# IEEE P802.15

**Wireless Personal Area Networks**

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| Project | Task Group 15.6ma | |
| Title | **TG15.6ma Meeting Minutes for July 2025** | |
| Date Submitted | July 31st , 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; OMU(Osaka Metropolitan University)] | Voice: +81 90 5408 0611  E-mail: kohno@ynu.ac.jp  marco.hernandez@ieee.org  kobayashi-takumi@yrp-iai.jp  minsoo@minsookim.com  [d.anzai@omu.ac.jp](mailto:d.anzai@omu.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, July 2025. | |
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**TG15.6ma 1st Session**

**Monday, July 28th, 2025, 2:30 PM- 4:30 PM Local Madrid Time**

**Room# El Jardin Planta1/Lower Floar, Melia Castelia Hotel, Madrid, Spain,**

**with Webex Virtual Room #4**

* 1. Meeting called to order 2:30 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- 25-0299-01-06a

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.# 802.15-25-0298-02-06a

Þ Two sessions at PM1 on Tuesday and Thursday were cancelled due to successful approval of the final recirculation in a sense of zero NO vote and no more comment for draft D06.

Þ Approved.

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

Þ Upon no comments on the January meeting minutes, doc. #15-25-0266-00-06a was approved.

**[Review and Preparation to SA Ballot Submission]**

* 1. Overview of IG-DEP, SG6a, TG6a and TG15.6ma for Revision of IEEE 802.15.6-2012 Wireless BAN with Enhanced Dependability*,* doc.#15-25-0033-03-006a, *Ryuji Kohno*
  2. Review of The Third Recirculation LB221*,* Tally of LB210, 212, 217 & 221, *Ryuji Kohno*
  3. P802.15.6ma Report to LMSC on Unconditional Approval to go to SA Ballot*,* doc.#15-25-0324-00, *Ryuji Kohno*
     + Started preparation for SA Ballot
     + Expected Timeline.

**[Presentation for feasibility study of this revision standard]**

* 1. Hybrid ARQ Scheme for High QoS Packets in High Class of Coexistence of IEEE 802.15.6ma, doc.#15-23-0576-10, *Kento Takabayashi(Toyo Univ.)*
     + Q&A for Delay performance comparison between regular and hybrid ARQs with the same and different maximum numbers of retransmission
     + Discussion on feasibility of implementation of Hybrid ARQ in cases of high QoS levels of packets and high classes of coexistence in eraser channel models
  2. Evaluation of IEEE 802.15.6ma Ultra-wideband Physical Layer Utilizing Super Orthogonal Convolutional Code, doc.#15-22-0562-16, *Kento Takabayashi*
     + Q&A for comparison between SOCC with very low code rate such as 1/8 and Hybrid ARQ with maximum number of retransmission of two under the same redundancy
     + Further study of guideline for selecting appropriate channel codes in a practical channel models, QoS priority levels, and coexisting classes which must be useful for practical development
  3. ~~Proposed resolution draft for BAN communication - LB221, doc.#15-25-0xxx-00,~~ *~~Seong-Soon Joo~~*
     + Rearranged to be in PM1 session on Wednesday
  4. Recessed by chair, *Ryuji Kohno*

**Attendees list**

Attendees 8

***Name Affiliation***

* Hiroaki Yoshitake DENSO TEN
* Kamran Sayrafian NIST
* Kento Takabayashi Toyo University
* Radhakrishna Canchi Kyocera International Inc
* Ryuji Kohno YNU/YRP-IAI
* Takafumi Suzuki NICT
* Tetsuya Nomura DENSO TEN
* Yasuharu Amezawa Mobile Techno

**TG15.6ma 2nd Session**

**Tuesday, July 29th, 2025, 2:30 PM- 4:30 PM Local Madrid Time**

**Room# El Jardin Planta1/Lower Floar, Melia Castelia Hotel, Madrid, Spain,**

**with Webex Virtual Room #4**

Cancelled due to a few presentation after successful final recirculation LB221.

By Chair Ryuji Kohno (YNU / YRP-IAI)

**TG15.6ma 3rd Session**

**Wednesday, July 30th, 2025, 2:30 PM- 4:30 PM Local Madrid Time**

**Room# El Jardin Planta1/Lower Floar, Melia Castelia Hotel, Madrid, Spain,**

**with Webex Virtual Room #4**

* 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*
  2. 802 Mtg. Non-Registration Consequences, by Chair *Ryuji Kohno*
  3. Confirmation of Agenda, doc.#25-0298-04-06a, *Ryuji Kohno*
  4. P802.15.6ma Report to LMSC on Unconditional Approval to go to SA Ballot, doc.#25-0324-00-06a, *Ryuji Kohno*
  5. TG Motion to submission to LMSC for unconditional approval to go to SA Ballot, doc.#25-0377-00-06a, *Ryuji Kohno*
     + Move: Ryuji Kohno (YRP-IAI), Second: Seong-Soon Joo (NHT)
     + Approved.
  6. CRG Formation for SA Ballot, doc.#25-0377-00-06a, *Ryuji Kohno*
     + Move: Ryuji Kohno (YRP-IAI), Second: Seong-Soon Joo (NHT)
     + Approved.

**[Presentation for feasibility study of this revision standard]**

* 1. 15.6ma MAC updates、doc.#15-25-0368-00-006a, *Seong-Soon Joo*
     + Several issues to describe MAC document have been pointed out although all these are not condition to approve dfraft D06 to go to SA Ballot.
     + Maybe these would be referred in SA Ballot
  2. MAC Performance Evaluation of Multiple BAN Coexistence Under TG6ma Channel Model, doc.#25-24-0246-07-006a, *Daisuke Anzai(Osaka Metropolitan Univ.)*
     + This simulations are assumed after synchronization has been taken care in C2C period, Under the same channel models and coexistence class probability of successful synchronization should be analyzed in practice,.
     + Not only in case of concatenated coding between LDPC and RS coeds but also once between BCC and RS code should be analyzied
  3. Performance Evaluation of Channel Coding with Interleaver Based on TG6ma Channel Model for Some Classes of Coexistence, doc.# 24-0247-07-006a, *Daisuke Anzai*
     + These results illustrate the selected FEC can satisfy technical requirement. In some certain condition of channel models and coexistence classes but form the point of users, it will be useful to show such a critical condition as not to perform technical requirement,
     + This is a part of dependability for this new revision standard.
  4. Ranging Accuracy Evaluation under TG6ma Communication Scenarios, doc.# 24-0248-07-006a, *Daisuke Anzai*
     + This is useful result when multiple BAN coordinators can identify geographical location to know if coverage range of BANs is partially or fully overlapped or not in C2C ranging and communications.
  5. Interference Mitigation Schemes in Class 3, 5, 6, and 7 of Coexistence in TG6ma, doc.# 24-0073-10-006a, *Takumi Kobayashi(Osaka Metropolitan Univ.)*
     + In the heaviest coexistence class 7, how can a BAN coordinator identify aby kinds of interferences?
     + The proposed OMF in time and space domains can perform interference mitigation without pre-knowledge of interference. It needs just pre-knowledge of desired signals. So it is usesful in practice,.

**[Preparation to SA Ballot]**

* 1. Project Task List of 802.15.6ma, doc.# 25-0299-01-006a, *Ryuji Kohno*
  2. TG6ma Timeline(Rescheduling Timeline) , doc.# 25-0299-01-006a, *Ryuji Kohno*
  3. Adjourn by Chair *Ryuji Kohno*

Attendees 11

***Name Affiliation***

* Daisuke Anzai Osaka Metropolitan University
* Hiroaki Yoshitake DENSO TEN
* Kamran Sayrafian NIST
* Kento Takabayashi Toyo University
* Masayuki Hirata Osaka University
* Ryuji Kohno YNU/YRP-IAI
* Seong-Soon Joo NANOHITECH (NHT)
* Takafumi Suzuki NICT
* Takumi Kobayashi Osaka Metropolitan University/YRP-IAI
* Tetsuya Nomura DENSO TEN
* Yasuharu Amezawa Mobile Techno

**TG15.6ma 4th Session**

**Friday, July 31st, 2025, 2:30 PM- 4:30 PM Local Madrid Time**

**Room# El Jardin Planta1/Lower Floar, Melia Castelia Hotel, Madrid, Spain,**

**with Webex Virtual Room #4**

Cancelled due to a few presentation after successful final recirculation LB221.

By Chair Ryuji Kohno (YNU / YRP-IAI)