



# ETL Systems

*Excelling in RF Engineering*

## **ETL Systems Advisory Maintenance Programme – Enigma Matrices Model NGM-PSU**

### **Prediction method**

The MTBF/MTTF figure (Mean Time Before Failure/Mean Time To Failure) is calculated from the FIT rate (Failures in Time) using the Parts Count Method and the data provided by the suppliers and/or as given by MIL-HNBK-217F. In general, the Parts Count Method results in a more conservative estimate (i.e. higher failure rate) of reliability, compared to the Parts Stress Method which takes into account individual stresses on each part calculated for each circuit.

### **Free of any defect**

Prior to its commissioning the equipment is assumed to be free from any defects, including defects that may develop during manufacture, transportation, handling, storage or the equipment's operation beyond the specified operational conditions.

### **Dormancy**

Any product that is placed into controlled storage prior to commissioning, within the defined parameters in the product specification, is considered to be in a state of dormancy and will age at 1/10th the normal rate during operation. This should be factored into the service life of the product.

### **Glossary of terms**

MTBF - Mean Time Before Failure

MTTR - Mean Time To Repair

### **Serviceable parts**

ETL recommends that line replacement units with integrated fans are replaced after 5 years of operation as a precaution against failure. These parts are considered serviceable, and as such, it is recommended that spares are purchased where these are available.

### **Spares policy**

It is recommended that spares are purchased where possible. The MTTR is typically 20 minutes for the replacement of hotswap/line replaceable modules. 20 minutes allows for a 15 minute retrieval of the part from stock and 5 minutes for replacement. It is recommended that any spares kit if used is replaced without delay in order to mitigate any further failures.

### **Return to factory**

Any unserviceable or swapped out PSUs can be returned to ETL either under warranty, RMA or change programme. Please contact ETL Systems for more information.

### **Key points of contact**

Warranty: [info@etlsystems.com](mailto:info@etlsystems.com)

Support: [support@etlsystems.com](mailto:support@etlsystems.com)

