institute of Information and Communications Technology (NICT) |
| Oshima | Mitsuaki | Panasonic Corporation |
| Oyama | Satoshi | Association of Radio Industries and Businesses (ARIB) |
| Perkins | Charles | Futurewei Technologies |
| Powell | Clinton | Powell Wireless Consulting, LLC |
| P S Bhat | Chandrashekhar | SAMSUNG |
| Rakanovic | Demir | u-blox |
| Rey | Sebastian | Technische Universitat Braunschweig |
| Roberts | Richard | Intel Corporation |
| Rolfe | Benjamin | Blind Creek Associates |
| Sato | Noriyuki | Oki Electric Industry Co., Ltd. |
| Serafimovski | Nikola | pureLiFi |
| Sihn | Gyung Chul | Electronics and Telecommunications Research Institute (ETRI) |
| Stuebing | Gary | Cisco Systems, Inc. |
| Sturek | Don | Silver Spring Networks Inc. |
| Sun | Yanjun | Qualcomm Incorporated |
| Togashi | Kou | TOSHIBA Corporation |
| toshimitsu | kiyoshi | TOSHIBA Corporation |
| Wang | Hao | Fujitsu Research & Development Center |
| Yokota | Hidetoshi | Landis Gyr Group Worldwide |
| Zeng | Yu | China Telecommunications Corporation |

**Annex B**



