

Reliability Demonstration Testing

Reliability Demonstration Testing (RDT) is performed to obtain in-service reliability data for systems and equipment. To provide a meaningful measure of reliability and availability it is important to ensure that the recorded data is consistent and fit for use.

It is often the case that this data is seemingly obtained via methodical means when in fact it is not. Whenever there are requirements for personnel involved in a fault recording system to make subjective judgments about the nature of faults, or to describe what they have observed, they bring with them an element of uncertainty into the recorded data.

The solution to the problem is to provide a total fault recording and corrective action system (FRACAS) that is based entirely on pre-defined (coded) base information. Coupled with a relational database, designed to integrate seamlessly into the FRACAS, to store and automatically analyse the data, a rigorous and consistent means of measuring in-service reliability performance can be achieved.

Transsol Ltd has developed a FRACAS to collect information on faults, corrective actions and maintenance activities. Coupled with its bespoke SAbRE database it provides the complete solution to reliability demonstration testing and optimisation of maintenance activities.

The FRACAS comprises the following main elements:

- A form based data collation system.
- Code catalogues.
- RDT Test Plans.
- SAbRE database for effective storage and analysis of the data.
- Guidelines controlling the data collation, analysis and reporting processes.

The data collation forms are intuitive and logically laid out. They contain the fields necessary to obtain the required data and all data entered on to the forms is obtained from code catalogues. The code catalogues contain all of the information relating to the equipment, its location and failure modes in an intuitively coded format.

The coded information is defined in a series of associated RDT test plans, which are produced to define and verify all of the required data for each system under test. As such they present the base reference data that is imported into the database and from which the code catalogues are produced.

The powerful SAbRE database employs a user-friendly interface reflecting the format of the data collation forms. It provides the means for storing and analysing the recorded data, automatically calculating real time achieved reliability and availability of multiple systems and also reporting the results.