ACD
Engineering Model Report

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Outline

• BASIC: The ACD has no full Engineering Model
• TESTING: Engineering tests on components and subassemblies
• FULL ACD: Complete testing on the flight unit ACD
Component and Subassembly Tests - Examples

- >300 thermal cycles of a tile with embedded fibers completed to mitigate risk of waveshifting fibers coming loose.
- Thermal tests of bare phototubes completed to mitigate risk of damage during large temperature excursions in test or on orbit.
- Thermal Test for Tile Detector Assembly that includes the wave shifting/clear fiber connector was completed on 9/27. This is to qualify the TD, Wave Shifting Fiber, and Clear Fiber in extreme temperature condition.
- Vibration test for PMT Subassembly that includes 4 PMTs plus connectors, its housing, and 4 set of Resistor Networks. This is to qualify the PMT and its housing under launch vibration and acoustic loads. This month.
- Vibration tests for Tile Detectors plus connectors between clear/wave shifting fiber, mounted on a composite panel with flexures. This is to qualify the TDA under launch vibration and acoustic loads. This month.
- Thermal Vacuum Test for entire Tile Detector Assembly. This is to qualify TDA under orbital operating conditions. This month.
- Fit test of ACD mechanical structure with Grid. Mitigate mechanical interface risk.
Flight Unit Testing

- Full set of tests on flight unit at protoflight levels – vibration, acoustics, thermal vacuum, mass properties. Scheduled for Spring, 2004.