

Reliability & availability analysis of a datacentre power supply

Tecram Srls was selected to conduct a reliability and availability study on a power supply design of Lombardini22 for a datacentre in the Milan area.

Objectives

To interpret a power supply design and convert it into a reliability model to future proof the design and ensure compliance with the Customer requirements.

Development

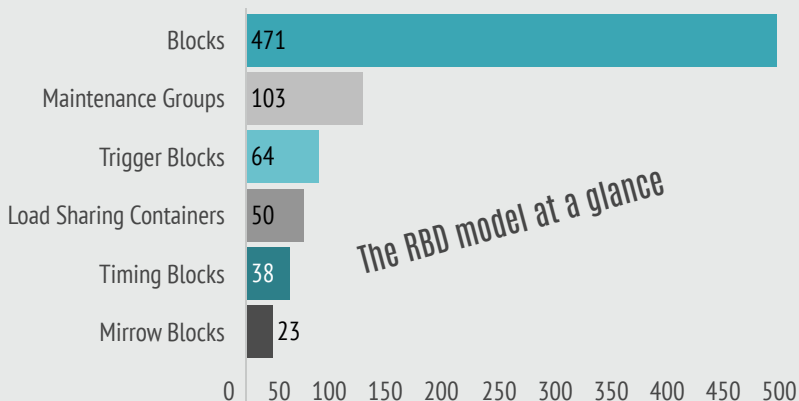
The datacentre power supply consisted of 12 systems cross feeding the servers via load sharing arrangement. Tecram's engineers choose **BlockSim 2023** to develop a model which would simulate the behaviour of the power supply system under normal and credible fault condition.

The model consisted of three levels:

- a high voltage section with transformers and switchgear
- a medium voltage section of ring power distribution cable
- an extended low voltage design with all the back up and redundancy arrangement.

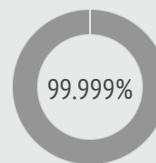
Testing

An extensive programme of testing was set up with fault injection techniques to simulate the behaviour of the datacentre under different scenario. The testing campaign enable the engineers to verify the logic built into the RBD model.

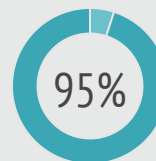


The RBD model at a glance

Specification



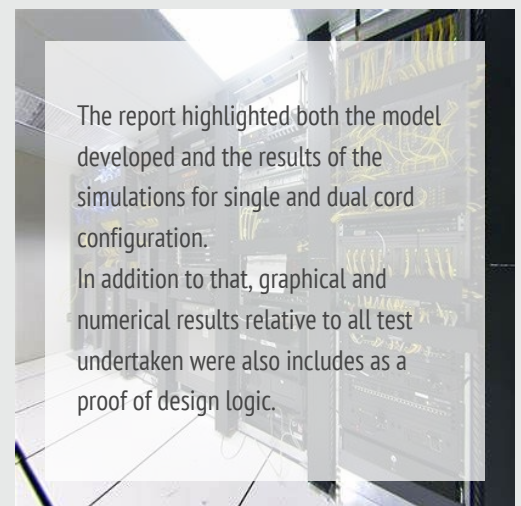
Availability $A(t)$ measured at 5 years for dual cord configuration.



Reliability $R(t)$ measured at 5 years for dual cord configuration.

Other requirements were set for single cord configuration

Deliverable



The report highlighted both the model developed and the results of the simulations for single and dual cord configuration. In addition to that, graphical and numerical results relative to all test undertaken were also includes as a proof of design logic.

To find out how Tecram can help your business, visit www.reliability.it

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