

Subject: Grade of Service

Date Issued or Revised: FINAL April 27, 2005

Date Review: April 27, 2007

4.1.2 Grade of Service (GOS)

I. Subject and Purpose

The MPSCS radio system was designed using a 5 percent GOS criterion. This means that given a certain quantity of radio users roaming throughout the system, each MPSCS site, during the busiest time of day, should support the traffic volume with only a 5 percent probability of a call being blocked (95 calls out of 100 will be completed without queuing).

The purpose of this policy is to explain and define methods and criteria used to help maintain a Grade of Service (GOS) of 5 percent or better for Michigan Public Safety Communications System (MPSCS).

II. Procedures and Guidelines

MPSCS Grade of Service (GOS) is a measurement used to help quantify system loading. It helps describe a subscriber's ability to access the system considering existing or predicted radio traffic volume. It is generally expressed as a percentage, which represents the probability of being "denied" access due to the unavailability of radio channels to support the call. In essence it is a measure of how congested or busy the radio system is.

Many studies were used to develop this design including anticipated future growth. The target for system performance is a 5 percent or better grade of service. GOS calculations attempt to predict certain outcomes by using estimated quantities and employing mathematical probability functions. Archived historical data and real time traffic data as well as subscriber quantities will be used with "Erlang C" to examine system GOS.

In order to monitor GOS, historical system traffic reports will be analyzed monthly. These reports will be used to rank the MPSCS sites to determine when and where the GOS control needs to be implemented. If we are unable to consistently achieve the 5 percent grade of service, we will implement one or more of the following solutions:

1. Add channels
2. Slow down subscriber membership
3. Modify tower access profiles

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- III. Responsible Party
 - Engineer Manager
 - A. Contact for Questions
 - Traffic Engineer
 - B. Phone, Fax and Email Addresses
 - 517.336.6240
 - 517.336-6222 (fax)

- IV. Applicable Forms

- V. Termination or Review Responsibility
 - Engineer Manager

- VI. Linkages to Other Relevant Data