GEANT-4 GPU Port:

Test Plan

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Revision History

All major edits to this document will be recorded in the table below.

Table 1: Revision History

Description of Changes	Author	Date
Initial draft of document	Stuart, Matthew, Rob, Victor	2015-10-26

1 General Information

1.1 Summary

1.2 Risks

The following table outlines the major risks associated with the testing of the product. A more detailed analysis of each of the risks follows the table.

Table 2: Risks

Risk #	Summary	Severity
1	differing order of random numbers on GPU could lead to difficulty comparing results with simulations run on CPU	Very High
2	isolating GEANT4 methods to test with unit tests may be too difficult	High
3	running time of tests will be too long to run them frequently	High

Risk 1 – Random Numbers:
The GEANT4 project is heavily dependent on random numbers. Random numbers are used to determine attributes about particles (indepedent of all other particles) as they move through the system. By parallelizing the workload, the order in which the particles are evaluated may change, causing it to draw a different random number from the sequence, leading to different results.

1.3 Constraints

1.4 Definitions and Acronyms

2 Test Types

2.1 Black-Box Testing

2.2 Unit Testing

2.3 Code Testing

3 Testing Factors

3.1 Factors to be Tested

3.2 Description of Factor

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4.1 Requirements Testing

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6.1 Testing Schedule

6.2 Deliverables