**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) | |
| Title | **IEEE 802.15.4f Active** | |
| Date Submitted | 20, November 2009 | |
| Source | George Cavage  iControl Incorporated | Voice:  E-mail: gcavage@icontrol-inc.com |
| Re: | 802.15 Plenary Meeting in Atlanta, GA, USA (November 2009 session) | |
| Abstract | IEEE 802.15.4f Active RFID System Task Group Minutes | |
| Purpose | Official minutes of the November 2009 Active RFID System TG Meeting Sessions | |
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**IEEE 802.15 Plenary Meeting – Session**

**IEEE 802.15.4f Active RFID System TG Session Minutes**

**6th Meeting as an 802.15.4f Task Group**

**Atlanta, GA**

**November 2009**

**Monday 16, November 2009**

**PM2 Session**

***4:01pm Mike McInnis opened the meeting***

Reviewed Agenda

Misc announcements: LA meeting – book hotel soon to get lower rate

Patent Policy: No patent claims were announced

Agenda was approved by unanimous consent

Minutes from Hawaii: Motion to approve: Adrian Jennings; and approved by unanimous consent

Review chairs role in the meeting

Chair read the PAR Scope

Continued agenda review

Meeting goal: Select proposal(s) and work draft of first letter ballot. Draft text needs to be ready to go to letter ballot by January 2010

Noted: all voters should have received a CD with the latest approved standards

*Noted: Our meetings originally planned for Hanover D will now take place in Room 219*

Review of 64 bit ID omission: recommendation to TG4e

TG4f Blink Frame Recommend to TG4e:

* Establish a new ‘blink’ frame type for Active RFID such that when a non-RFID device receives this frame type it immediately discards it (after frame control and before addressing bits), no association or ACK required
* A RFID blink frame may include an IEEE 64 bit source address, or may omit it
* A RFID blink frame may also omit or include a PAN ID
* The 802.15.4 addressing modes may already have a value of 00 (no address); addressing mode 01 which is currently reserved, utilized to mean 64 bits without PAN ID
* The blink frame tag will accommodate any alternative ID (i.e. GS1 GIAI202) in the payload and not defined within IEEE
* Recommend that the new blink frame type be assigned a frame type value of ‘100, 101, 110 (without any extensions)

It was agreed to forward this recommendation t o TG4e prior to the joint meeting Tues PM2.

***Recess 6:04pm***

**Tuesday 17, November 2009**

**AM1 Session**

***8:03am***

Mike reviewed the letter ballot cycle in more detail

Start PHY proposal recaps:

First (1) presenter: Michael McLaughlin from Decawave – see document 764 for details.

Summary Decawave PHY proposal - Use the 802.15.4a PHY for the 15.4f PHY

Second (2) presenter: Andy Ward from Ubisense – presented two proposals using previous presentations as seen in the Kona, HI meeting. See documents 617 and 616 for details. Ubisense is most interested in a PHY supporting highly refined accuracy at very low cost. Also proposed: a UWB and 2.4GHz PHY together (2.4GHz PHY different from existing 15.4 only in that it does not use spread spectrum)

Third (3) presenter: Adrian Jennings from Time Domain – presented using a previous presentation as seen in the Kona, HI meeting. See document 611 for details. UWB transmit only tag for RFID and location. Enables non-coherent location systems not covered in 802.15.4a. Optional narrowband 2.4GHz PHY for download to tag.

Similar between presentations 2 and 3 – a 2.4GHz PHY: UWB for locationing, generally used indoors. 2.4GHz narrowband PHY for UWB tags moving internationally (not just regionally).

***Recess10:02 am***

**Tuesday 17, November 2009**

**AM2 Session**

***10:32am***

Continue with PHY proposal recaps:

Fourth (4) presenter: Tim Harrington from Zebra Enterprise Systems – presented using a previous presentation as seen in the Kona, HI meeting. See document 618 for details. A 2.4GHz PHY proposal and includes the use of an 125 KHz LF receiver.

Fifth (5) presenter: Dalibor Pokrajac from Guard RFID Solutions – see document 783 for details. Presentation proposes the use of a 433MHz PHY to avoid 2.4GHz, low cost, and indoor and outdoor use. Proposal includes the use of an LF receiver.

Sixth (6) presenter: Wolfram Kluge from Atmel – see document 613 for details. Proposal supports 802.15.4 PHY usage for active RFID ranging. This is not a PHY change per se, more a recommendation to use the latest revision of 802.15.4 (although there may be some hardware augmentations) for the use of ranging.

Mike reviewed the presentations and consolidated them into three groups: UWB, 433, and LF.

***Recess12: 19pm***

**Wednesday 18, November 2009**

**PM1 Session**

***1:32pm***

Mike announced that there had been an informal ad hoc meeting with TG4e today and there is some synergy moving forward on the blink frame MAC proposal. It was agreed to modify the agenda to continue the work required for TG4e and that the document will be discussed in the PM2 meeting.

The PHY proposal confirmation meetings and initiate the PHY draft standard will occur during the Thursday sessions.

Adrian Jennings of Time Domain briefed on the work done during the ad hoc meeting. In essence it was requested that the MAC change be approached as modifications to the work currently being discussed within TG4e.

Dalibor Pokrajac of Guard RFID Solutions discussed the two different blink frame types.

- 64 bit addressing blink frame to include the PAN ID

- 0 bit addressing blink frame format: short blink frame based on 1 byte FCF with 6 different potential short frame types

Proposal for TG4e (PM2 session): A 16 bit frame control based on the ACK with a number of spare bits to specify subtypes of which the blink frame will use one and the rest will be reserved. Two more spare bits will be used to (1) toggle 64bit source address on and off and the second (2) will toggle a 16 bit destination PAN ID on and off. This frame includes sequence number and may optionally include variable payload. There is an assumption that there will be a frame version increment to protect legacy devices.

Adrian, Billy, and Dalibor will work on the slide presentation for TG4e.

***Recess 3:10pm***

**Wednesday 18, November 2009**

**PM2 Session**

***4:15pm (Pat Kinney, chair TG4e, called the meeting into session)***

The meeting was held in conjunction with TG4e to discuss the RFID blink frame. Pat Kinney welcomed TG4f and stated that if TG4e is in agreement, then the blink frame type will be added. If TG4e decides no, then the blink frame will not be added to the document moving forward (any change due by Dec 1).

Began discussion on document 707 – RFID Blink Frames and Renee’s document 233 rev 7.

Vote held to approve adding blink frame to the document: approved 15 – 0- 5. Final verbiage must be submitted by Dec 1.

***Recess pm (Pat Kinney, chair TG4e, called the meeting into recess)***

**Thursday 19, November 2009**

**AM1 Session**

***8:00 am***

The meeting opened as a working meeting. There are several proposals that are close enough to merge. Adrian Jennings of Time Domain led the discussions. The 4 proposals from Zebra Systems, Time Domain Systems, Ubisense and DecaWave are being combined. The meeting agenda was modified then the AM1 meeting was recessed and restarted as an ad hoc meeting for the purpose of working through the differences between the proposals.

***Recess 10:15 am***

**Thursday 19, November 2009**

**AM2 Session *10:30 am***

The meeting was opened and the agenda was modified to allow the meeting to be recessed to allow further work on the merge in ad hoc. The meeting was then recessed until 11:30 AM.

The meeting was reconvened at 11:45 AM. Adrian Jennings reviewed the merged document (0804-00).

Slight modifications to the 0804-00 merged document were suggested by DecaWave so modifications were made to the document and a revised document was posted on the server as 0804-01.

12:31pm Adrian Jennings reviewed the revisions in the revised document (0804-01)

Two motions were then made:

Motion: Move to vote on TG4f merged PHY document (804-01) as the TG4f baseline draft PHY document.

Moved: M. McInnis

Seconded: A. Jennings

Discussion on the motion: Ciaran of DecaWave proposed that we have a straw vote today and that DecaWave does support the merged document however to allow his team to understand the ramifications of the merger DecaWave requests more time to evaluate the 0804-01document.

Vote results: 0 Yes; 9 No; 6 Abstain

Motion failed.

Tim Harrington then made a motion to have a straw vote regarding support to adopt the document as the baseline for the standard.

Straw Poll: Do you support adopting the TG4f merged PHY document (804-01) as the TG4f baseline draft PHY document

Results: 19 yes; 1 no; 1 abstain

The chair asked if there was any new business that needed to be discussed, there was none.

The chair entertained a motion to adjourn.

Moved: Ed Calloway

Seconded: Andy Ward

No objections

***Adjourn 12:45 pm***