IEEE P802.15

**Wireless Personal Area Networks**

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| Project | Task Group 15.6ma |
| Title | **TG15.6ma Meeting Minutes for September 2024**  |
| Date Submitted | September 12th , 2024 |
| Source | [Ryuji Kohno1,2 Marco Hernandez1 Takumi Kobayashi1,3 Minsoo Kim1, Daisuke Anzai3 [1; YRP-IAI (YRP International Alliance Institute), Japan, 2; YNU (Yokohama National University), Japan, 3; NiTech(Nagoya Institute of Technology)] | Voice: +81 90 5408 0611E-mail: kohno@ynu.ac.jp marco.hernandez@ieee.org kobayashi-takumi@yrp-iai.jp minsoo@minsookim.com anzai@nitech.ac.jp |
| Re: | Meeting Minutes |
| Abstract | Since PAR and CSD of SG15.6ma as amendment of existing IEEE802.15.6-2012 for WBAN with enhanced dependability was approved by NesCom in July 2023, Task Group TG15.6ma has been drafting technical requirement in cases of WBAN for medical use case for human body(HBAN) and for automotive use case for vehicle body(VBAN) with their connected use cases. In July meeting, to summarize technical requirement TG15.6ma has reviewed focused uses cases necessary for enhanced dependability in which channel propagation and environment of HBAN and VBAN with their mixed use can be categorized and modeled. Particularly to perform enhanced dependability in dense environment coexisting multiple overlaid BANs and different UWB and narrow band WPAN, WSN, WLAN etc. necessary technical requirement has been summarized in PHY and MAC layers. Possible solutions to ensure enhanced dependability in PHY and MAC have been presented and discussed. Latest status of ETSI Smart BAN standard has been presented to find a way to make interoperability with IEEE802.15.6 and 6ma. To harmonize activities of TG15.6ma, 15.4ab using UWB PHY, TRD and technical guidance document(TGD) have been reviewed in the sessions.  |
| Purpose | Minutes of Dependability Electronic Interim Session on mixed mode with Webex, September 2024. |
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**TG15.6ma 1st Session**

**Tuesday, September 9th, 2024, 1:30 PM- 3:30 PM Local Waikoloa Time**

**Room# Waikoloa 2, Hilton Waikoloa Village, Waikoloa, Hawaii, USA,**

**with Webex Virtual Room #3**

* 1. Meeting called to order 1:30 PM

By Chair Ryuji Kohno (YNU / YRP-IAI)

* 1. Roll Call *Ryuji Kohno*

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

Registration information.

By Chair Ryuji Kohno

* 1. Opening Report *Ryuji Kohno (YNU / YRP-IAI)* doc.# 802.15- 24-448-02-06a

Chair showed IEEE Patent policy.

Chair issued Call for Potentially Essential Patents.

Þ No essential intellectual property in the scope of TG6a was declared.

Chair presented agenda of this meeting doc.# 802.15- 24-0447-05-06a

Þ Approved.

* 1. Approval of previous meeting minutes, *Takumi Kobayashi (YNU / YRP-IAI)*

Þ Upon no comments on the March meeting minutes, doc. #15-24-0405-00-06a was approved.

**[Review]**

* 1. Overview of IG-DEP, SG6a, TG6a and TG15.6ma for Revision of IEEE 802.15.6-2012 Wireless BAN with Enhanced Dependability, *Ryuji Kohno,* doc.#15-23-455-04-006a
	2. Basic Consensus in MAC and PHY of Revision of IEEE802.15.6-2012 (IEEE802.15.6ma), *Ryuji Kohno,* doc.#23-0557-03-006a
	3. ~~Hybrid ARQ Scheme for High QoS Packets in High Class of Coexistence of IEEE 802.15.6ma,~~ *~~Kento Takabayashi,~~* ~~doc.# 23-0576-05-006a~~
	4. ~~Evaluation of IEEE 802.15.6ma Ultra-wideband Physical Layer Utilizing Super Orthogonal Convolutional Code,~~ *~~Kento Takabayashi,~~* ~~doc.# 22-00562-11-006a~~
	5. Technical editor comments to the P802.15.6ma\_D2.5, *Tero Kivinen*
		+ Page number of PDF has some problem. PDF page number and the number at the bottom of document is different. (*Tero Kivinen*)
		+ 1st page, revision number should be D00, D01. You can use D00 or D03 as for 1st letter ballot. (*Tero Kivinen*)
			- I understand. We will change it to “D03”. (*Ryuji Kohno*)
	6. Review of draft#2.5 for Pre-Ballot WG, *Ryuji Kohno*, doc.# Draft 2.5
	7. Comment-Resolution Database for Pre-Ballot WG, *Ryuji Kohno,* doc.# 23-0476-16-006a
	8. Recessed at 15:15 PM by chair, *Ryuji Kohno*

**Attendees list**

Attendees 10

***Name Affiliation***

* Daisuke Anzai Nagoya Institute of Technology
* Huan-Bang Li NICT
* Kamran Sayrafian NIST
* Masayuki Hirata Osaka University
* Ryuji Kohno YNU/YRP-IAI
* Takafumi Suzuki NICT
* Takumi Kobayashi Nagoya Institute of Technology/YRP-IAI
* Tero Kivinen Self
* Tetsuya Nomura DENSO TEN
* Yasuharu Amezawa Mobile Techno

**TG15.6ma 2nd Session**

**Tuesday, September 10th, 2024, 16:00 PM- 18:00 PM Local Waikoloa Time**

**Room# Kona 1, Hilton Waikoloa Village, Waikoloa, Hawaii, USA,**

**with Webex Virtual Room #3**

* 1. Meeting called to order 16:00 PM

By Chair Ryuji Kohno (YNU / YRP-IAI)

* 1. Roll Call *Ryuji Kohno*Announcement to attendance by using IEEE Attendance Tool (IEEE IMAT).
	Registration Information, By Chair *Ryuji Kohno*
	2. 802 Mtg. Non-Registration Consequences, by Chair *Ryuji Kohno*
	3. Confirmation of Agenda, doc.# 15-24-0447-07-06ma, *Ryuji Kohno*

**[Presentaion of Feasible Implementation and Performance Analysis of Feasibility]**

* 1. Introduction of initial evaluation results for UWB data communication in the automotive environment, *Tetsuya Nomura,* doc.#15-24-0451-00-006a
		+ If you are focusing on delay time, you can choose TDMA based protocols. (*Huan-Bang Li*)
		+ We just started evaluation using UWB and trying to implementation. (*Tetsuya Nomura*)
		+ In near future, TDMA type CFP can be evaluated instead of polling. (*Ryuji Kohno*)
	2. Hybrid ARQ Scheme for High QoS Packets in High Class of Coexistence of IEEE 802.15.6ma, *Kento Takabayashi*, doc.#15-23-0576-05-006a
		+ Simulated throughput shows quite good results. Do you have any result of delay? (*Ryuji Kohno*)
			- We will try to evaluate about delay with various number of retransmission parameter settings. (*Kento Takabayashi*)
		+ To satisfy technical requirement permissible delay, please provide us some information to decide maximum number of retransmission. (*Ryuji Kohno*)
	3. Evaluation of IEEE 802.15.6ma Ultra-wideband Physical Layer Utilizing Super Orthogonal Convolutional Code, *Kento Takabayashi,* doc.#15-22-00562-11-006a
	4. MAC Performance Evaluation of Multiple BAN Coexistence Under TG6ma Channel Model, *Daisuke Anzai*, doc.#15-24-0246-02-006a
		+ Transition time is also important. Please consider about that if possible. (*Ryuji Kohno*)
	5. MAC Format, *Ryuji Kohno*, doc.#15-24-0355-00-006a
	6. MAC Service Features, *Ryuji Kohno*, doc.#15-24-0356-00-006a
	7. Technical editor comments to the P802.15.6ma\_D2\_5.2, *Takumi Kobayashi*, doc.#15-24-0481-00-006a
	8. Review of draft D003 after revision of D2\_5.2 according to WG technical editor's comments, *Takumi Kobayashi*, draft D003
	9. TG15.6ma Coexistence Assessment Document, *Ryuji Kohno*, doc.#15-24-0348-02-006a
	10. TG Motion to LB, *Ryuji Kohno*, doc.#15-24-0489-00-006a
		+ Moved by Takumi Kobayashi , Seconded by Huan-Bang Li
		+ TG Motion has been approved anonymously.
	11. Recessed (17:45 PM)

Attendees 25

***Name Affiliation***

* Alice Jialing Li Chen Qualcomm
* Daisuke Anzai Nagoya Institute of Technology
* Hiroshi Harada Ukyoto
* Huan-Bang Li NICT
* Ishaque Kadampot Qualcomm
* Josef Gruber IFX
* Kento Takabayashi Toyo University
* Larry Zakaib Spark Microsystems
* Libra Xiao NRT
* Masayuki Hirata Osaka University
* Menashe -
* Rojan Chitrakar Huawei
* Run Chen NRT
* Ryuji Kohno YNU/YRP-IAI
* Sriram Murali Texas Instruments
* Taeyong Ha Samsung
* Takafumi Suzuki NICT
* Takenori Sumi Mitsubishi Electric
* Takumi Kobayashi Nagoya Institute of Technology/YRP-IAI
* Tetsuya Nomura DENSO TEN
* Thomas Almholt TI
* Weidong Tang NRT
* Xiliang Luo Apple
* Yasuharu Amezawa Mobile Techno
* Youhan Kim Qualcomm Technologies Inc.

**TG15.6ma 3rd Session**

**Wednesday, September 11th, 2024, 13:30 PM- 15:30 PM Local Waikoloa Time**

**Room# Waikoloa 2, Hilton Waikoloa Village, Waikoloa, Hawaii, USA,**

**with Webex Virtual Room #3**

* 1. Meeting called to order 13:30 PM

By Chair Ryuji Kohno (YNU / YRP-IAI)

* 1. Roll Call *Ryuji Kohno*Announcement to attendance by using IEEE Attendance Tool (IEEE IMAT).
	Registration Information, By Chair *Ryuji Kohno*
	2. 802 Mtg. Non-Registration Consequences, by Chair *Ryuji Kohno*
	3. Confirmation of Agenda, doc.#24-0349-04-006a, *Ryuji Kohno*
	4. Necessary documents for WG Motion to LB, *Ryuji Kohno*
	5. Progress report of 802.15.6ma, doc.#15-23-0056-08-006a, *Ryuji Kohno*
	6. TG6ma Timeline, doc.#15-23-0361-07-006a, *Ryuji Kohno*
	7. Commonality and Coexistence between 6ma and 4ab,
		+ Discussion
	8. Coordinator-to-Coordinator(C2C) Ranging and Communication for Multiple BAN Coexistence, *Ryuji Kohno*
	9. Interference Mitigation Schemes in Class 3, 5, 6, and 7 of Coexistence in TG6ma, doc.#15-24-0073-04-006a, *Takumi Kobayashi*
	10. Performance Evaluation of Channel Coding with Interleaver Based on TG6ma Channel Model for Some Classes of Coexistence, doc.#15-24-0247-02-006a, *Daisuke Anzai*
	11. Ranging Accuracy Evaluation under TG6ma Communication Scenarios, doc.#15-24-0248-02-006a, *Daisuke Anzai*

Recessed (15:03 PM)

Attendees 7

***Name Affiliation***

* Daisuke Anzai Nagoya Institute of Technology
* Kamran Sayrafian NIST
* Ryuji Kohno YNU/YRP-IAI
* Takafumi Suzuki NICT
* Takumi Kobayashi Nagoya Institute of Technology/YRP-IAI
* Tetsuya Nomura DENSO TEN
* Yasuharu Amezawa Mobile Techno

**TG15.6ma 4th Session**

**Thursday, September 12th, 2024, 13:30 PM- 15:30 PM Local Waikoloa Time**

**Room# Waikoloa 2, Hilton Waikoloa Village, Waikoloa, Hawaii, USA,**

**with Webex Virtual Room #3**

* 1. Meeting called to order 13:30 PM

By Chair Ryuji Kohno (YNU / YRP-IAI)

* 1. 802 Mtg. Non-Registration Consequences, by Chair *Ryuji Kohno*
	2. Confirmation of Agenda, doc.#15-24-0477-08-006a, *Ryuji Kohno*
		1. Anonymously approved.
	3. Preparation for LB, doc.#15-24-0537-00-006a, *Ryuji Kohno*
	4. Theoretical Analysis of System Performance in a Multi-BAN Coexistence Environment (Class 1), doc.#24-0357-01-006a, *Kento Takabayashi*

**[Summary of Channel Models, Channel Coding, and Interference Mitigation]**

* 1. TG6ma Channel Model Document for Enhanced Dependability, doc.#22-0519-08-006a, *Takumi Kobayashi*
	2. Overview of Interference Mitigation Schemes for Coexistence in TG6ma, doc.# 15-24-0530-00-006a, *Takumi Kobayashi*
	3. Overview of 6ma MAC Specification,doc.#15-23-0535-00-006a, *Ryuji Kohno*
	4. Overview of 6ma Channel Coding Specification, doc.#15-24-0456-00-006a, *Kento Takabayashi*

**[Progress and Timeline]**

* 1. Progress report of 802.15.6ma, doc.#15-23-0056-09-006a, *Ryuji Kohno*
	2. TG6ma Timeline(Rescheduling Timeline) doc.#23-0361-09-006a, *Ryuji Kohno*
	3. Any other business?
		1. No.
	4. Adjourn (15:25 PM)

Attendees 9

***Name Affiliation***

* Daisuke Anzai Nagoya Institute of Technology
* Kamran Sayrafian NIST
* Kento Takabayashi Toyo University
* Masayuki Hirata Osaka University
* Ryuji Kohno YNU/YRP-IAI
* Takafumi Suzuki NICT
* Takumi Kobayashi Nagoya Institute of Technology/YRP-IAI
* Tetsuya Nomura DENSO TEN
* Yasuharu Amezawa Mobile Techno