IEEE P802.15

**Wireless Personal Area Networks**

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| Project | Dependable Interest Group |
| Title | **Meeting Minutes for May 2014**  |
| Date Submitted | May 14, 2014 |
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| Re: | Meeting Minutes |
| Abstract |  |
| Purpose | Minutes of Dependable Interest Group sessions |
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**Tuesday, May 13, 2014, AM2, 10:30**

* 1. Meeting called to order 10:40

By Chair Art Astrin

Secretary Jussi Haapola

No essential intellectual property in the scope of IG DEP was declared.

* 1. Roll Call

Notepad for Attendance circulated.

* 1. Approval of previous meeting minutes

Doc #211 Minutes were approved.

* 1. Summary of Beijing meeting minutes

Lead by Art Astrin

* 1. Doc #306 Dependability Based on Regulatory Science for Medical Devices (10:55)

Lead by Ryuji Kohno

Ben Rolfe: How does human impact – BER tradeoff affect the overall picture of dependability?

Ben Rolfe: What is the role of regulatory science in IG DEP?

* e.g. emission power and SAR have an effect on dependability
* A standard that conforms with regulatory science may speed up device acceptance procedure.

Ben Rolfe: it would be important to enumerate requirement into protocol scope. What parameters can be affected, etc.

Art Astrin: 15.4 could implement Class 1 device without problems. Specifications (not identified yet) need to be made for 15.4 to support Class 2 devices.

Art Astrin: What if we make the same categorizations for automotive devices as there is for medical devices?

* the scope is large, form critical control like brakes to in vehicle entertainment.

Proposal to develop a recommended practice to apply 15.4 and 15.6 for automotive multi-priority device types and medical classes implementable by 15.4 and 15.6 standards.

If requirement arises the recommended practice development may spin off new projects to amend existing 15.4 and 15.6 specifications.

Best way is to focus on specific applications first rather than try to address a broad scope.

* 1. Agenda for Wednesday AM1
* defining recommended practice to improve link reliability
* to define classes for automotive devices (as an application of the recommended practice)
* risk level matrix: medical, automotive, etc.
	1. Recess 12:21

**Wednesday, May 14, 2014, AM1, 08:00**

* 1. Meeting called to order 08:06

By Chair Art Astrin

Secretary Jussi Haapola

* 1. Roll Call

Notepad for Attendance circulated.

* 1. Revisit class definition form doc #306
	2. Interview with automotive expert

John Kenney (Toyota) came to share automotive industry knowledge.

* In U.S., DSRC (802.11p based solution) outside the car (10 MHz band). No BSS association, hence ad hoc communications.
* 3000 vehicle trial recently conducted -> regulatory process to be start soon.
* Main application collision avoidance by communication between vehicles.
* Dependability of communications important.
* Potential to saturate the 10MHz communications channel (dedicated for safety), so several solutions to assure delivery of critical interval messages.
* 7, 10MHz channels.
* Discussions ongoing if unlicensed communications can use the DSRC channels for anything.

Ben Rolfe (Blindcreek Associates): What are the metric and/or parameters that are of use for DSRC in terms of communications?

* PER is not the main criteria, tracking error is. Tracking error < 0.5 m.
* Channel contention/congestion: 10 msgs/dev/s. In case of congestion, decrease the rate of packets/s. Dynamic behavior based on number of messages received (channel load). If one’s dynamics make prediction difficult, then that one dev sends more packets/s.
	+ From deterministic (periodic) to event-based flow of communications based on vehicle dynamics.
	+ Priority access exists, reduced backoff, etc. (3 to 4 different classes)
	+ Target channel load at near optimal utilization (60-65%) level. -> 20-40% packet error rate, which is acceptable.
	+ Transmission power reduction also a method.
* At current 1st generation, there is no multihop functionality in US, In Europe multihop exists in 1st generations solutions with a lot of debate on its usability.
* Safety mainly uses broadcast communications.
* Unicast also exist, e.g. between tollgates and cars.
* Car manufacturers need an evolutionary approach for improvement of DSRC, not only the improvement but also how to maintain backwards compatibility.
* Data age is not critical until a certain threshold. After that threshold (up to a secons) rapid deterioration of reliability occurs.

Art Astrin (Astrinradio): what are your thoughts of dependability in DSRC?

* To receive messages often enough to prevent a threat.
* Only the latest message matters from a source.

Ryuji Kohno (YNU/CWC-Nippon): What other parameters need to be considered?

* Range based on the relative location to other cars.
* Extrasensory information combined at the receiver, not transmitted.
* Higher layer security is employed
* Only about 100 bytes of a 350-byte basic safety message is tracking data. The rest is ensurance of security and privacy.

Ben Rolfe: Since IEEE 802 cannot address “safety” aspects per se, is it a problem?

* In the 1st generation solutions the driver has overall responsibility.
* Definition of what is a warning is car manufacturer dependent.
	1. Next steps before San Diego Meeting

Definition of Application-dependability matrix to be done by email before San Diego Meeting in July 2014.

* 1. Recap of Doc #163

Telco on May 22, to define application-dependability matrix

California 6 AM; Finland 4PM; Japan 10PM

* 1. Adjourn

10:13.