Proceedings of the 3rd Annual World Conference
of the Society for Industrial and Systems Engineering,
San Antonio, Texas, USA
October 20-22, 2014

Quality of Electronic Devices when Power Issues are Presented

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Abstract: Today quality of any electronic device is subjected to many random factors such as manufacturing defects, environmental effects and power quality issues. Voltage variation presented at the power lines is the main causes of reduction in electronic products' performance and reliability in a fully operational environment. So in this paper, we classified the electrical variations and their effect on the reliability of the device. Also, a case of study with the electrical variation which produces the highest risk onto electronic devices is presented. The techniques presented in this paper can be applied to perform a good estimation of the performance and warranty calculation for any electrical and electronic products when voltage variations are presented.

Keywords: Power Quality, Cumulative Damage Model, Voltage Variations, Reliability