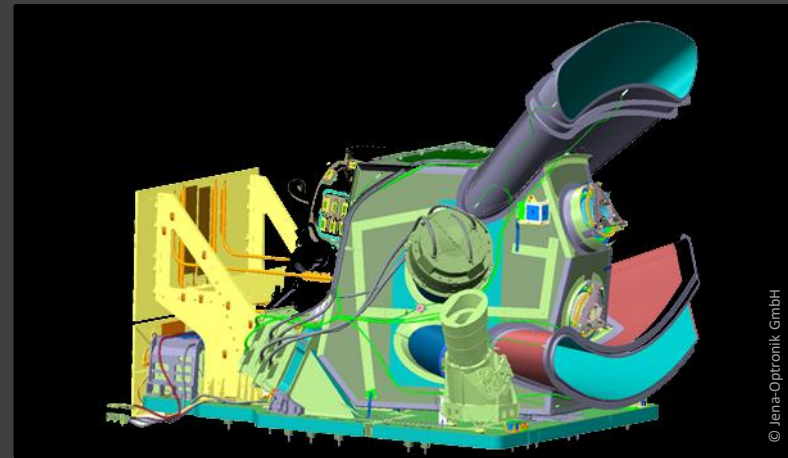


Shock Assessment of Optical Space Instruments  
Benjamin Braun

innotesting 2017  
Wildau, 23-24 February 2017

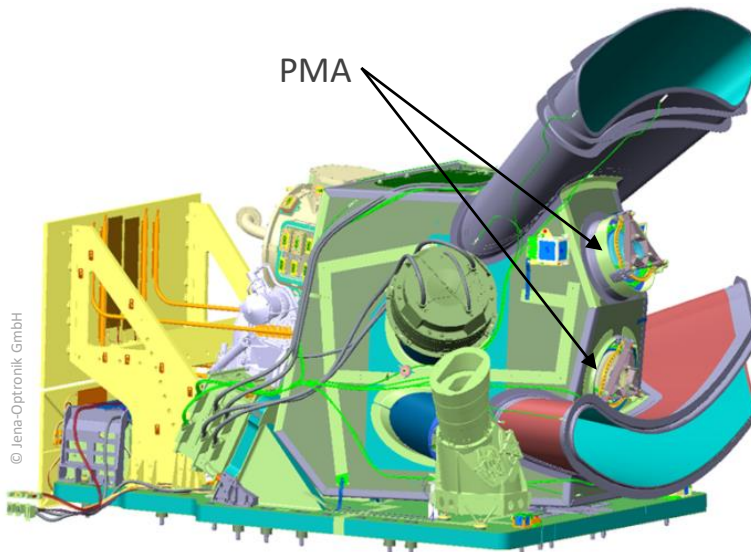


We Develop Space Products



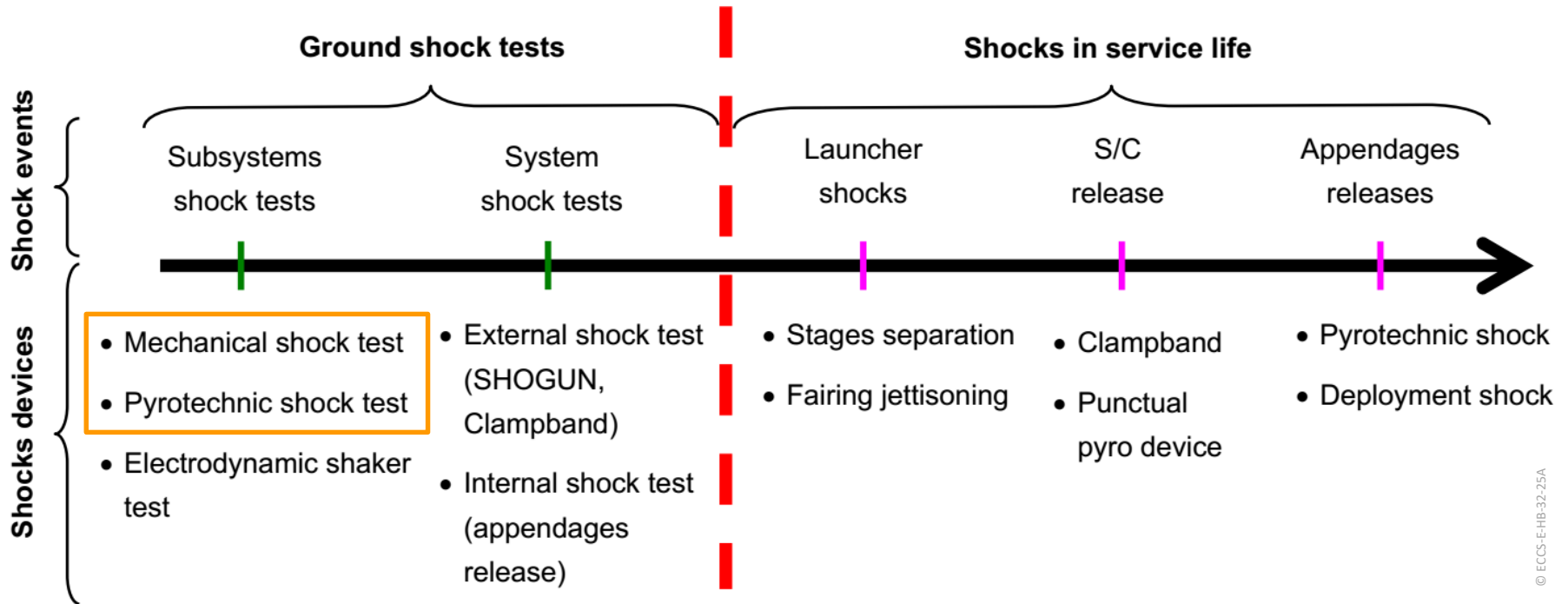
## Presentation Outline

- Shock environment for the space segment
- General approach to shock verification
- Shock damage risk assessment (SDRA)
- Example: S-3 SLSTR Parabolic Mirror Assembly (PMA)





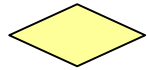
## Shocks in Spacecraft Projects



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## General Approach to Shock Verification



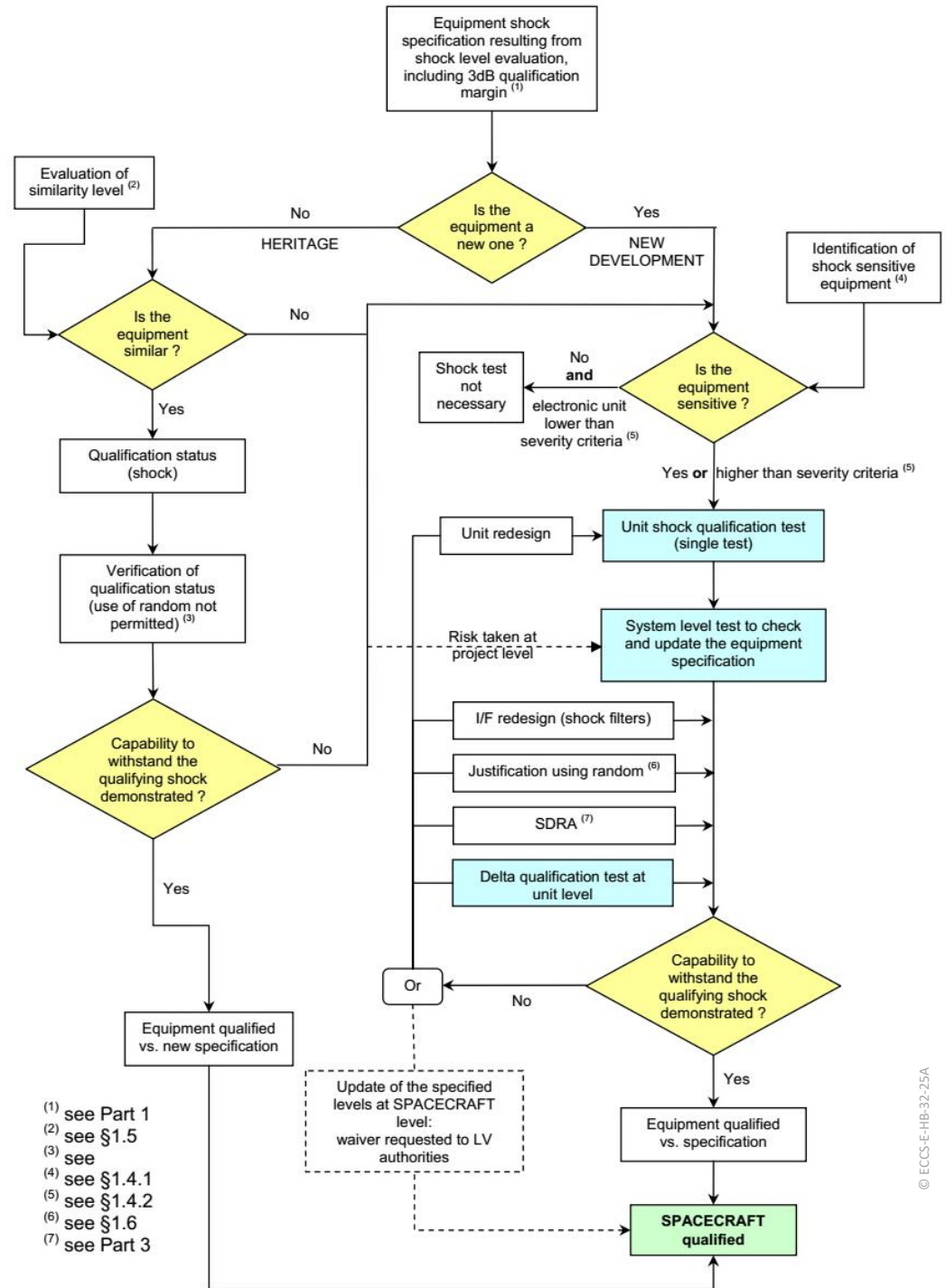
Question



Test campaign



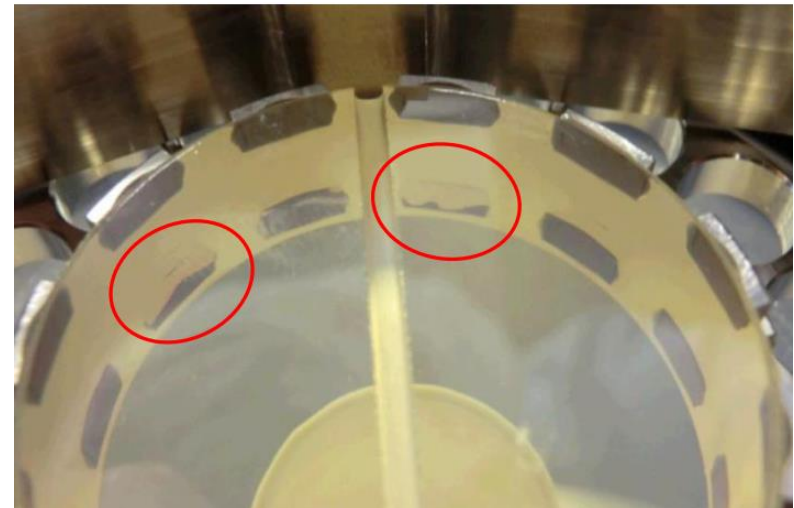
Qualification Objective





## Shock sensitive equipment

- Electronic components
  - Various failure modes depending on component type
- Functional Mechanical Assemblies
  - Sliding threaded fasteners
  - Overstressing in bonded joints →
  - Local plastic deformations
  - Pre-stress release
- Mechanisms
  - Excessive marking, alignment, ...



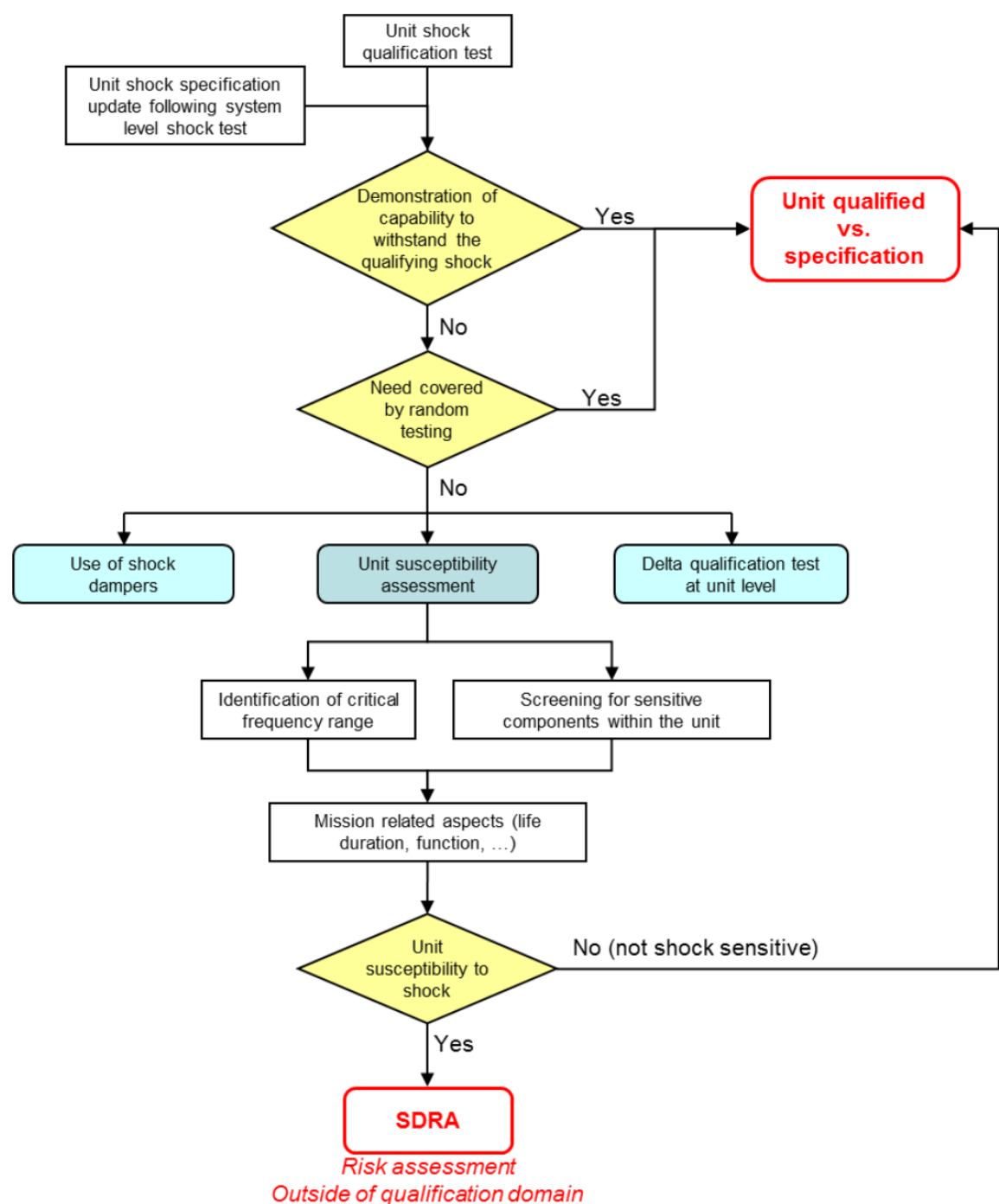
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## Shock damage risk assessment (SDRA)

 Question

 Measures





## Example: Sentinel-3 SLSTR Parabolic Mirror Assembly

Please refer to the following publication for details:

**Braun, B.; Keil, D.:**

Shock Analysis for the Sentinel-3 Parabolic Mirror Array.

European Conference on Spacecraft Structures, Materials and Environmental Testing

SSMET, Braunschweig, Germany, 2014





Thank you for your attention!

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