

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >	
Title	Additional Performance Metric for Draft 802.16m Evaluation Methodology: Jain's Fairness Index	
Date Submitted	2007-5-3	
Source(s)	Bozo Cesar, Joerg Schaepperle, Alcatel-Lucent	Joerg.Schaepperle@alcatel-lucent.de Bozo.Cesar@alcatel-lucent.de
Re:	IEEE 802.16m-07/014r1, "Call for Comments on Draft 802.16m Evaluation Methodology Document"	
Abstract	This contribution provides the text amendment to the section '13.1 Performance Metric' proposing "Jain's Fairness Index" as additional Performance Metric. .	
Purpose	Performance Metric to evaluate throughput fairness for 16m Evaluation Methodology	
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Bozo Cesar, Joerg Schaepperle

Alcatel-Lucent/

I. Introduction

An equation for fairness criteria is already given in 802.16m evaluation methodology document (C802.16m-07/080r1). For TCP networks in the literature often Jain's Fairness Index is used to evaluate throughput fairness, therefore it is proposed to include this metric to the Performance Metrics in chapter 13.1.

II. Text Proposal

Jain's Fairness Index

To verify the throughput fairness, the Jain's Fairness Index can be calculated:

$$f(x_1, x_2, \dots, x_n) = \frac{\sum_{i=1}^n x_i^2}{n \cdot \left(\sum_{i=1}^n x_i\right)^2}$$

n = number of active connections, xi = mean throughput value of connection i.

The values of the Fairness Index is between 0 and 1, whereby the value 1 means that the measurement values x_1, \dots, x_n are absolute equal.

Reference: Jain, R., Chiu, D.M., and Hawe, W. (1984) A Quantitative Measure of Fairness and Discrimination for Resource Allocation in Shared Computer Systems

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