基于变力度组合覆盖的信号处理软件测试用例生成

李　萍，郭伟全

(工业和信息化部电子第五研究所，广东 广州 510610)

摘　要：信号处理软件参数间交互关系复杂多变、冗余无效参数多、参数有效等价类难以确定，传统测试用例设计方法设计的测试用例规模大，测试效果不明显.针对该问题将变力度组合覆盖技术应用到信号处理软件测试用例设计中，结合信号处理软件算法高密度的特点给出该技术应用的一般方法.基于算法可形式化表达特点，提出一种优化覆盖需求的方法.试验结果表明，优化后的覆盖需求对应的测试用例规模减小了，而且测试用例的质量提高了.

关键词：信号处理软件；变力度组合覆盖；测试用例生成

Test Generation of Signal Processing Software Based on

Variable Strength Combinatorial Coverage

LI Ping，GUO Wei-quan

(Fifth Electronics Research Institute, Ministry of Industry and Information Technology, Guangzhou 510610,China)

Abstract：The relationships between factors in signal processing software is complicate, even some factors is redundant. And it's difficult to determine equivalence classes of factors. Traditional methods deal badly with test generation of signal processing software, by lager size and poor result. This paper discusses a new way of using variable strength combinatorial coverage into test generation of signal processing software. On the basis of the density algorithm, the application steps of the approach are given. Based on formalization expression of algorithm, a method is suggested to optimize coverage requirement. Experimental results show that the suggested method reduces the size of test cases, and improves the effect of test cases.

Key words：ssignal processing software; variable strength combinatorial coverage; test generation

作者简介：
李　萍　女，(1985-)，硕士研究生，工程师.研究方向为雷达系统软件测试、导航系统软件测试等.
E-mail：firstrate_apple@aliyun.com.
郭伟全　男，(1971-)，高级工程师.研究方向为雷达系统软件测试、控制系统软件测试等.