Title	Development of harness design process and supporting tools for microsatellites
Sub Title	
Author	Nguyen, Duc Manh(Ioki, Makoto) 五百木, 誠
Publisher	慶應義塾大学大学院システムデザイン・マネジメント研究科
Publication year	2017
Jtitle	
JaLC DOI	
Abstract	
Notes	修士学位論文. 2017年度システムエンジニアリング学 第252号
Genre	Thesis or Dissertation
URL	https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=K040002001-00002017-0010

Development of Harness Design Process and Supporting Tools for Microsatellites

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September 2017

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SUMMARY OF MASTER'S DISSERTATION

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Title

Development of Harness Design Process and Supporting Tools for Microsatellites

Abstract

In a microsatellite system, the electrical harness is one of the most complex electrical components. The electrical harness design is not only complex, but also frequently changed during satellite development, because harness design activity is often conducted in parallel with other subsystem development special Structure design. Therefore, designers spend a lot of time and effort for revising the design but still have difficulty keeping consistency in design information which is shared among project members and manufacturers.

To solve this problem, the research proposes an improved harness design process and supporting tools. The process defined in this research reduces the number of actors by using the person in system architect to do harness designer's job. To simplify harness design, the research proposes flexible supporting tools which support design activity and automatically generate design documents. The tools are also used as communication tools for all project members and manufacturers. The supporting tools and improvement of harness design process are verified with MicroDragon satellite and be validated through interviews with electrical harness experts.

The evaluation confirmed that the improved harness design process using the supporting tool has great benefits in reducing design modification times as well in easy to keep consistency in the data sharing.

Key Word(5 words)

Electrical Harness, Microsatellite, Wiring Harness, Harness design process