
PARTS COUNT RELIABILITY PREDICTION

Copernicus II

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Part Number PWA # 63530-00

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Reference Documents			
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Quotation	SV3165		05/11/2011
Telcordia Technologies	SR-332	Issue 2	Sept 2006

1. Parts Count Reliability Prediction

1.1. Scope

This reliability prediction for the Trimble Navigation Copernicus II printed wiring assembly PWA # 63530-00 was calculated using the parts count method per Telcordia Technologies special report SR-332, Issue 2, September 2006; Reliability Prediction Procedure for Electronic Equipment.

1.2. Assumptions

- Parts quality level = II. The parts used in the Copernicus II PWA are high quality commercial parts made by reputable manufacturers, and only procured directly from the manufacturer or through manufacturers authorized distributors. Trimble Navigation maintains an Approved Manufacturers parts List (AML) for each Trimble part number on the Copernicus II BoM.
- Operating Environment = Ground, Fixed, Controlled (G_B). The Copernicus II Assembly will be in an environmentally controlled central office or base station. Environmental stresses are nearly zero, with optimum maintenance.
- Parts local ambient temperature = 40°C.
- Parts stress ratio = 50%.
- Failure of any one part will cause the failure of the PWA. The conservative reliability model.
- The failure rate U10, U12, and U13 is from ON Semiconductor's laboratory test data.
- The failure rate of U14 is from Texas Instrument's laboratory test data.
- The failure rate of U3 is from Maxim's laboratory test data.
- The failure rate of U1 was estimated based on similar custom ASICs and RF components.

1.3. Mean Time Between Failure

The mean time between failures (MTBF) of the Copernicus II was calculated to be 5,389,092 hours.