

INFORMATION BULLETIN

Mean Time Between Failures (MTBF)

Applies to the Following Products	Prepared For
<ul style="list-style-type: none"> All products 	Internal and External Operators and Service Technicians External Customers Christie Field Application Engineers (FAE) Christie Personnel

MTBF is used in the electronics industry to convey reliability of products. This document is intended to explain MTBF as it relates to electronic devices. MTBF is a statistical mean value for the average time between two failures during the normal working life of a product. MTBF always excludes the following:

- Early life failures (infant mortality failures).
- Misapplication of products by system designers or users
- The wearing out of consumable items
- Shipping or handling damage

In addition to the MTBF value, the environment and operating conditions (in particular temperature and humidity) must be specified and taken into consideration. High ambient temperatures and harsh environments will lower MTBF values and a higher number of failures can occur.

MTBF doesn't mean a failure free period of time or the expected number of operating hours before a system will fail. Some units in the population will fail sooner than the MTBF stated value, while some will fail later, and some will have no failures. There is no direct correlation.

$$\text{MTBF estimation} = \frac{\text{Total accumulated time (h)}}{\text{Total of number of accumulated failures}}$$

Total accumulated time = sum of hours accumulated on all the units in the sample population

For example: a display system with 252 display units having 30,362 hours of operation with a total of 45 accumulated failures will have the following estimated MTBF

$$\text{MTBF estimation} = \frac{30,362 \text{ (h)} \times 252}{45} = 170,027 \text{ MTBF}$$

Technical support

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