Document Number:

IEEE 802.16.1mp-00/13

Title:

Proposal for Limited MAC Layer Modeling Evaluation Criteria for Session #7

Date Submitted:

2000-03-07

Source:

Glen Sater	Voice:	480-441-8893
Motorola Inc.	Fax:	480-675-2116
8220 E. Roosevelt Street, M/D R1106	E-mail:	g.sater@motorola.com
Scottsdale, AZ 85257		

Venue:

802.16 Session #6, March 6-10, 2000, Albuquerque, NM, USA.

Base Document:

IEEE 802.16.1m-00/02

Purpose:

This proposal is intended to provide a set of modeling criteria for use in evaluating MAC proposals for the 802.16.1 Working Group at Session #7. This document is submitted with the intent of providing a limited set of traffic models by which comparisons of the MAC submissions can be made. The set is limited due to amount of time to develop and conduct modeling simulations and evaluations by Session #7.

Notice:

This document has been prepared to assist the IEEE 802.16. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.

Release:

The contributor acknowledges and accepts that this contribution may be made public by 802.16.

IEEE Patent Policy:

IEEE 802.16.1 MAC Modeling Evaluation Criteria

March 6-10, 2000
Albuquerque, NM

Purpose:

> To specific a limited set of evaluation criteria in response to IEEE 802.16.1m-00/02, "802.16.1 MAC Task Group CALL FOR CONTRIBUTIONS ON MAC-LAYER MODELING Session #6".

Why:

> The evaluation criteria for Session #7 requires simulation and modeling data to be presented that supports the proposals. This criteria has not yet been defined. A limited set of criteria is proposed to allow objective comparison of any MAC submissions.

> *This is imperative for the development plan to remain on track.*

Proposal Basics

- ## Limit the bearer services; each CPE supports
  - Four 100BaseT connections
  - One T1 (Unstructured without CAS)
  - Simultaneous operation

- ## Measured Statistics
  - Overall Throughput (aggregation of services)
  - Individual Throughput (per service)
  - Delay (per service)
  - Jitter (per service)

Proposed Evaluation Limitations

- ## Perfect PHY layer
  - Symmetric delivery of 25 Mbps per channel
  - Agnostic of duplexing scheme
  - range between 10^{-6} through 10^{-9} BER
    - after FEC, inserted at the TC sub-layer

- ## T1 always has higher-priority than 100BaseT traffic

- ## Call setup ignored

- ## Initial ranging ignored
  - CPE always exist within the network

Proposed Evaluation Limitations (cont.)

- ## All CPE on single "channel"

- ## Periodic ranging as defined in proposals

  - Assume each ranging event requires one message sequence

  - Submitted evaluation results describe ranging steps

- ## User Data is encrypted (to evaluate headers)

Test Cases

- ## Test cases
  - 100 CPE on the Channel
- ## Assumptions
  - T1s always active
  - 100BaseT
    - 25% of bandwidth 64 byte packets
    - 25% of bandwidth 1500 byte packets
    - randomly distributed across all CPEs
    - Exponential distribution
    - symmetric traffic patterns