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Master's Dissertation 2015

D-Case Templates for Effective, Efficient, and Traceable Thermal Design Process of Microsatellites

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SUMMARY OF MASTER'S DISSERTATION

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Title

D-Case Templates for Effective, Efficient, and Traceable Thermal Design Process of Microsatellites

Abstract

The purpose of this research is to Develop D-Case templates to ensure effectiveness, efficiency, and traceability of thermal design process of Thermal Subsystem of Microsatellites in order to deal with two problems of real microsatellite projects are the difficulties to bring all of evidences into design information, and need the way to be able to control, monitor, and update status of product quality in real time. In this research, two sets of D-Case template proposed that concentrate on two important characteristics of Quality in Use including Effectiveness and Efficiency.

For verification and validation, those proposed templates is not only applied to a real project as known as MicroDragon (MDG) project, but also interviewed with experts who have experiences in satellite development, especially in thermal design of satellite. As a result, some benefits of using those templates are realized in this research such as: easy to update new information every time; easy to understand the way of thinking of thermal subsystem; and ensuring effectiveness, efficiency, and traceability on thermal subsystem of microsatellite development. Through interviews, besides, thermal subsystem leader identified is the best user for using those templates. The proposed templates are able to help users to control, monitor and update status of product quality as known as end of product of thermal design for thermal subsystem.

Keywords (5 words): GSN/D-Case, Microsatellite, Effectiveness, Efficiency, and Thermal Design.