IEEE P802.15

**Wireless Personal Area Networks**

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| Project | Dependability Interest Group |
| Title | **Meeting Minutes for January 2021**  |
| Date Submitted | January 21st, 2021 |
| Source | Ryuji Kohno\*†, Takumi Kobayashi\*\*Yokohama National University(YNU)79-5 Tokiwadai, Hodogaya-ku, Yokohama, 240-8501 Japan†CWC, University of Oulu(CWC UofOulu)Linnanmaa, P.O. Box 4500, FIN-90570 Oulu, Finland FI-90014 | Voice: +81 90 5408 0611E-mail: kohno@ynu.ac.jpkobayashi-takumi-ch@ynu.ac.jp |
| Re: | Meeting Minutes |
| Abstract | IG-DEP activities as amendment of existing std. IEEE802.15.6-2012 for WBAN including conventional focused use cases, additional use cases for vehicles, technical requirement, draft of the amendment of PAR have been rereviewed and revised. Medical healthcare and automotive equipment and manufacturers need BAN with enhanced dependability, that is, dependable BAN(DBAN) beyond std. IEEE802.15.6-2012 BAN under dense coverage of multiple piconets overlaid and new capabilities and functionalities while keeping interoperability with or extension of std. IEEE802.15.6-2012 BAN. Need for the amendment of std. IEEE802.15.6-2012 to enhance dependability for medical and automotive uses increases drastically.The amendment focuses on PHY and MAC to enhance dependability in cases of multiple piconets overlaid. Interference immunity for inter-piconet interference between narrowband and wideband, inter-piconet between same wideband has been discussed for amendment of UWB PHY of std. IEEE 802.15.6-2012. In MAC, simpler and more reliable MAC protocol such as contention-free protocol or simplified hybrid contention-free and contention-access protocol of std. IEEE 802.15.6-2012 MAC has been discussed. In addition, some specific issues such as sensing and feedback control loop delay and ranging and localization or positioning capability have been taken care. Update of technical requirement and draft PAR has been summarized. |
| Purpose | Minutes of Dependability Electronic Interim Session on Webex, January 2021 |
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**Tuesday, January 12th, 2021, PM 7:00-9:00 EST****(13th January, AM9:00-11:00 JST)**

**Room: Webex Virtual Conference**

* 1. Meeting called to order 7:00 EST

By Chair Ryuji Kohno (YNU / CWC UofOulu)

* 1. Roll Call

Announcement to attendance by using IEEE Attendance Tool (IEEE IMAT).

* 1. Opening Report doc.# 802. 15-20-0399-01-0dep

Chair showed IEEE Patent policy.

Chair issued Call for Potentially Essential Patents

No essential intellectual property in the scope of IG DEP was declared.

Chair presented agenda this meeting doc.# 802. 15-21-0012-01-0dep

* 1. Approval of previous meeting minutes

Upon no comments on the previous meeting minutes, doc. #15-20-365 was approved.

[Presentation for Amendment of IEEE802.15.6 BAN]

* 1. Necessity for Amendment of IEEE 802.15.6 Medical BAN with Enhanced Dependability, Ryuji Kohno, doc.#802.15-20-316-02-0
	2. Updated Technical Requirements for Amendment of IEEE802.15.6 Medical BAN, Ryuji Kohno, doc.# 802.15-20-352-03
	3. Update of PAR for Amendment of IEEE802.15.6 WBAN, Ryuji Kohno,
	doc.# 802.15-20-0361-01-0
	4. Discussion for Amendment of IEEE802.15.6 BAN
	5. Preparation for Presentation in WNG Mid Plenary
	A an erroneous description of time slot of the WNG meeting in the Agenda was pointed out. (*Marco Hernandez*)
	=> Corrected. Corrected agenda has been uploaded as doc.# 802. 15-21-0012-02-0dep
	6. Recess

**Attendees list**

Attendees 13

* Ryuji Kohno (YNU / UofOulu)
* Y Ueda (ARIS)
* Marco Hernandez
* Mike Marcus
* Huan-Bang Li (NICT)
* Iwao Hosako (NICT)
* Kotaro Yamasue (YCU)
* Minsoo Kim (YNU)
* Seong-Soon Joo
* T. Suzuki (NICT)
* Tets Nagamoto (Kyoto Univ.)
* Tetsushi Ikegami (Meiji Univ.)
* Takumi Kobayashi (YNU)

**Tuesday, January 13th, 2021, PM7:00-9:00 EST (14th January, AM9:00-11:00 JST)**

**Room: Webex Virtual Conference**

* 1. Meeting called to order 7:00 EST

By Chair Ryuji Kohno (YNU / CWC UofOulu)

* 1. Roll Call

Announcement to attendance by using IEEE Attendance Tool (IEEE IMAT).

* 1. Opening Report

Chair showed IEEE Patent policy.

Chair issued Call for Potentially Essential Patents

No essential intellectual property in the scope of IG DEP was declared.

Chair presented agenda this meeting doc.# 802. 15-21-0012-02-0dep

=>Modifications of the agenda were approved.

* 1. Approval of previous meeting minutes

Upon no comments on the previous meeting minutes, doc. #XX-XXX-XXXwas approved.

[Review of Comments in WNG Mid Plenary]

* 1. IG-DEP Activity for Amendment of IEEE 802.15.6 BAN with Enhanced Dependability, Ryuji Kohno, doc.#802.15-21-0023-00-0
	[discussion]
	---Questions in WNG meeting---
	Which company needs the amendment?
	 => Consortium members have interest in this amendment.
	 => Necessity of definition of guaranteed worst case performance rather than the average performance.
	 => Necessity of consider inter-user interference and inter-system interference.
	 => Validated medical device can be used by medical purposes. Social insurance covering 70% in Japan. This will be effective to business promotion for the devices.
	Focusing PHY or MAC or both?
	 => Firstly we focus to modify MAC, then PHY will be discussed if necessary.
	Is this a amendment for 15.6 or 15.4a?
	 => We are focusing on an amendment of 802.15.6.

	[Goal?, MAC or PHY, if only PHY, Shall we work together with the other group? If MAC, shall we start thinking to work with 802.14? (Ryuji Kohno)]
	15.6 was many conflict on MAC issues, then MAC became very complex. Good to make smaller. (Marco Hernandez)
	Current 802.15.6 has 3 PHYs. For simplify, for example, we can focus on contention free period on MAC and UWB on PHY. (Ryuji Kohno)
	2. Updated Technical Requirements for Amendment of IEEE802.15.6 Medical BAN doc.# 802.15-20-352-03
	3. Update of PAR for Amendment of IEEE802.15.6 WBAN doc.# 802.15-20-361-00
	Vice-chair of IG-DEP, “Marco Hernandez”. => Approved.
	Editing PAR (All)

* 1. Recess

**Attendees list**

Attendees 13

* Ryuji Kohno (YNU / UofOulu)
* Marco Hernandez
* Clint Powell
* Shinichi Sato (Mobile Techno)
* Yasuharu Amezawa (Mobile Techno)
* Masatomo Kanegae (Health Sensing)
* Huan-Bang Li (NICT)
* Kotaro Yamasue (YCU)
* Minsoo Kim (YNU)
* T. Suzuki (NICT)
* Tets Nagamoto (Kyoto Univ.)
* Tetsushi Ikegami (Meiji Univ.)
* Takumi Kobayashi (YNU)

**Tuesday, January 14th, 2021, PM7:00-9:00 EST (15th January, AM9:00-11:00 JST)**

**Room: Webex Virtual Conference**

* 1. Meeting called to order 7:00 EST

By Chair Ryuji Kohno (YNU / CWC UofOulu)

* 1. Roll Call

Announcement to attendance by using IEEE Attendance Tool (IEEE IMAT).

* 1. Opening Report (Ryuji Kohno) doc.#802.15-20-0399-02-0

Chair showed IEEE Patent policy.

Chair issued Call for Potentially Essential Patents

No essential intellectual property in the scope of IG DEP was declared.

Chair presented agenda this meeting doc.# 802. 15-21-0012-04-0dep

=> approved.

* 1. Review of Previous Discussion
	[Approval of previous meeting minutes]

Upon no comments on the previous meeting minutes, doc. # 15-20-0365-00-0dep

was approved.

[Quick review of previous discussion. Keywords]
- Should we focus on MAC, Contention free period?
- Making PAR amendment.

Self-introduction from Vice chair; Prof. Marco Hernandez. (Marco Hernandez)

* 1. Amendment of IEEE802.15.6 WBAN; IEEE 802.15.6a PAR draft. #I (Ryuji Kohno, Marco Hernandez) doc.# 15-21-0030-00-0dep

	Editing PAR document.
	- Ranging function is not included in current 802.15.6 std. (Tetsushi Ikegami)
	- Ranging and localization or positioning capability were added onto the Scope.
	- Sensing and feedback control loop delay were added onto the Scope.
	=>Modifications were approved.

[Presentation on Feasible Technologies for the Updated Technical Requirement in PHY and MAC]

* 1. Quality of Service Control Scheme in Multi-Hop Wireless Body Area Networks, Kento Takabayashi, doc.# 802.15-21-0022-00-0dep
	[discussion]
	-In multi-hop situation, error is propagated to lower layer. Are you assuming the same error rate in each hop? (Ryuji Kohno)
	=>In this system model, if too much error in first hop, these data is not transmitted to the second hop. (Kento Takabayashi)
	-I have experience of experiment in Yokohama City University hospital. Fading issues is biggest problem. What is your opinion?
	=>Channel model 3 (CM3), multipath fading and shadowing like hospital room case. In consideration, our QoS control scheme can be use such channel environment in simulation.(Kento Takabayashi)
	You can see the parameters of FEC. It is very low coding rate. It means that, UWB-BAN can use very powerful error control code to achieve high dependability and reliability. (Ryuji Kohno)
	2. Transmission Power Control of UWB-BAN to Co-exit with 4G/5G Using the Integrated Terminal, Minsoo Kim, doc.#802.15-21-0028-00-0dep
	[discussion]
	-In your study, interference between BAN and 4G, 5G cellular networks are discussed. Instead of cellular system, are these technologies applicable to the other piconet? (Ryuji Kohno)
	- Right. These technologies can be applicable for the other situation for example, 15.6 BAN and the other PAN, or also medical BAN and non-medical BAN case. (Minsoo Kim)
	3. Amendment of IEEE802.15.6 WBAN; IEEE 802.15.6a PAR draft. (Ryuji Kohno, Marco Hernandez) doc. # 15-21-0030-00-0dep
	=>Modifications were approved.
	4. Recess

**Attendees list**

Attendees 14

* Ryuji Kohno (YNU / UofOulu)
* Marco Hernandez
* Clint Powell
* Masatomo Kanegae (Health Sensing)
* Iwao Hosako(MICT)
* Huan-Bang Li (NICT)
* Kotaro Yamasue (YCU)
* Minsoo Kim (YNU)
* T. Suzuki (NICT)
* Shinichi Sato (Mobile Techno)
* Tetsushi Ikegami (Meiji Univ.)
* Yumi Mori (Seijo Univ.)
* Kento Takabayashi (Okayama Prefectural Univ.)
* Takumi Kobayashi (YNU)