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Designing Microsatellites' Electrical Power System :
Model-Based Systems Engineering
Makes the Testing Easier

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SUMMARY OF MASTER'S DISSERTATION

Student Identification Number	81534705	Name	Do Anh Tuan
<p>Title</p> <p style="text-align: center;">Designing Microsatellites' Electrical Power System : Model-Based Systems Engineering Makes the Testing Easier</p>			
<p>Abstract</p> <p>Over of the past several decades, microsatellites have been widely developed within universities because of their low development and launching cost, and short development time. In small-scale projects, many researchers are beginners or students with limited experience. Electrical power system, which is an important subsystem of a microsatellite, is responsible for supplying electrical power to the satellite system in orbit. Electrical power system is one of the most complex subsystems inside a satellite, because of its large number of power interfaces and safety criteria. Therefore, inexperienced testers working with electrical power systems of microsatellites are often confronted with a lot of difficulty in understanding the technical documents.</p> <p>This research proposes a test procedure that includes the system design of an electrical power system, by applying a model-based systems engineering approach. This research aims to minimize the time consumption and risk of failure in testing, as well as eliminate misunderstanding in inexperienced testers. Verification of this test procedure is performed by applying testing activities to electrical power subsystems of MicroDragon satellite. Validation is performed focusing the test duration and number of mistakes, which is noted in the verification testing results, to evaluate the time consumption and risk of failures in testing.</p> <p>A model-based systems engineering approach can support inexperienced testers in testing, and optimize their understanding in the design of electrical power systems of microsatellites.</p>			
<p>Keywords</p> <p>Test Procedure, Electrical Power System, Model-based Systems Engineering, Microsatellites</p>			