**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) | |
| Title | **Performance metrics for proposal evaluation** | |
| Date Submitted | 29 July, 2014 | |
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| Re: |  | |
| Abstract | This document present a proposal on the performance metrics to be used to compare the proposals to TG10 | |
| Purpose | The proposed performance will be used for proposal comparison | |
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**Introduction**

This document suggests a list of performance metrics to be presented in the simulation results. These metrics will be used to evaluate and compare the different proposals. Additional performance metrics may be added if agreed by the group

**Performance metrics of Proposals**

1. Metrics Based on Proposals – need to be stated as part of results

* Initialization time
  + The time for all nodes to have at least one possible route.
* Construction overhead
  + Overhead to needed to form upward routes (Hello packets, etc.)
  + Overhead needed to form downward routes (Hello packets, etc.)
* Routing overhead
  + Just forward packet or is probing of next hop needed
* What else in addition to 15.4 MAC is needed to transfer packet end-to-end
  + IE’s, Header
* Recovery time (Min., Max., Avg.) for drop routes (nodes)
  + Route Updating and Re-Routing Procedure
* Type of network simulation/analysis was done for
  + Beacon or non-beacon enable mode
  + And how is it applicable to other mode
* Type of node deployment (positioning)
  + Random or Equally Spaced (Grid)

1. Metrics Based on Simulation Results/Analysis of Proposals

* End to end successful transmission ratio - Packet Delivery Ratio (PDR)
* End to end transmission delay/latency (Min., Max., Avg.) - the time elapsed from when a data packet is first sent to when it is first received at its destination
* 99.99th Percentile Latency - Computed as the 99.99th percentile of the packet delivery latency
* Number of hops (Max., Avg.)
* Battery consumption in 24 hours in duty cycling and non-duty cycling mode
  + Min., Max., Avg. for
    - * PAN Coordinator
      * Router
      * End Device

Additional Items to Consider and whether they fall under 1. or 2. above

Where does AODV fit in w.r.t. overhead?

Common Scenario needs to be defined for recovery time, for simulation based purposes.

Construction time

* Computed as time to establish a route.
* The Tg10 group will decide whether association time will be included in this time.