# IEEE P802.15

**Wireless Personal Area Networks**

|  |  |  |
| --- | --- | --- |
| Project | Task Group 15.6ma | |
| Title | **TG15.6ma Meeting Minutes for March 2025** | |
| Date Submitted | March 13th , 2025 | |
| 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 0611  E-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 Plenary Session on Webex, March 2025. | |
| 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. | |
| Release | The contributor acknowledges and accepts that this contribution becomes the property of IEEE and may be made publicly available by P802.15. | |

**TG15.6ma 1st Session**

**Tuesday, March 11th, 2025, 8:00 AM- 10:00 AM Local Atlanta Time**

**Room# 307, Atlanta Hilton, Atlanta, GA,**

**with Webex Virtual Room #3**

* 1. Meeting called to order 8:00 AM

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- 25-113-01-06a

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- 25-0112-01-06a

Þ Approved.

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

Þ Upon no comments on the January meeting minutes, doc. #15-25-0064-00-06a 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*,* doc.#15-25-0033-01-006a, *Ryuji Kohno*
  2. Review of Recirculation LB212*,* doc.#15-25-0113-01 &Tally of LB210 & 212, *Ryuji Kohno*

**[Comment Resolution]**

* 1. LB212 rogue comments*,* doc.#15-25-0122-00, *Ryuji Kohno*
     + Approved to include them in comment resolutions.
  2. Consolidated comments & resolutions LB212*,* doc.#15-25-0138-00, *Marco Hernandez*
     + Started from CID-01 and confirmed until CID-51.
  3. ~~15.6ma MAC time reference base for superframe and group superframe structure~~*~~,~~* ~~doc.#15-25-0132-00& 0133-00,~~ *~~Seong-Soon Joo~~*
     + Move to later session.
  4. Recessed by chair, *Ryuji Kohno*

**Attendees list**

Attendees 14

***Name Affiliation***

* Daisuke Anzai Nagoya Institute of Technology
* Hiroaki Yoshitake DENSO TEN
* Kamran Sayrafian NIST
* Kento Takabayashi Toyo University
* Manideep Dunna Qualcomm
* Marco Hernandez CWC/YRP-IAI
* Ryuji Kohno YNU/YRP-IAI
* Seong-Soon Joo NANOHITECH(NHT)
* Takafumi Suzuki NICT
* Takumi Kobayashi Nagoya Institute of Technology/YRP-IAI
* Tero Kivinen Self
* Tetsuya Nomura DENSO TEN
* VK Jones Qualcomm
* Yasuharu Amezawa Mobile Techno

**TG15.6ma 2nd Session**

**Tuesday, March 11th, 2025, 10:30 AM- 12:30 AM Local Atlanta Time**

**Room# 307, Atlanta Hilton, Atlanta, GA,**

**with Webex Virtual Room #3**

* 1. Meeting called to order 10:30 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.# 15-25-0112-04-06ma, *Ryuji Kohno*

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

* 1. Hybrid ARQ Scheme for High QoS Packets in High Class of Coexistence of IEEE 802.15.6ma, doc.#15-23-0576-08-006a, *Kento Takabayashi*
     + BCC looks better than LDPC especially in high QoS case. I am interested in delay. The plesentation shows 2 ms delay. How many times of maximum re-transmission? (*Ryuji Kohno*)
       - 3 re-transmission is maximum in my simulation. (*Kento Takabayashi*)
     + Can it be applicable for the BMI or BCI use cases? (*Ryuji Kohno*)
       - Yes, it can in my understanding. (*Kento Takabashi*)
  2. Evaluation of IEEE 802.15.6ma Ultra-wideband Physical Layer Utilizing Super Orthogonal Convolutional Code, doc.#15-22-00562-14, *Kento Takabayashi*
  3. MAC Performance Evaluation of Multiple BAN Coexistence Under TG6ma Channel Model, doc.#15-24-0246-05, *Daisuke Anzai*

**[Comment Resolution]**

* 1. Consolidated comments & resolutions LB212*,* doc.#15-25-0138-02, *Marco Hernandez*
     + Started from CID-52.
  2. 15.6ma MAC time reference base for superframe and group superframe structure, doc.#15-25-0132-01& 0133-00, *Seong-Soon Joo*
  3. Consolidated comments & resolutions LB212 (Continue)*,* doc.#15-25-0138-02, *Marco Hernandez*
     + Resolution based on contributions from *Dr. Seong-Soon Joo.*
     + Restart to resolve the comments from CID-130 and confirmed until 152.
  4. Recessed by chair

Attendees 33

***Name Affiliation***

* Alice Jialing Li Chen Qualcomm
* Bernhard Groβwindhager NXP
* Carl Murray Qorvo
* Christy Berger NXP
* Clint Powell PWC
* Daisuke Anzai Nagoya Institute of Technology
* Dong Han -
* Hiroaki Yoshitake DENSO TEN
* Huan-Bang Li NICT
* Hui-Ling Lou -
* Kamran Sayrafian NIST
* Kapil Gulati NXP
* Kento Takabayashi Toyo University
* Libra Xiao NRT
* Maik Seewald -
* Manideep Dunna Qualcomm
* Marco Hernandez CWC/YRP-IAI
* Masanori Uno E-Trees Japan inc.
* Masayuki Hirata Osaka University
* Oded Redlich Huawei
* Pelin Salem CISCO SYSTEMS
* Rojan Chitrakar Huawei
* Run Chen NRT
* Ryuji Kohno YNU/YRP-IAI
* Seong-Soon Joo NANOHITECH(NHT)
* Susumu Ishihara -
* Takafumi Suzuki NICT
* Takumi Kobayashi Nagoya Institute of Technology/YRP-IAI
* Tero Kivinen Self
* Tetsuya Nomura DENSO TEN
* VK Jones Qualcomm
* Weidong Tang NRT
* Xiliang Luo Apple

**TG15.6ma 3rd Session**

**Wednesday, March 12th, 2025, 9:00 AM- 10:00 AM Local Atlanta Time**

**Room# 307, Atlanta Hilton, Atlanta, GA,**

**with Webex Virtual Room #3**

* 1. Meeting called to order 9:00 AM

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.#25-0112-07-006a, *Ryuji Kohno*
  4. Selection of Suitable Preamble Sequence Sets in UWB Wireless Communications in the Presence of Multiple Coexisting VBANs, doc.#15-25-0002-02, *Hiroaki Yoshitake*
     + In P.19, Pb is interference power. Is it mean total power or each? (*Ryuji Kohno*)
       - This is not total power. (*Hiroaki Yoshitake*)
     + Please provide specification information. (*Marco Hernandez*)
  5. Consolidated comments & resolutions LB212, doc.#15-25-0138-02, *Marco Hernandez, Ryuji Kohno, Seong-Soon Joo, Takumi Kobayashi, Daisuke Anzai, Kento Takabayashi*
     + Restarted from CID-153
     + Done most of all in detail. Confirm it again in 4th session.
  6. Recessed

Attendees 14

***Name Affiliation***

* Ryuji Kohno YNU/YRP-IAI
* Takumi Kobayashi Nagoya Institute of Technology/YRP-IAI
* Hiroaki Yoshitake DENSO TEN
* Seong-Soon Joo NANOHITECH(NHT)
* Tetsuya Nomura DENSO TEN
* Kento Takabayashi Toyo University
* Yuki Kawashima Mitsubishi Electric
* Marco Hernandez CWC/YRP-IAI
* VK Jones Qualcomm
* Juan Carlos Zuniga Cisco
* Kamran Sayrafian NIST
* Masayuki Hirata Osaka University
* Takafumi Suzuki NICT
* Yasuharu Amezawa Mobile Techno

**TG15.6ma 4th Session**

**Thursday, March 15th, 2025, 8:00 AM- 10:00 AM Local Atlanta Time**

**Room# 307, Atlanta Hilton, Atlanta, GA,**

**with Webex Virtual Room #3**

* 1. Meeting called to order 8:00 AM
  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.#15-25-0112-07-006a, *Ryuji Kohno*
     + Anonymously approved.
  5. Consolidated comments & resolutions LB212, doc.#15-25-0138-04, *Marco Hernandez*
     + All the comments and resolutions have been confirmed.
  6. TG Motion to Recirculation, doc.#15-25-00ww-00, *Ryuji Kohno*
     + Anonymously approved.
  7. TG Motion; CRG Formation for Recirculation, doc.#15-25-00zz-00, *Ryuji Kohno, Marco Hernandez, Huan-Bang Li, Seong-Soon Joo, Takumi Kobayashi*
     + Anonymously approved.
  8. TG6ma Coexistence Assurance Document, doc.#15-24-0348-04, *Ryuji Kohno*
  9. Project Task List of 802.15.6ma, doc.#15-25-0062-01, *Ryuji Kohno*
  10. Progress report of 802.15.6ma, doc.#15-23-0056-12, *Marco Hernamdez*
  11. TG6ma Timeline(Rescheduling Timeline) , doc.#15-23-0361-10, *Marco Hernandez*
  12. Interference Mitigation Schemes in Class 3, 5, 6, and 7 of Coexistence in TG6ma, doc.#15-24-0073-07, *Takumi Kobayashi*
  13. Performance Evaluation of Channel Coding with Interleaver Based on TG6ma Channel Model for Some Classes of Coexistence, doc.#15-24-0247-05, *Daisuke Anzai*
  14. Ranging Accuracy Evaluation under TG6ma Communication Scenarios, doc.#15-24-0248-05, *Daisuke Anzai*
  15. TG6ma Timeline (Rescheduling Timeline), doc.#15-23-0361-11, *Marco Hernandez, Ryuji Kohno*
  16. Any other business?
      + No.
  17. Adjourn

Attendees 18

***Name Affiliation***

* Daisuke Anzai Nagoya Institute of Technology
* Hiroaki Yoshitake DENSO TEN
* Kamran Sayrafian NIST
* Kento Takabayashi Toyo University
* Libra Xiao NRT
* Marco Hernandez CWC/YRP-IAI
* Masayuki Hirata Osaka University
* Mohammad Rahmani SPARK microsystems
* Radhakrishna Canchi Kyocera International Inc
* Ryuji Kohno YNU/YRP-IAI
* Seong-Soon Joo NANOHITECH (NHT)
* Takafumi Suzuki NICT
* Takumi Kobayashi Nagoya Institute of Technology/YRP-IAI
* Tero Kivinen Self
* Tetsuya Nomura DENSO TEN
* Victor Wei Apple
* Weidong Tang NRT
* Yasuharu Amezawa Mobile Techno