

RBMTX-Lite 4G Reliability Prediction

Profile		
Temperature	25 °C	100 %
Operative Condition	ON	100 %
	→ ON - IDLE	→ 95 %
	→ ON - TX	→ 5 %
Environment	Ground Fix - GF	
Quality level	II	
Operating voltage	12 V	
Standard	Telcordia	

Prediction	
MTBF	213 years
Lifespan (according to EN 61709)	12 years

NOTES:

GB - Ground Benign: Non mobile, temperature and humidity controlled environments readily accessible to maintenance: includes laboratory instruments and test equipment, medical electronic equipment, business and scientific computer complexes, and missile and support equipment in ground silos.

GF - Ground Fix: Moderately controlled environments such as installation in permanent racks with adequate cooling air and possible installation in unheated buildings; includes permanent installation of air traffic control communications facilities.

GM - Ground Mobile: Equipment installed on wheeled or tracked vehicles and equipment manually transported; includes tactical missile ground support equipment, mobile communication equipment, tactical fire direction systems, hand held communications equipment, laser designations and range finders.

QUALITY LEVEL 0: This level shall be assigned to commercial-grade, reengineered, remanufactured, reworked, salvaged, or gray-market components that are procured and used without device qualification, lot-to-lot controls, or an effective feedback and corrective action program by the primary equipment manufacturer or its outsourced lower-level design or manufacturing subcontractors. However, steps must have been taken to ensure that the components are compatible with the design application.

QUALITY LEVEL I: This level shall be assigned to commercial-grade components that are procured and used without thorough device qualification or lot-to-lot controls by the equipment manufacturer. However, (a) steps must have been taken to ensure that the components are compatible with the design application and manufacturing process; and (b) an effective feedback and corrective action program must be in place to identify and resolve problems quickly in manufacture and in the field.

QUALITY LEVEL II: This level shall be assigned to components that meet requirements (a) and (b) of Quality Level I, plus the following: (c) purchase specifications must explicitly identify important characteristics (electrical, mechanical, thermal, and environmental) and acceptable quality levels (i.e., AQLs, DPMs, etc.) for lot control; (d) devices and device manufacturers must be qualified and identified on approved parts/manufacturer's lists (device qualification must include appropriate life and endurance tests); (e) lot-to-lot controls, either by the equipment manufacturer or the device manufacturer, must be in place at adequate AQLs/DPMS to ensure consistent quality.

QUALITY LEVEL III: This level shall be assigned to components that meet requirements (a) through (e) of Quality Levels I and II, plus the following: (f) device families must be requalified periodically; (g) lot-to-lot controls must include early life reliability control of 100 percent screening (temperature cycling and burn-in), which, if the results warrant it, may be reduced to a "reliability audit" (i.e., a sample basis) or to an acceptable "reliability monitor" with demonstrated and acceptable cumulative early failure values of less than 200 ppm out to 10,000 hours; (h) where burn-in screening is used, the percent defective allowed (PDA) shall be specified and shall not exceed 2%; and (i) an ongoing, continuous reliability improvement program must be implemented by both the device and equipment manufacturers.

MTBF: Mean Time Between Failures

Disclaimer

A reliability prediction is a theoretical estimation based on the bill of materials of the device and the component reliability data provided by the vendor (when available). Though these prediction methods are widely utilized and accepted (Telcordia in particular for telecommunication devices), they have several limitations that must be known and accepted. Some of the most important are:

- Results are dependent on the trustworthiness of components failure rate data.
- Failure rate data may not exist for new component types.
- Other stresses than those considered in the estimation may predominate and influence the reliability.
- The prediction is based on the components reliability only, other elements like board and solder joints are not taken in account.

Hence, Elproma Elektronika Sp. z o.o. cannot assure that a reliability prediction made through an accelerated high temperature operating life test (or similar tests) yields the same result as a theoretical prediction.

The result of this prediction is confidential and strictly reserved to whom has requested it. Any other use is prohibited, including dissemination to other persons or companies. The prediction has been made based on the current available technical data of the components and is subjected to further improvement as updated data will be available from component vendors. The operative and environmental conditions have been established based on the customer indications. The prediction is valid exclusively at the established conditions.

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