50” Plasma TV Cushion Redesign

Marc Angotti (RIT, Graduate Student)

May 6, 2011
Outline

• Project Background
• Package/Cushion Design
  – Current
  – Proposed
• Drop Testing
• Fine Tuning/Re-Test
• Conclusion
• Questions
Project Background

- TV glass panels are being damaged due to high drops from manual handling
- Average Drop Heights = 24” – 36”
- 100tv’s Damaged per Year
- Low Cube Utilization
  - Single Unit CU
  - Truck CU
Package/Cushion Design: Current

- **DIMS:** 56” x 19” x 39”
- 2 Layers in Truck
- Not Optimized for Logistics
  - Trailer H = 109”
    - 3 units = 117”
- Attached Base
  - Impact Point
Package/Cushion Design: Proposed

- Dims: 62” x 15” x 36”
- 3 Layers in Truck
- Detached Base
  - No Contact with Interior wall
  - Reduces Cube Size
- Projected Savings
  - Over $8 per unit
Package/Cushion Testing

- **Instrumentation**
  - Tri-Ax Accelerometer
- **Drop Testing**
  - 36” Drop Height
- **High Speed Vids**
  - Identify Critical Area
- **Post Inspection**
  - Main Passing Criteria
    - No Broken Screens
Fine Tuning/Redesign

- Shock Readings
  - Package System
  - Fragility around 25G
- Cushion Deflection
  - Deflection Clay
  - Optimize Deflection
- Cushion Redesign
  - Remove Bearing Area
  - CNC Samples
- Repeat Testing
Conclusion

- Product Passed Testing!
  - 3 Layers in Truck = \(\uparrow\) Performance & Saved $
- New 2011 tooled design was back to 2 layers high in trailer.
- Redesign - Focus on logistics optimization, performance and testing.
Questions?