

Product Field Reliability - MTBF Calculation

23 February 2017

Re: Product Family 3809G with Transmitter

This document contains the estimated Mean Time Before Failure (MTBF) analysis results for Product Family 3809G with Transmitter. MTBF describes the average time to failure for a device after it has been shipped from our factory.

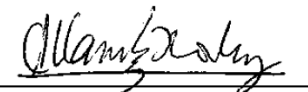
The analysis has been performed based on below criteria:

- Time-censored failure data method has been used in calculating the estimated failure rate.
- The data used for the calculation was obtained from our Production and Field Service database for the period April 2013 to June 2015. Product warranty failures from the date of shipment have been used to determine the failure rate. The devices that were not reported as failed have been considered as operating satisfactorily.
- The average time a meter runs before failure occurs is a function of the failure rate. The failure rate (λ) has been determined by the general relationship:
 - $\lambda = \text{number of failures} / \text{total time in field}$.
- The calculated failure rate does not consider any increase in failure rates over time during the wear-out-mode but it includes any infant mortality failures.

Below is the failure rate and estimated MTBF data for 3809G with Transmitter:

| Product Model | Failure Rate (λ) | MTBF |
|---------------|----------------------------|-----------|
| 3809G | 0.00001998 failures/day | 137 years |

Thank you for your interest in our company, and please feel free to contact me if you need further information.



Charles Koshy
Quality Manager