**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) |
| Title | Minutes of IEEE 802.15.8 TG during the March 2014 Meeting in Beijing, China |
| Date Submitted | March 22nd, 2014 |
| Source | Marco Hernandez (NICT) |
| Response |  |
| Abstract |  |
| Purpose | For reference in TG8 |
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Chair: Prof. Myung Lee, CUNY, USA

Secretary Protem: Marco Hernandez, NICT, Japan

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>Monday March 17th, PM1 session

−Chair calls the meeting to order.

−Chair proposes this week's agenda: presentations and future planning.

Comments:

Shannon: Is letter ballot in September feasible?

Chair: Maybe.

Shannon: We need a key discussion list for final proposals and prioritize

those for the May meeting.

Chair: Let us defer this issue to Thursday.

−Chair asked for approval of minutes of previous meeting (January 2014, Los Angeles).

−Minutes approved unanimously by the group.

Shannon: Proposers should highlight key points of the proposals and why it is important.

BJ: Agreed with Shannon except on how to do it.

Chair: by Wednesday all presentations will be over and we will have a better idea on this.

−Chair counted the submitted pre-proposals in Mentor: 16 pre-proposals submitted.

−Presentations are organized as MAC & PHY.

−All members acknowledged if contribution is PHY, MAC or both: 6 PHY and 10 MAC contributions.

Shannon: MAC presentations should be first as it is perceived more critical and then

PHY presentations.

−Group agreed with the order first submission in Mentor first and each presentation within 40 minutes.

1st presentation: Huang Ban Lee (NICT), DCN 14−125, "NICT MAC Proposal".

Comments:

Shannon: 1 PD can be associated to multiple groups and not synchronized to every group.

Response: 2 PD leaders can hear each other and try and coordinate the PDs in both groups.

Shannon: There are power consumption issues with that scheme.

Response: Agreed and there is a compromise between synchronization and power consumption.

Joo: How do you know the group is formed?

Response: It is coming from upper layers. Common mode for discovery is aimed for a new group.

When a group is established already, do not use the common mode, but the operation mode.

Joo: The coordination between IPDs grows complex when the numbers of groups grows.

Shannon: This is not fully distributed MAC control.

BJ: agreed; it is self−organized but not distributed.

Response: It is not fully centralized, but just at the group level. Coordination is between

groups leaders.

2nd presentation: BJ (ETRI), DCN 14−131, "Fully Distributed Contention Based MAC Proposal for PAC".

Comments:

Marco: Where do you do the peering?

Response: Peering is done during data communication.

Joo: How does the PD know another PD used discovery slot when inactive?

Response: If PD is in sleep mode, another PD will wake it up through the discovery slot.

Shannon: Discovery messages during data communications are all the same.

Response: Discovery messages in data communication are only accepted if ID of PDs is known.

Shannon: There is a hidden node problem in sleep mode.

Response: Proposal takes into account hidden terminal problem.

Joo: If PDs are inactive how do they know another PD advertises for discovery?

Response: Every PD must listen discovery sub−slot either inactive or active.

Chair: Q&A will continue tomorrow.

Chair: Session recess until tomorrow AM2

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>Tuesday March 18th, AM2 session

−Chair calls the meeting to order.

−Q&A for BJ, DCN 14−131, continues:

H.B. Li: Do you need global synchronization?

Response: all PDs have common timing, fully distributed CSMA−CA.

Shannon: When preambles overlapped, how to deal with that?

Response: If there is collision, PDs back up and try again. If PDs are close to 2 or more groups, they will decide to which network to switch or not.

3rd presentation: J. Yu (Chung−ang Univ.), DCN 14−174, "CAU Contribution Proposal for IEEE 802.15.8".

Comments:

Shannon: There are elements out of scope for PAC. Focus the proposal on key requirements for PAC.

Response: Ok.

Shannon: Group ID is generated locally?

Response: Yes, initiator is group owner.

Shannon: It seems a centralized version.

Response: No.

H.B. Li: Within a group, is there a coordinator?

Response: No. Every node can coordinate the joining of a new PD.

4th presentation: Qing (InterDigital), DCN 14−134, "Cross−Layer Context Management".

Comments:

Shannon: Why primitives for HLMC are useful?

Response: How to manage the PDs across MAC, PHY and upper layers according the reference model in PFD.

5th presentation: Qing (InterDigital), DCN 14−136, "Frame Structure Supporting Multi−hop Communications for PAC".

Comments:

Joo: There are similarities with my proposal.

Response: Yes

Joo: How the multiphop frame allocates resources?

Response: It will be presented for the final proposal during the May meeting.

Shannon: It seems 2 hops are enough. Higher number of hops will introduce problems.

Response: Agreed.

6th presentation: Qing (InterDigital), DCN 14−138, "Power Control for PAC".

Chair: recess until PM1 session

>Tuesday March 18th, PM1 session

−Chair calls the meeting to order.

6th presentation: Qing, DCN 14−138, continuous:

Comments:

Marco: There is not description of a power control algorithm.

Response: We only specified metrics and the algorithm is up to implementers.

Shannon: Is the proposal for discovery or data communications?

Response: For all cases that require transmission.

7th presentation: Qing (InterDigital), DCN 14−135, "Multi−hop Peering for PAC".

Comments:

Shannon: In slide 5, the intermediate PD should have a security process to allow relaying of messages

Response: Agreed.

8th presentation: Qing (InterDigital), DCN 14−137, "Reliable Multicast for PAC".

Comments:

Shannon: How does the receiver know the use case?

Response: Using broadcast, unreliable though. Another way, transmitter indicates it.

9th presentation: Joo (ETRI), DCN 14−139, "PAC MAC pre−proposal".

Comments:

Shannon: Is super-frame fixed?

Response: Yes.

Shannon: This proposal does not work.

Response: Yes, it does.

Shannon: Discovery IDs are insufficient.

Response: No, they are sufficient.

Chair: Recess until PM2 session

> Tuesday March 18th, PM2 session

−Chair calls the meeting to order.

10th presentation: Shannon (Samsung), DCN−130, "Samsung Pre-proposal to TG8 CFC".

Comments:

Li: Is there global synchronization?

Response: No.

Li: PDs with no intentions of joining a group, must keep synchronization.

Response: Not necessarily. PDs can decide not to follow synchronization or go to sleep.

11th presentation: Marco (NICT), DCN 14−114, "NICT PHY Pre−Proposal to Call for Contributions".

Comments:

Shannon: Many carrier aggregations of channels can exhaust resources.

Response: We propose to aggregate only 1 carrier, so a channel of 20 MHz can be formed.

Shannon: How another PD knows there is an aggregate carrier channel?

Response: That information is in the control channel.

BJ: Is the carrier aggregation dynamic?

Response: Yes.

12th presentation: Marco (NICT), DCN−14−117, "Proposal Outline of Completely Distributed Power Control Mechanism for Peer−Aware Communications"

13th presentation: B. Verso (Decawave), DCN 14−124, "UWB PHY contribution to TG8".

Comments:

Li: What is the reflection delay?

Response: Around 600 nsec.

14th presentation: Igor (NICT), DCN 14−127, "NICT Impulse Radio Ultra Wideband PHY proposal in response to CFC".

Chair: Recess until tomorrow AM1 session

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>Wednesday March 19th, AM1 session

−Chair calls the meeting to order.

15th presentation: BJ (ETRI), DCN 14−132, "Collision Detection based PHY Proposal for PAC".

Comments:

Marco: Is there any reason FFT size is 64 for 20 MHz channels?

Response: We prefer to use WiFi parameters, like 20 MHz bandwidth for coexistence, but we are open.

Shannon: Channelization of 20 MHz of WiFi coexists well with Bluetooth. So, there is no need to copy WiFi bandwidth.

Response: To guarantee performance.

Qing: STF is used for many tasks. How is the performance?

Response: Our proposal performs better than WiFi.

16th presentation: BJ (ETRI), DCN 14−133, "Self Spatial Filtering for PAC".

Comments:

Marco: Implementing a linear array of 4 antennas may not be feasible.

Response: For most applications, we think of using 2 antennas.

Li: A directional antenna can be used instead.

Response: We prefer the flexibility of an antenna array.

Qing: Is the weighting matrix pre−configured?

Response: Yes.

−All presentations for pre-proposals are over.

Chair: Shannon sent an email to the reflector with a list of MAC technical issues

for proposers to take into account for the final proposals.

−Shannon presents such a list to the group.

Comments:

Joo: There is a misunderstanding on super−frame structure of my proposal.

Chair: I suggest you send to Shannon a list of MAC technical issues from your point of view.

Shannon will compile those for discussion tomorrow AM2 session.

Marco will compile a list of PHY technical issues for discussion tomorrow AM2 session.

Chair: Session recess until tomorrow AM2 session.

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>Thursday March 20th, AM2 session

−Chair calls the meeting to order.

−Marco reads the PHY list of technical issues.

Comments:

BJ: Points out these are individual opinions.

Chair: There are 2 possibilities for the list of technical issues for PHY and MAC:

1) Such lists are recommendations to proposers to improve their proposals for the May meeting.

2) The TG goes through the lists and officially recommends following items to proposers for final proposals.

Discussion:

−The group concludes there are not formal documents and motion for these lists and consequently no vote.

Therefore, lists are recommendations to proposers.

Chair: As there are not remaining issues for this meeting agenda, the meeting is adjourned

until May in Hawaii.