# IEEE P802.15

**Wireless Personal Area Networks**

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| Project | Task Group 15.6ma | |
| Title | **TG15.6ma Meeting Minutes for July 2022** | |
| Date Submitted | July 14th, 2022 | |
| Source | [Ryuji Kohno1,2 Marco Hernandez1 Takumi Kobayashi2 Minsoo Kim1]  [1; YRP-IAI (YRP International Alliance Institute), Japan,  2; YNU (Yokohama National University), Japan] | Voice: +81 90 5408 0611  E-mail: kohno@ynu.ac.jp  marco.hernandez@ieee.org  kobayashi-takumi-ch@ynu.ac.jp  minsoo@minsookim.com |
| 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 September, 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 November 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. Then technical requirement document(TRD) has been approved by TG motion. 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 and 15.14 using UWB PHY, TRD and technical guidance document(TGD) have been reviewed in joint and individual sessions. Next step has been discussed including telco for harmonization with TG15.4a and 14 and change to revision from amendment. | |
| Purpose | Minutes of Dependability Electronic Plenary Session on Webex, July 2022. | |
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**TG15.6ma 1st Session**

**Tuesday, July 12th, 2022,** **AM 8:00-10:00 EDT, 21:00-23:00 JST, 12:00-14:00 UTC**

**Place: Salon2, L2, Sheraton Le Centre Montreal Canada**

**Network: Virtual Room 4 in Webex Virtual Conference**

* 1. Meeting called to order AM 8:00

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- 22-0336-03-06a

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- 22-0338-04-06a

Þ Approved.

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

Þ Upon no comments on the November meeting minutes, doc. #15-22-0301-00-06a was approved.

**[Review]**

* 1. Overview of IG-DEP, SG6a, TG6a, and TG15.6ma for Revision of IEEE802.15.6-2012 Wireless BAN with Enhanced Dependability, *Ryuji Kohno (YNU / YRP-IAI)* doc. # 21-0389-00-06ma
  2. PAR and CSD of the Revision IEEE802.15.6ma, *Marco Hernandez* (YRP-IAI), doc.# 22-0168-02, 22-0167-03

**[Presentation for MAC Revision]**

* 1. Draft Document of MAC with Enhanced Dependability, *Minsoo Kim,* (YRP-IAI), doc.# 22-0277-01-06a
     + If BAN.1 coordinator cannot see BAN.2 coordinator, BAN.2 C-Beacon might interfere to BAN.1. (*Kamran Sayrafian*)
     + We can find technical solution like polling and reset and assign again. Let us keep discuss about it. (*Ryuji Kohno*)
  2. MAC proposal for supporting dependable BAN service classes, *Seong-Soon Joo*, (ETRI), doc.# 22-0354-01-06ma
  3. MAC Proposal on Interference Avoidance in Coexisting Dependable BANs, *Seong-Soon Joo*, (ETRI), doc.# 22-0355-01-06ma
     + Your proposal uses single channel and this is different point of Minsoo’s proposal. We can discuss it more detail in 3rd session. (*Ryuji Kohno*)
     + BANs have each different application like medical and entertainment. We need to consider about the coexistence of different priority BANs. (*Kamran Sayrafian*)
  4. Recessed

**Attendees list**

Attendees 11

***Name Affiliation***

* Daisuke Anzai Nagoya Institute of Technology
* Hiroki Saito ARIS
* Marco Hernandez YRP-IAI
* Masayuki Hirata Osaka University
* Minsoo Kim YRP-IAI
* Ryuji Kohno YNU/YRP-IAI
* Sang-Kyu Lim ETRI
* Seong-Soon Joo ETRI
* Takafumi Suzuki NICT
* Takumi Kobayashi YNU/YRP-IAI
* Yasuharu Amezawa Mobile Techno

**802.15 TG 4ab / 14 / 6ma Joint Session**

**Tuesday, July 12th , 2022, AM 10:30- 11:30 EDT, 23:30-24:30 JST, 14:30-15:30 UTC**

**Place: Salon A/B, LB, Sheraton Le Centre Montreal Canada**

**Network: Virtual Room 1 in Webex Virtual Conference**

* 1. Meeting called to order AM 10:30  
     By Chairs *Clint Powel, Benjamin Rolfe and Ryuji Kohno*
  2. Roll Call *Clint Powel*  
     Announcement to attendance by using IEEE Attendance Tool (IEEE IMAT).  
     Registration information.  
     Chair showed IEEE Patent policy.  
     Chair issued Call for Potentially Essential Patents.
  3. Opening information, *Clint Powel*
  4. TG6ma PHY Specification table, *Marco Hernandez,*, doc.#15-22-0387-00-6a
  5. TG6ma Harmonization to TSN, Marco Hernandez, doc.#15-22-0388-00-6a
  6. Next Steps?
     + Discussion of time slots for next meeting in September.
  7. Any other business?
     + No.
  8. Adjourn

**Attendees list**

Attendees attending via network 46

***Name Affiliation***

* 802.15 WG WSN #N/A
* Akifumi Kasamatsu NICT
* Benjamin Rolfe Blind Creek Associates
* Chris Calvert
* Clark Palmer Meteorcomm LLC
* Daisuke Anzai Nagoya Institute of Technology
* Daoud Serang CML Microcircuits
* David Barras 3db
* Don Sturek Itron
* Front Pi #N/A
* Hakon A. Hjortland Novelda
* Hiroki Saito ARIS
* Huan-Bang Li NICT
* Jeng-Shiann Jiang Vertexcom
* Jinjing Jiang Apple
* Kamran Sayrafian NIST
* Kanke Wu Qualcomm
* Kunal Shah Apple
* Larry Zakaib Spark Microsystems
* Lennert Bober Fraunhofer HHI
* Libra Xiao NRT
* Lochan Verma Apple
* Marco Hernandez YRP-IAI
* Masayuki Hirata Osaka University
* Minsoo Kim YRP-IAI
* Norihiko Sekine NICT
* Peter Sauer Microchip
* Raphael Guimond
* Rias Al-kadi NXP
* Robert Golshan Apple
* Run Chen NRT
* Ryuji Kohno YNU/YRP-IAI
* Sang-Kyu Lim ETRI
* Shang-Te Yang
* Srivathsa NXP
* Stefan Lemsitzer NXP
* Sven Zeisberg HTW
* Taeyong Ha Samsung
* Takafumi Suzuki NICT
* Takumi Kobayashi YNU/YRP-IAI
* Vamsi Amalladinne Qualcomm
* Vinod Kristem
* Yasuharu Amezawa Mobile Techno
* Yong Liu Apple
* Yongsen Ma Redpoint Positioning
* Zhenzhen Ye Redpoint positioning

**TG6ma 2nd Session**

**Wednesday, July 13th 2022, AM 8:30-10:00 EDT, 21:30-23:00 JST, 12:30-14:00 UTC**

**Place: Salon2, L2, Sheraton Le Centre Montreal Canada**

**Network: Virtual Room 4 in Webex Virtual Conference**

* 1. Meeting called to order AM 8:30

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. Opening Report Ryuji Kohno (YNU / YRP-IAI)

**[Presentations]**

* 1. Summary of Channel and Environmental Modeling Activities for BANs on TG15.6ma, doc.# 802.15-22-0091-03 *(Takumi Kobayashi)*
  2. Statistical Pathloss Model for UWB Wireless Capsule Endoscopy, doc.# 802.15-22-0401-01, *(Kamran Sayrafian)*
     + In WCE application, not so many path.2 or 3 path only. However, pathloss is quite large. *(Kamran Sayrafian)*
  3. Propagation characteristics of UWB communication applications including medical implants, doc.#802.15-22-0399-00, *(Daisuke Anzai)*
  4. Channel Model for Wearable and Implant BAN in use case of BMI and BCI, doc.#802.15-22-0269-02, *(Takumi Kobayashi)*
  5. Recessed

Attendees 26

***Name Affiliation***

* Billy Verso Qorvo
* Dag T. Wisland Novelda AS
* Daisuke Anzai Nagoya Institute of Technology
* Frederic Nabki Spark
* Hiroki Saito ARIS
* Huan-Bang Li NICT
* Jarek Niewczas Qorvo
* Kamran Sayrafian NIST
* Kanke Wu Qualcomm
* Larry Zakaib Spark Microsystems
* Libra Xiao NRT
* Marco Hernandez YRP-IAI
* Masayuki Hirata Osaka University
* Minsoo Kim YRP-IAI
* Pooria Pakrooh Qualcomm
* Run Chen NRT
* Ryuji Kohno YNU/YRP-IAI
* Sang-Kyu Lim ETRI
* Sven Zeisberg HTW
* Takafumi Suzuki NICT
* Takumi Kobayashi YNU/YRP-IAI
* Vamsi Amalladinne Qualcomm
* Xiliang Luo Apple
* Yasuharu Amezawa Mobile Techno
* Young Liu Apple
* Youngwan So Samsung

**TG6ma 3rd Session**

**Thursday, July 14th 2022, AM 8:00-10:00 EDT, 21:00-23:00 JST, 12:00-14:00 UTC**

**Place: Lamartine, LA, Sheraton Le Centre Montreal Canada**

**Network: Virtual Room 4 in Webex Virtual Conference**

* 1. Meeting called to order AM 8:00

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. Agenda, doc.# 15-22-0338-06, *Ryuji Kohno* (YNU/YRP-IAI)
  3. Review of joint meeting with 802.15.6a/4ab/14 on March 13th , doc.# 15-21-0278-02-06a, *Marco Hernandez* (YRP-IAI)

**[Presentations]**

* 1. Hybrid ARQ corresponding QoS priority levels, *Ryuji Kohno*, doc.#802.15-22-0375-00-06a
  2. Introduction of ESTI Smart BAN and collaboration possibility between IEEE 802.15.6 and ESTI SmartBAN, *Daisuke Anzai*, doc.#802.15-22-0415-00-06a
     + I think ETSI SmartBAN forcussing 2.4GHzNB except implant devices. We can corabolate to activities of standardization for implant applications. *(Ryuji Kohno)*
       - Actually, UWB activity is not started in ETSI SmartBAN project. *(Daisuke Anzai)*
     + What is boiggest difference between ETSI SmartBAN and existing NB like Bluetooth? *(Minsoo Kim)*
       - Time synchronization method is different. *(Daisuke Anzai)*
     + What type of integration is the target? *(Kamran Sayrafian)*
       - Same PHY is used in implant and wearable devices. *(Daisuke Anzai)*
     + *Rieson*
  3. Discussion of Numerical Human Body Voxel Model, doc.# 802.15-22-0403-00, *(Takumi Kobayashi)*

**[Finalizing Documents]**

* 1. Documentation of Channel and Environmental Modeling for Revision TG6ma, *Takumi Kobayashi*, doc.# 15-22-0344-01-06a
     + Kamran Sayrafian (NIST) and Daisuke Anzai (Nagoya Institute of Technology) agreed to join “Contributor List” on CMD and agreed that CMD includes information of contributions of them.
  2. Documentation of MAC for BAN with Enhanced Dependability for Revision TG6ma, *Minsoo Kim*, doc.# 15-22-0277-01-6a
     + Di
  3. Technical Requirement Document(TRD) for the Revision, *Marco Hernandez,* doc.#802.15-21-577-03-6a
  4. Any other business?
     + No.
  5. Adjourn

Attendees 15

***Name Affiliation***

* Clint Powell Meta
* Daisuke Anzai Nagoya Institute of Technology
* Hiroki Saito ARIS
* Iwao Hosako NICT
* Kamran Sayrafian NIST
* Kenza Hamidouche
* Marco Hernandez YRP-IAI
* Masayuki Hirata Osaka University
* Minsoo Kim YRP-IAI
* Norihiko Sekine NICT
* Ryuji Kohno YNU/YRP-IAI
* Sang-Kyu Lim ETRI
* Seong-Soon Joo ETRI
* Takafumi Suzuki NICT
* Takumi Kobayashi YNU/YRP-IAI