Project	**IEEE 802.20 Working Group on Mobile Broadband Wireless Access**
	<**http://grouper.ieee.org/groups/802/20/**>

Title	**Comments to the Evaluation Criteria Document (802.20 – PD-09)**

Date Submitted	**2006-11-15 (Nov 15, 2006)**

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Re:	802.20 Evaluation Criteria document

Abstract	This document summarizes issues I discovered with the Evaluation Criteria document, presented at the 802.20 Plenary meeting on Wednesday, 15 Nov 2006.

Purpose	The comments were to stimulate discussion and present my views. This document is to record my comments.

Issues in Evaluation Criteria Document

November 15, 2006
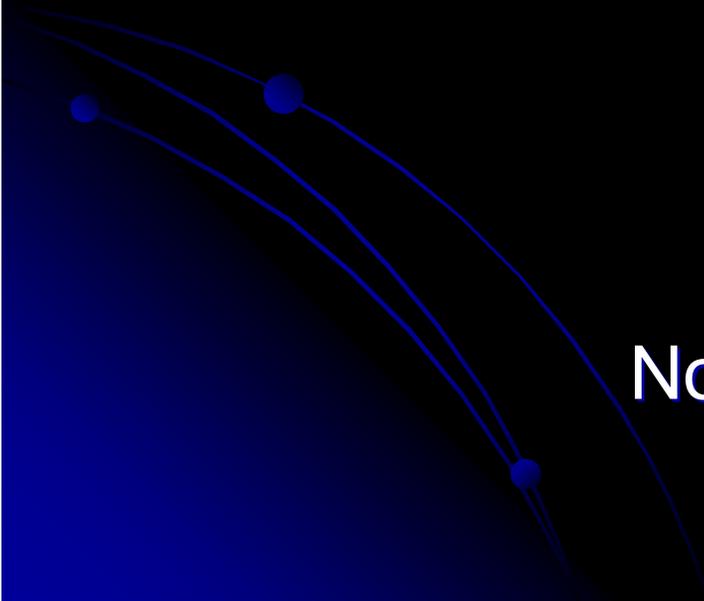
Traffic Models

- In May '06 Interim meeting, the issue about the traffic model in the current evaluation criteria document has been discussed [1]

- Traffic model mix used in proposal evaluation was not able to test the reverse link performance sufficiently

- Needs to investigate an appropriate traffic model mix that can help the WG to evaluate the performance in the reverse link

- For example, the modeling of file uploads from the mobile user to the base station
  - Can be used to simulate one of the popular applications, i.e., photo or video upload from camera phones, laptops

Spectrum block size for comparison

- Evaluation of performance in a fixed spectrum block should be specified as in the pre-approved version of the evaluation criteria document [2]

- As proposals may be designed for operation in a different basic bandwidth, the evaluation in a typical spectrum block enables a fair comparison between different proposals

- Include consideration of actual deployment scenario, e.g., amount of guard bands required between adjacent carriers

System Performance at 250 km/h

- Channel model mix has not included the higher mobility users in several scenarios

- Despite the practical reasons as provided in the evaluation criteria document [3], some evaluations on system-level performance at the higher mobility cases should be included

- For example, handoff performance for mobile users at the highest mobility of 250 km/h should be evaluate
  - Systems requirements section 4.1.4 stated that 802.20 shall support vehicular speed up to 250 km/h

Evaluation Stages

- Phrased approach technology evaluation provides an opportunity for the system simulators from various proponents to be calibrated so that simulation results can be compared fairly

- Thus, phrased approach on proposal evaluation may worth considering again
  - as discussed in Section 6 of [4]

Others

- Conduct a thorough comparison between the Systems Requirements and the Evaluation Criteria Documents
  - To ensure consistency

- Also need to ensure consistency between Evaluation Criteria and Channel Models Documents
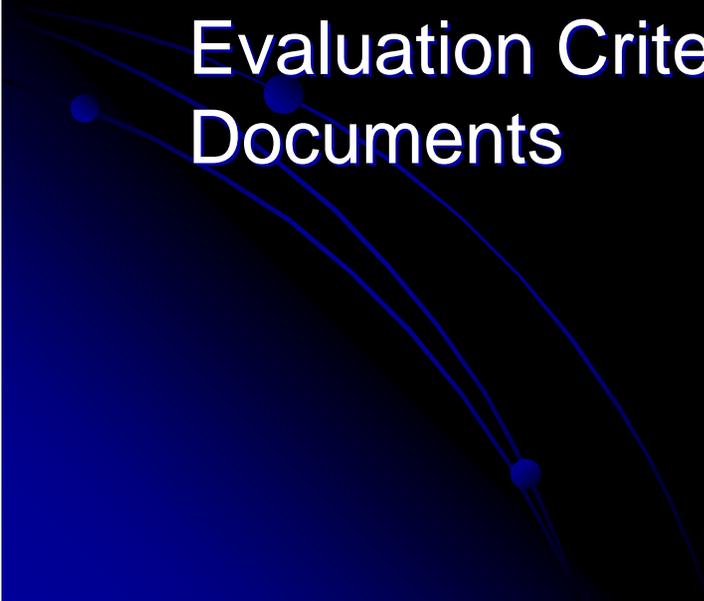
References

1. 'Proposed traffic modeling ad hoc', C802.20-06/18, Mar 7, 2006
2. 'Draft 802.20 Evaluation Criteria document-Version 17r1', September 14, 2005
3. '802.20 Evaluation Criteria document-Ver. 1.0', IEEE 802.20 PD-09, September 22, 2005
4. C802.20-06/10r2, Section 6, Jan 18, 2006
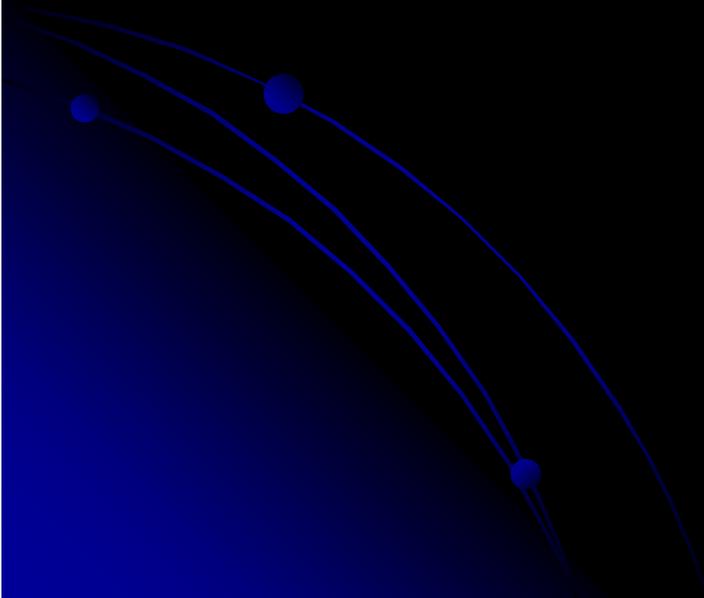
Appendix – Section 6 of [4]

- **Major changes in the Evaluation Criteria document in the September 2005 Interim meeting**
- Substantial differences have been identified in a comparison between the two versions of evaluation criteria documents:
  - IEEE 802.20 Evaluation Criteria Document V.17r1, September 14, 2005 [5], which is an *"Updated Version of Evaluation Criteria document based upon Editor's clean up of the document and agreements from Session #14, May 17-19, 2005; plus additional Editorial cleanups per notes from Members; and changes agreed at Session #15 plus inputs from Two Conference Calls",* as quoted from the cover page of the document.

  - IEEE 802.20 Evaluation Criteria Document V1.0, 802.20-PD-09, September 23, 2005[3], which is the final version approved in September 2005 Interim meeting, Session #16.

Appendix – Section 6: (Phased) Approach for Technology Evaluation

- Until Version 17R1, this section has described clearly about the two-phase approach of proposal evaluation, as quoted below:

- *"The 802.20 evaluation will be structured in two phases with each phase progressively adding more complexity. The evaluation work for each proposal may then be compared at each phase to ensure a progressive "apples to apples" comparison of proposals. This structured approach will also provide performance metrics for the physical and link layer performance early rather than later in the evaluation process."*

- For Phase 1: *"The goals at the end of phase 1 are, first, to achieve confidence that different simulation models are calibrated and, second, to present fundamental performance metrics for the physical and link layer of various proposals."*

- The followings have been specified for each phase of evaluation.
  - Phase 1:
    - System-level calibration
    - Channel models: Pedestrian B, 3km/h; Vehicular B, 120 km/h
    - Full-Buffer traffic model

  - Phase 2: Additional traffic models
    - Additional channel models/channel model mix
    - TCP model etc.

Appendix – Approved Version

- The two-phase approach has been replaced by two reports, with the following description:
  - *"The goals of the first report are, first, <u>to achieve confidence that different simulation models are calibrated</u> and, second, <u>to present fundamental performance metrics for the physical and link layer of various proposals."</u>*

- Important information on the performance characteristics of the proposed technology that should have been obtained in Phase 2 evaluation is not available
  - Throughput performance as affected by TCP flow control algorithms has not been included in the evaluation