**IEEE P802.15**

**Wireless Personal Area Networks**

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| Response |  |
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1. Minutes

Chair: Prof. Myung Lee (CUNY) USA

Secretary: Marco Hernandez (NICT) Japan

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Monday July 14th, AM1 session

−Chair calls the meeting to order.

−Chair proposes this week's agenda DCN 14-0361r1: harmonization of proposals and how to start drafting the standard document.

− The agenda is approved unanimously.

−Minutes of the previous meeting, DCN 14-337r0, is approved unanimously.

**Chair:** Report of teleconference by Marco.

−Marco reads the minutes of the teleconference on June 26th, DCN 14-337r0.

**Chair:** We have some presentations. Let’s hear the first one.

1st presenter is Marco (NICT) DCN 14-330r0 "Status of the harmonized TG8 PHY"

**Comments:**

**Chair:** Can you and BJ finish the harmonized text by Thursday?

**Response:** We can try, it depends on BJ.

**BJ:** We will try, but it is difficult.

**Chair:** I just want to make sure we are in line with our timeline.

**Chair:** Qing is not here. BJ is there anything to report for the MAC?

**BJ:** I have only the harmonization with Samsung. We do not contact Qing as we do not have much communality with Qing's proposal.

**Chair:** The harmonization process is to have a smooth path for proposals to be included. Otherwise, TG8 will make a decision instead. Hope BJ can present something in PM1 as Qing is not here.

**BJ:** Ok.

2nd presenter is BJ (ETRI) DCN 14-412r0 "Security Threats in IEEE 802.15.8 PAC"

**Comments:**

**Li:** What about the precision of a malicious source estimation?

**Response:** we are working on it.

**Shannon:** Is the location information stored in a centralized manner?

**Response:** There must be a detection of a malicious attack that triggers the physical layer security technique in a distributed manner.

**Paul:** What is the status of harmonization?

**Chair:** We just reported the PHY harmonization and we are waiting for Qing for the MAC. Hope BJ and Qing talk about it.

**Paul:** Everyone should use the same document template for PHY and MAC. Copy and paste all contributions in this template and then we harmonize.

**BJ:** We already have that document and approach in the PFD. Moreover, Qing already collected all MAC proposals in a Word document. However, I prefer to harmonize before proving text in the standard template.

**Paul:** We wasted 2 months since the previous meeting. There was not discussion for the MAC harmonization at all.

**BJ:** Qing only uploaded the document before the conference call on June 26th, but she did not pursue any discussion. Moreover, proposals are not 100% ready. It is not easy and wise just to collect the text in the draft standard now.

**Paul:** Basic information needs to be harmonized first, like the frame format and then all people can follow afterwards.

**Chair:** We can go over the list of commonalties again and to start discussing.

**Marco:** The PHY proposals are harmonized already. There is no need of any discussion for harmonization. We only need to provide text.

**Igor:** The focus of this meeting is towards the harmonization of MAC proposals.

**Chair:** BJ will prepare a presentation of the harmonized MAC with Samsung in PM1.

**Chair:** The meeting is in recess until PM1.

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Monday July 14th, PM1 session

−Chair calls the meeting to order.

**Chair:** Shannon and Qing will present how to harmonize the MAC proposals.

3rd presenter is Qing, DCN 14-381, "MAC Harmonization for PAC" and DCN 14-422r0 "Proposal to MAC Harmonization"

**Comments:**

**BJ:** Why applications driven for PAC? Wi-Fi already handles multiple applications.

**Response:** Wi-Fi is not aware of applications like PAC. Otherwise why do we need PAC?

**Marco:** PAC distinguishes from other standards in the fact that it is infrastructure-less.

**Shannon:** Why application based? Voice over IP, streaming, etc.

**Response:** How to treat traffic differently depending on applications.

**Shannon:** Why network formation is based on applications?

**Response:** Example, you form a PAC group based on a given application. At the same time you are chatting with another PD.

**Shannon:** The network formation is based on traffic type, no applications.

**Paul:** PAC networks are based on services and how they coexist.

**Response:** We need to discuss what features we can agree upon and support for harmonization.

**BJ:** I agree, but there are problems with applications driven PAC, like the delivery application does not need to know the content of packages.

**Response:** we can call it application profile.

**Paul:** PAC networks are based on services, if that is in the TG8 requirements.

**Marco:** We do not have any requirement that PAC networks are based on services.

**Response:** I will check the 5c and par.

**Chair:** The discussion is getting off topic. Let's finish the presentation first.

4th presenter is Shannon (Samsung), DCN14-425r1, "Summary of Merger Status on Samsung-ETRI Merged MAC Proposals"

**Comments:**

**Chair:** What is the next step?

**BJ:** Slide 5 identifies the topics we are discussing in the MAC harmonization. Text will be provided later. The discussion of these topics can be extended to more participants.

**Chair:** In how to harmonize the MAC with all parties in TG8, Qing and Shannon presentations are similar.

**Qing:** Samsung, ETRI harmonization is dividing and conquer meaning few companies are harmonizing.

**Chair:** It is understandable if companies feel their contributions are close, they harmonize first. Regardless, in this meeting let's harmonize together.

**Chair:** Let's go over the list of categorization of topics for MAC.

**Li:** There are other topics too.

**Chair:** Of course, but let's first give priority to these topics. Later, more topics will be incorporated.

**Chair:** ETRI and Samsung agreed to open their harmonization process to other proposers.

**Qing:** In a related topic, the common mode disappeared.

**Marco:** The common has not disappeared. We are not there yet. First we need to harmonize and later we can discuss about mandatory features, which will be the common mode.

**Chair:** That is right. Let's continue with the categorization of topics for harmonization.

1) Frame structure

2) Synchronization

3) Discovery

4) Peering

5) Channel access and allocation

6) Data transmission

**Chair:** We cannot prolong this MAC harmonization forever. If there is no consensus, TG8 will move down selection to pick a contribution.

**Chair:** Let's organize an ad hoc meeting tomorrow during AM2 for frame structure harmonization. An email will be sent with the meeting room.

**Chair:** The meeting is in recess until PM1 tomorrow.

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Tuesday July 15th, PM1 session

−Chair calls the meeting to order.

**Chair:** Let’s hear the progress during the ad hoc meeting for MAC harmonization. While Shannon finishes the power point presentation for MAC harmonization, let’s hear Marco’s presentation before.

5th presenter is Marco (NICT), DCN 14-398r0, “Power Control Harmonization”

**Comments:**

**BJ:** In slide 5 the centralized control figure provided by Inter-digital it is not valid any more.

**Qing:** The figure is only a reference for a use case. We do not have a centralized proposal any more.

**Chair:** How are you going to proceed?

**Response:** We will discuss off line.

6th presenter is Shannon (Samsung), DCN 14-443r0, “Proposed MAC Frame Structure”

**Comments:**

**Marco:** NICT will check the synchronization mechanism provided by Samsung and ETRI. There is possibility to adopt it.

**Qing:** The Inter-digital harmonization slide seems very far from the other proposals, because we have different focus points.

**Qing:** The common application or application 0 is common for the following frames.

**Shannon:** One difference with Inter-digital is that the synchronization interval is fixed.

**Chang:** In slide 11, a common beacon with a variable synchronization interval cannot be supported.

**Qing:** That is for further discussion. We should finish the presentation first.

**Chair:** That is right. This presentation shows only the current status of MAC harmonization.

7th presenter is H.B. Li (NICT), DCN 14-407, "Discussion on some concepts related to PAC"

**Comments:**

**Paul:** In slide 5, RF channel, modulations, etc., need to be defined for common mode. I think it is better to use a common frequency band.

**Response:** Due to regulations in different countries that is not possible.

**Qing:** Common channel depends on local regulations.

**Shannon:** A common band is not decided globally, it depends on local regulations. A common channel is an implementation issue.

**Shannon:** Slide 11 is misleading. We define in the TGD a fully distributed network and flat, no hierarchy, or centralized.

**Qing:** How to do the self-organized feature in a distributed way?

**BJ:** Self organized and distributed are 2 different things.

**Qing:** They are related.

**Paul:** In that slide, the distributed configuration with temporal control, we have seen it as initiator before. The temporal control can be passed to another PD.

**BJ:** They are similar but not the same.

**Chang:** Self organized is not mention in the PAR.

**Marco:** Self organized is mention in clause 4.1 of TGD.

**Chang:** In NICT proposal, how the discovery is in common channel and access channel?

**Paul:** The common channel is not only an implementation issue. It is part of the mandatory features for interoperability.

**Shannon:** I understand, the common channel and access channel can change.

**Response:** Yes, the common channel is only in the beginning of network formation for speedy discovery rather than scanning all channels.

**Shannon:** Common channel is an implementation issue.

**Qing:** The idea of making this standard is to define common features.

**Chair:** We can mention a common channel in the standard, but this is based on local regulations.

8th presenter is BJ (ETRI), DCN 14-410r0, "Realistic Distribution Model of PDs for PAC: Clustered Random Drop"

**Comments:**

**Chair:** Did you use only normal distribution?

**Response:** Yes, that works well.

**BJ:** I propose to add Clustered Random Drop to clause 9.4 of the TGD.

**Qing:** What about the parameters of the probability density function of normal distribution?

**Response:** The standard deviation σ=50 and mean zero, work well for my simulations.

**Chair:** The cluster scenario may be challenging.

**Response:** It follows the same procedure of the TGD model. Drop a transmitter first and receivers are drop around such transmitter.

**Shannon:** The normal distribution constrains the drooping of receivers depending on σ.

**Response:** σ is used for dropping of a transmitter, no receivers.

**Qing:** Can you provide recommended values for simulation.

**Response:** Ok.

**Li:** The TGD is guidance for proposals, and we have used the previous model.

**Response:** I propose to add it together with the current model.

**Chair:** BJ moves a motion to add Clustered Random Drop to the TGD DCN 14-568r9 as r10 in clause 9.4.

Discussion:

**Shannon:** This model is not mandatory, right?

**Chair:** That is right.

Official voting:

In favor 13. Oppose 0. Abstain 1. Motion carries.

**Shannon:** We did not finish the evaluation methodology for simulations due to lack of time in previous meetings. Maybe we can revise that.

**Chair:** Harmonization is the first priority. After that, if there is time, we can discuss it.

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Tuesday July 15th, PM2 session

−Chair calls the meeting to order.

**Chair:** As the objective right now is to harmonize the frame structure. I suggest to recess this session and to leave the room to the MAC harmonization participants for an ad hoc meeting. I would like to see a Power Point presentation showing the consensus on the frame structure.

**Paul:** Say we harmonize the frame structure, what about discovery peering, etc. by Thursday?

**BJ:** Even harmonization of only frame structure is challenging.

**Chair:** We need to progress as much as possible. There is a timeline. We have to finish in time.

**BJ:** If the frame structure is harmonized by Wednesday, what about Thursday sessions?

**Chair:** We have a list of 6 topics to harmonize. We tackle the next one.

**Chair:** Let's have PM1 and PM2 sessions as ad hoc meetings tomorrow. The meeting room will be announced by email.

**Chair:** This meeting is in recess until Thursday AM1.

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Thursday July 17th, AM1 session

−Chair calls the meeting to order.

**Chair:** I want the editors to start drafting text for the standard based on the harmonization agreements. The objective is to push letter ballot within this year, if that is possible.

Let's hear the baseline agreements for the MAC in order to move motions for approval by TG8.

9th presenter is Qing (Interdigital), DCN 14-443r1, "Proposed MAC frame structure for harmonization"

**Comments:**

**Shannon:** Please make a new document with the baseline agreement only to pass them as motions.

−Qing makes document DCN 14-464r0 with the baseline agreements.

Motion 1 to accept frame structure in DCN 14-464r0

Move: Marco, 2nd: Shannon.

Discussion:

**Shannon:** The text about synchronization interval in the figure, place it in the bullets.

**Shannon:** Add "synchronization interval is the same as duration of a frame".

**Jo:** There is not description of synchronization, discovery, etc. Change discovery and peering by control.

**Paul:** I agree.

**BJ:** let's stick to the agreement.

**Jo:** I withdraw my comment.

Official vote to accept motion 1 in DCN 14-464r0:

In favor: 10. Oppose: 0. Abstain: 0. Motion 1 carries.

Motion 2 to accept optional super-frame structure in DCN 14-464r0

Move: Marco, 2nd: Qing.

Discussion:

**Paul:** Delete 1st bullet and place it at the end.

**Chair:** We cannot delete the agreed text.

**BJ:** I do not agree with Paul. Moreover, the last bullet is not a condition and it does not belong there. Make it as note.

**Shannon:** Make a definition of super-frame.

**Shannon:** Change title as "Motion 2: working assumptions for super-frame".

**BJ:** The text in the bullets does not assume the structure of super-frame, except for the last note. Delete it.

**Shannon:** Delete 2nd bullet.

**BJ:** I do not agree.

**Qing**: I can rephrase the text of 2nd bullet.

**Chair:** vote to accept the text amendment as r1:

In favor: 10. Oppose: 0. Abstain: 1. Text amendment is accepted.

Official vote to accept motion 2 in DCN 14-464r1:

In favor: 10. Oppose: 0. Abstain: 2. Motion 2 carries.

**Chair:** From the list of MAC harmonization topics:

1) Frame structure

2) Synchronization

3) Discovery

4) Peering

5) Channel access and allocation

6) Data transmission

let's give 1 hour per topic, except 1) frame structure, as ad hoc discussion.

**Chair:** The meeting is in recess until PM1 session.

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Thursday July 17th, PM1 session

−Chair calls the meeting to order.

**Chair:** Let's hear the MAC harmonization baseline agreements.

10thpresenter is Qing (Interdigital), DCN 14-464r1, "Proposed MAC Motions"

Motion 3 in DCN 14-464r1

Move: Qing. 2nd: BJ.

Discussion:

**BJ:** Change transit by make a transition.

Official vote on motion 3 in DCN-464r1

In favor: 12. Oppose: 0. Abstain: 0. Motion 3 carries.

Motion 4 in DCN 14-464r1

Move: Qing. 2nd: Shannon.

Discussion: none.

Official vote on motion 4 in DCN-464r1

In favor: 12. Oppose: 0. Abstain: 0. Motion 4 carries.

Motion 5 in DCN 14-464r1

Move: BJ. 2nd Qing.

Discussion: none.

Official vote on motion 5 in DCN-464r1

In favor: 10. Oppose: 0. Abstain: 0. Motion 5 carries.

Motion 6 in DCN 14-464r1

Move: Marco. 2nd Qing.

Discussion:

**Shannon:** Add “bits” to information.

Official vote on motion 6 in DCN-464r1:

In favor: 9. Oppose: 0. Abstain: 0. Motion 6 carries.

Motion 7 in DCN 14-464r1

Move: Qing. 2nd: BJ.

Discussion:

**Billy:** These IDs are handled at higher layers, so they are not needed at the MAC level.

**Qing:** Those IDs may be used at the MAC level for fast discovery.

**BJ:** MAC discovery is confusing. Change it to information for discovery.

Official vote on motion 7 in DCN-464r1:

In favor: 6. Oppose: 2. Abstain: 1. Motion 7 carries.

Motion 8 in DCN 14-464r1

Move: Qing, 2nd: BJ.

Discussion: none.

Official vote on motion 8 in DCN-464r1:

In favor: 9. Oppose: 0. Abstain: 1. Motion 8 carries.

Motion 9 in DCN 14-464r1

Move: Qing, 2nd: BJ

Discussion: none.

Official vote on motion 9 in DCN-464r1:

In favor: 9. Oppose: 0. Abstain: 1. Motion 9 carries.

**Chair:** Let's recess now for continuing the ad hoc discussions.

**Chair:** This meeting is in recess until 5:00 PM today.

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Thursday July 17th, 5:00 PM of PM2 session

−Chair calls the meeting to order.

11thpresenter is Shannon (Samsung), DCN 14-464r2, "Proposed MAC Motions"

Motion 10 in DCN 14-464r2

Move: Shannon, 2nd: Marco

Discussion:

**BJ:** Does the 2nd bullet mean re-synch or initial synch?

**Response:** Maintaining synch.

Official vote on motion 10 in DCN 14-464r2:

In favor: 8. Oppose: 0. Abstain: 0. Motion 10 carries.

Motion 11 in DCN 14-464r2

Move: BJ, 2nd: Qing

Discussion: none.

Official vote on motion 11 in DCN 14-464r2:

In favor: 7. Oppose: 0. Abstain: 0. Motion 11 carries.

Motion 12 in DCN 14-464r2

Move: BJ, 2nd: Qing

Discussion: none.

Official vote on motion 11 in DCN 14-464r2:

In favor: 8. Oppose: 0. Abstain: 0. Motion 12 carries.

Motion 13 in DCN 14-464r2

Move: BJ, 2nd: Qing

Discussion: none.

Official vote on motion 11 in DCN 14-464r2:

In favor: 8. Oppose: 0. Abstain: 0. Motion 13 carries.

Motion 14 in DCN 14-464r2

Move: BJ, 2nd: Qing

Discussion: none.

Official vote on motion 11 in DCN 14-464r2:

In favor: 8. Oppose: 0. Abstain: 0. Motion 14 carries.

Motion 15 in DCN 14-464r2

Move: BJ, 2nd: Qing

Discussion: none.

Official vote on motion 11 in DCN 14-464r2:

In favor: 8. Oppose: 0. Abstain: 0. Motion 15 carries.

Motion 16 in DCN 14-464r2

Move: BJ, 2nd: Qing

Discussion: none.

Official vote on motion 11 in DCN-464r1:

In favor: 8. Oppose: 0. Abstain: 0. Motion 16 carries.

Motion 17 in DCN 14-464r2

Move: BJ, 2nd: Qing

Discussion: none

Official vote on motion 11 in DCN 14-464r2:

In favor: 8. Oppose: 0. Abstain: 0. Motion 17 carries.

Motion 18 in DCN 14-464r2

Move: BJ, 2nd: Qing

Discussion: none.

Official vote on motion 11 in DCN 14-464r2:

In favor: 8. Oppose: 0. Abstain: 0. Motion 18 carries.

Motion 19 in DCN 14-464r2

Move: BJ, 2nd: Qing

Discussion: none.

Official vote on motion 11 in DCN 14-464r2:

In favor: 8. Oppose: 0. Abstain: 0. Motion 19 carries.

Motion 20 in DCN 14-464r2

Move: BJ, 2nd: Qing

Discussion: none.

Official vote on motion 11 in DCN 14-464r2:

In favor: 8. Oppose: 0. Abstain: 0. Motion 20 carries.

Motion 21 in DCN 14-464r2

Move: BJ, 2nd: Qing

Discussion: none.

Official vote on motion 11 in DCN 14-464r2:

In favor: 8. Oppose: 0. Abstain: 0. Motion 21 carries.

In extra-time:

**Chair:** Editors, do you have material to produce draft text?

**BJ:** I will try to prepare some text based on the motions in DCN 14-464r2. I may request proposers to provide text, and when that is ready I will distribute such draft by email reflector.

**Chair:** Let's have champions who take care of text corresponding to the different topics discussed during this meeting.

−Champions:

1) Frame structure: **BJ**

2) Synchronization: **BJ**

3) Discovery: **Qing**

4) Peering: **Qing**

5) Channel access and allocation **TBD**[[1]](#footnote-1)

6) Data transmission: **Shannon**

**Chair:** Please let's consider a face-to-face ad hoc meeting before the Interim meeting in September 2014. We can discuss about it later. Meanwhile let's schedule a conference call on Wednesday August 13th at 7:00 AM EDT, 8:00 PM in Japan and Korea, 12:00 AM in Ireland of the same day. The telephone bridge will be provided and announce by Inter-digital.

**Chair:** BJ will provide the 1st draft by August 4th after collecting drafts from each champion, and the last draft recirculation, before the September meeting, must be ready by September 1st.

**Chair:** The meeting is adjourned. See you in the September 2014 meeting in Athens, Greece.

1. TBD=To Be Determined. [↑](#footnote-ref-1)