# IEEE P802.15

**Wireless Personal Area Networks**

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| Project | Task Group 15.6ma | |
| Title | **TG15.6ma Meeting Minutes for November 2024** | |
| Date Submitted | November 14th , 2024 | |
| Source | [Ryuji Kohno1,2  Marco Hernandez4  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)  4: CWC, University if Oulu] | Voice: +81 90 5408 0611  E-mail: kohno@ynu.ac.jp  marco.hernandez@ieee.org  kobayashi-takumi@yrp-iai.jp  minsoo@minsookim.com  [anzai@nitech.ac.jp](mailto: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 Webex, November 2024. | |
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**TG15.6ma 1st Session**

**Monday, November 11th, 2024, 4:00 PM- 6:00 PM Local Vancouver Time**

**Room# Brighton, 4th Floor, Hyatt Regency - Vancouver, BC,**

**with Webex Virtual Room #3**

* 1. Meeting called to order 4:00 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

* 1. Opening Report *Ryuji Kohno (YNU / YRP-IAI)* doc.# 802.15- 24-566-01-06a

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- 24-0566-01-06a

Þ Approved.

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

Þ Upon no comments on the September meeting minutes, doc. #15-24-0534-00-06a 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.#15-23-455-05-006a
  2. Basic Consensus in MAC and PHY of Revision of IEEE802.15.6-2012 (IEEE802.15.6ma), *Ryuji Kohno,* doc.#23-0557-05-006a
  3. Result of Letter Ballot(LB)210 for the P802.15.6ma\_D03, *Ryuji Kohno,* doc.#15-24-0546-01
  4. Review of Comments in LB210, *Ryuji Kohno,* doc.# P802.15.6ma\_D03
  5. Consolidated comments & resolutions LB210, *Ryuji Kohno*, doc.#24-0575-00-006a
     + All the discussions and resolutions are recorded in doc.#24-0575-01-006a
  6. Recessed at 6:00 PM by chair, *Ryuji Kohno*

**Attendees list**

Attendees 18

***Name Affiliation***

* Hiroaki Yoshitake DENSO TEN
* Kamran Sayrafian NIST
* Libra Xiao NRT
* Marco Hernandez YRP-IAI
* Norihiko Sekine NICT
* Run Chen NRT
* Ryuji Kohno YNU/YRP-IAI
* Seong-Soon Joo Korea Platform Service Technology (KPST)
* Sriram Murali Texas Instruments
* Sven Zeisberg ZIGPOS
* Takafumi Suzuki NICT
* Takumi Kobayashi Nagoya Institute of Technology/YRP-IAI
* Tetsuya Nomura DENSO TEN
* Vinod Kristem -
* Weidong Tang NRT
* Yasuharu Amezawa Mobile Techno
* Huan-Bang Li NICT
* Marco Hernandez CWC

**TG15.6ma 2nd Session**

**Tuesday, November 12th, 2024, 4:00 PM- 6:00 PM Local Vancouver Time**

**Room# Brighton, 4th Floor, Hyatt Regency - Vancouver, BC,**

**with Webex Virtual Room #3**

* 1. Meeting called to order 4:00 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.# 15-24-0565-05-06ma, *Ryuji Kohno*

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

* 1. Performance Improvement by Proper Sets of Preamble Codes in UWB Wireless Communications in a Presence of Multiple Coexisting VBANs, doc.#15-24-0567-00-006a, *Hiroaki Yoshitake*
     + The experiment is performed while engine was running. (*Hiroaki Yoshitake*)
     + We are considering to use Kasami sequence as future work. (*Hiroaki Yoshitake*)
     + The hardware works with BPSK modulation. (*Hiroaki Yoshitake*)
  2. Hybrid ARQ Scheme for High QoS Packets in High Class of Coexistence of IEEE 802.15.6ma, doc.#15-23-0576-06-006a, *Kento Takabayashi*
  3. Evaluation of IEEE 802.15.6ma Ultra-wideband Physical Layer Utilizing Super Orthogonal Convolutional Code, doc.#15-22-00562-12-006a, *Kento Takabayashi*
  4. MAC Performance Evaluation of Multiple BAN Coexistence Under TG6ma Channel Model, doc.#15-24-0246-03-006a, *Takumi Kobayashi,* *Daisuke Anzai*
     + In the simulation, 1 of 5 or 10 BAN is not controlled. I am interested in the results in different number of not-controlled BAN like 2 of 5, 3 of 10 etc. (*Ryuji Kohno*)
  5. Simulation results of performance evaluation for MAC of UWB-BAN draft of IEEE802.15,6ma in cases of random geographical distribution of multiple coexisting BANs, doc.#15-24-0602-00-006a, *Ryuji Kohno*
  6. MAC superframe structure and frames, doc.#15-24-0573-01-006a, *Seong-Soon Joo*
  7. ~~Consolidated comments & resolutions LB210, doc.#15-24-0575-02-006a,~~ *~~Marco Hernandez~~*
     + Skipped due to time limitation.
  8. ~~MAC services support for IEEE P802.1Ace, doc.#15-24-0594-00-006a,~~ *~~Marco Hernandez~~*
     + Skipped due to time limitation.
  9. Recessed (6:00 PM)

Attendees 15

***Name Affiliation***

* Alice Jialing Li Chen Qualcomm
* Eugene Baik Qualcomm
* Hiroaki Yoshitake DENSO TEN
* Huan-Bang Li NICT
* Kamran Sayrafian NIST
* Kento Takabayashi Toyo University
* Libra Xiao NRT
* Marco Hernandez CWC
* Masakatsu Ogawa Sophia University
* Ryuji Kohno YNU/YRP-IAI
* Seong-Soon Joo Korea Platform Service Technology (KPST)
* Takafumi Suzuki NICT
* Takumi Kobayashi Nagoya Institute of Technology/YRP-IAI
* Tetsuya Nomura DENSO TEN
* Yasuharu Amezawa Mobile Techno

**TG15.6ma 3rd Session**

**Wednesday, November 13th, 2024, 4:00 PM- 6:00 PM Local Vancouver Time**

**Room# Brighton, 4th Floor, Hyatt Regency - Vancouver, BC,**

**with Webex Virtual Room #3**

* 1. Meeting called to order 4:00 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.#24-0565-05-006a, *Ryuji Kohno*
  4. Consolidated comments & resolutions LB210, doc.#15-24-0575-02-006a, *Ryuji Kohno*
     + All discussion and resolutions are completed. Comment resolutions will be included in doc.# doc.#15-24-0575-03-006a
     + Comment resolutions have been approved.
  5. Preparation for Recirculation in Letter Ballot(LB), doc.#15-24-537-01-006a, *Ryuji Kohno*
     + Discussion for CRG Coordination. (*Ryuji Kohno*)
  6. TG motion: Draft needs to be edited before LB, doc.#15-24-0489-01-006a
     + Move: Ryuji Kohno, Second: Seong-Soon Joo
     + Approved.

The other presentations have been postponed to 4th session.  
Remind social tonight.

Recessed (6:00 PM)

Attendees 14

***Name Affiliation***

* Alice Jialing Li Chen Qualcomm
* Hiroaki Yoshitake DENSO TEN
* Kamran Sayrafian NIST
* Run Chen NRT
* Ryuji Kohno YNU/YRP-IAI
* Seong-Soon Joo Korea Platform Service Technology (KPST)
* Sriram Murali Texas Instruments
* Takafumi Suzuki NICT
* Takumi Kobayashi Nagoya Institute of Technology/YRP-IAI
* Tetsuya Nomura DENSO TEN
* VK Jones Qualcomm
* Weidong Tang NRT
* Xiliang Luo Apple
* Yasuharu Amezawa Mobile Techno

**TG15.6ma 4th Session**

**Thursday, November 14th, 2024, 1:30 PM- 3:30 PM Local Vancouver Time**

**Room# Brighton, 4th Floor, Hyatt Regency - Vancouver, BC,**

**with Webex Virtual Room #3**

* 1. Meeting called to order 13:30 PM
  2. Roll Call *Ryuji Kohno*  
     Announcement to attendance by using IEEE Attendance Tool (IEEE IMAT).  
     Registration Information, By Chair *Ryuji Kohno*
  3. 802 Mtg. Non-Registration Consequences, by Chair *Ryuji Kohno*
  4. Confirmation of Agenda, doc.#15-24-0565-08-006a, *Ryuji Kohno*
     + Anonymously approved.
  5. Consolidated comments & resolutions LB210, doc.#15-24-0575-03-006a, *Ryuji Kohno*
  6. Coordinator-to-Coordinator(C2C) Ranging and Communication for Multiple BAN Coexistence, doc.#15-24-0406-00-006a, *Ryuji Kohno*
  7. Interference Mittigation Schemes in Class 3, 5, 6, and 7 of Coexisitence in TG6ma, doc.#15-24-0073-05-006a, *Takumi Kobayash*
  8. Performance Evaluation of Channel Coding with Interleaver Based on TG6ma Channel Model for Some Classes of Coexistence, doc.#15-24-0247-03-006a, *Takumi Kobayashi, Daisuke Anzai*
  9. Ranging Accuracy Evaluation under TG6ma Communication Scenarios, doc.#15-24-0248-03-006a, *Takumi Kobayashi, Daisuke Anzai*
  10. TG6ma Channel Model Document for Enhanced Dependability, doc.#15-22-0519-09-006a, *Takumi Kobayashi*
  11. Preparation for Recirculation in Letter Ballot(LB), doc.#15-24-0348-03, *Ryuji Kohno*
  12. Coexisting Assurance Document, doc.#15-24-0348-03-006a, *Ryuji Kohno*
  13. Progress Task List of 802.15.6ma, doc.#15-23-0536-01-006a, *Ryuji Kohno*
  14. Progress report of 802.15.6ma, doc.#15-23-0056-09-006a, *Marco Hernandez, Ryuji Kohno*
  15. TG6ma Timeline(Rescheduling Timeline) , doc.#15-23-0361-09-006a, *Marco Hernandez, Ryuji Kohno*
  16. Theoretical Analysis of System Performance in a Multi-BAN Coexistence Environment (Class 1), doc.#24-0357-02-006a, *Kento Takabayashi*
  17. Any other business?
      + No.
  18. Adjourn (3:15 PM)

Attendees 11

***Name Affiliation***

* Fabrice Portier Silicon Labs
* Hiroaki Yoshitake DENSO TEN
* Kento Takabayashi Toyo University
* Marco Hernandez CWC
* Masayuki Hirata Osaka University
* Matthias Wendt Signify
* Ryuji Kohno YNU/YRP-IAI
* Takafumi Suzuki NICT
* Takumi Kobayashi Nagoya Institute of Technology
* Tetsuya Nomura DENSO TEN
* Yasuharu Amezawa Mobile Techno