

CHAPTER 46

DATA CLASSIFICATION

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1. INTRODUCTION

1.1 Data classification forms an essential part of the Data Reporting, Analysis and Corrective Action System (DRACAS) (see PtCC18). The criteria by which incidents are to be classified should be fully defined before testing commences.

1.2 The aim of data classification is to separate those incidents which are relevant to the estimation of an equipment's reliability from those which are not relevant. The relevant incidents are further divided as to their cause. From this data, steps can be taken to eliminate weaknesses and improve reliability and maintainability.

1.3 Equipments are rarely used in isolation and it is often necessary to directly compare results, or use results from more than one equipment and/or source. Consequently it is desirable that a common method of classifying incidents is used; preferably contractually enforceable.

1.4 Incident sentencing, and subsequent data classification, can be a time consuming process. However, the task can be readily conducted in a brisk and consistent manner by ensuring that:

- All data relating to an incident are available;
- The rules for incident sentencing are fully understood;
- Interested parties are represented by experienced personnel;
- Chairmanship of the incident sentencing committee is by a member of the MOD Project Team.

2. SCOPE OF DATA CLASSIFICATION

This section of the Standard addresses data classification with regard to:

- a) Cause.
- b) Significance.
- c) Frequency.
- d) Chargeability.

2.1 Cause

2.1.1 In all phases of a project it is essential that every effort is put into establishing the exact cause of an incident, and that all data relating to the incident are recorded. It is only by the analysis of sentenced data that problems can be highlighted and the necessary corrective action being put in hand.

2.1.2 Possible failure causes include:

- Quality of design;
- Quality of manufacture;
- Inadequate procedures;
- Pre-life failure;
- Exceeding the design specification;
- Human error;
- Secondary failure.

2.1.3 In each of the cases noted above a different form of remedial action will be needed. By ascribing the appropriate cause to incidents a track of significant failures and failure frequencies can be kept and targeted for remedial work.

2.2 Significance

2.2.1 The effect that a failure has upon an equipment performance determines its significance. A failure might completely prevent equipment from completing one or more of its mission critical functions. Failures in this category would be used to assess mission reliability. Other failures, requiring corrective action but not compromising the equipment's ability to fulfil its mission would fall into the category of basic reliability where maintenance intervention would be required.

2.2.2 Mission and basic reliability are the two most useful forms of reliability assessment; since the former determines the equipment's capability to complete its mission, and a combination of the two determines the level of maintenance required to keep the equipment in a functional state capable of fulfilling in capability requirements.

2.2.3 Failure criteria: Staff Requirements and performance specifications will contain failure criteria, sometimes described as mission essential functions. These criteria are used to produce an agreed set of failure criteria which are formally set out in the R&M plan. These criteria are used in data classification to determine each incident's significance.

2.2.4 Precedence: As a project develops it will become apparent that certain failures of particular items will, if the classification is consistent, be ascribed a common failure coding. It is good practice to keep a list of these codings as a precedence list, as this will make for quick and consistent coding at data classification meetings.

2.3 Frequency

It is the numerical frequency with which failures occur that is used to establish failure rates, to estimate reliability growth and to identify failure modes. To do this, each incident requires to be uniquely recorded in such a manner that a count of failures of a defined nature on individual items, that go to make up an equipment, can be made. The variable against which

the frequency of failure is measured should be defined eg Elapsed time, distance run, rounds fired, etc.

2.4 Chargeability

2.4.1 This is primarily concerned with establishing which failures are attributable to aspects of the project for which the contractor is responsible. This includes all aspects of design, manufacture, operation and maintenance of items produced under contract, including contractor furnished equipment (CFE).

2.4.2 A contractor would not normally be responsible for purchaser supplied equipment (PSE), excepting interfaces and any detrimental effect that installation has on the PSE's reliability and maintainability.

2.4.3 Depending upon the nature of an equipment the correction of some failures will be chargeable to the user and others to the maintenance organisation. This distinction can be of great importance when planning in-Service and operational use and support, and should be made when incidents are sentenced.