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# SHARPI

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# SHARPI Mirror

- **0.5 meter lightweight ULE® mirror**
  - 18 kg/m$^2$
    - Waterjet cut lightweight core
    - Full front and back faceplates
    - Low temperature fusion construction
  - Fast F#1.2 parabola
  - UV imaging specification
    - Tight wavefront and PSD specification
- **Mounting hardware included on delivered mirror**

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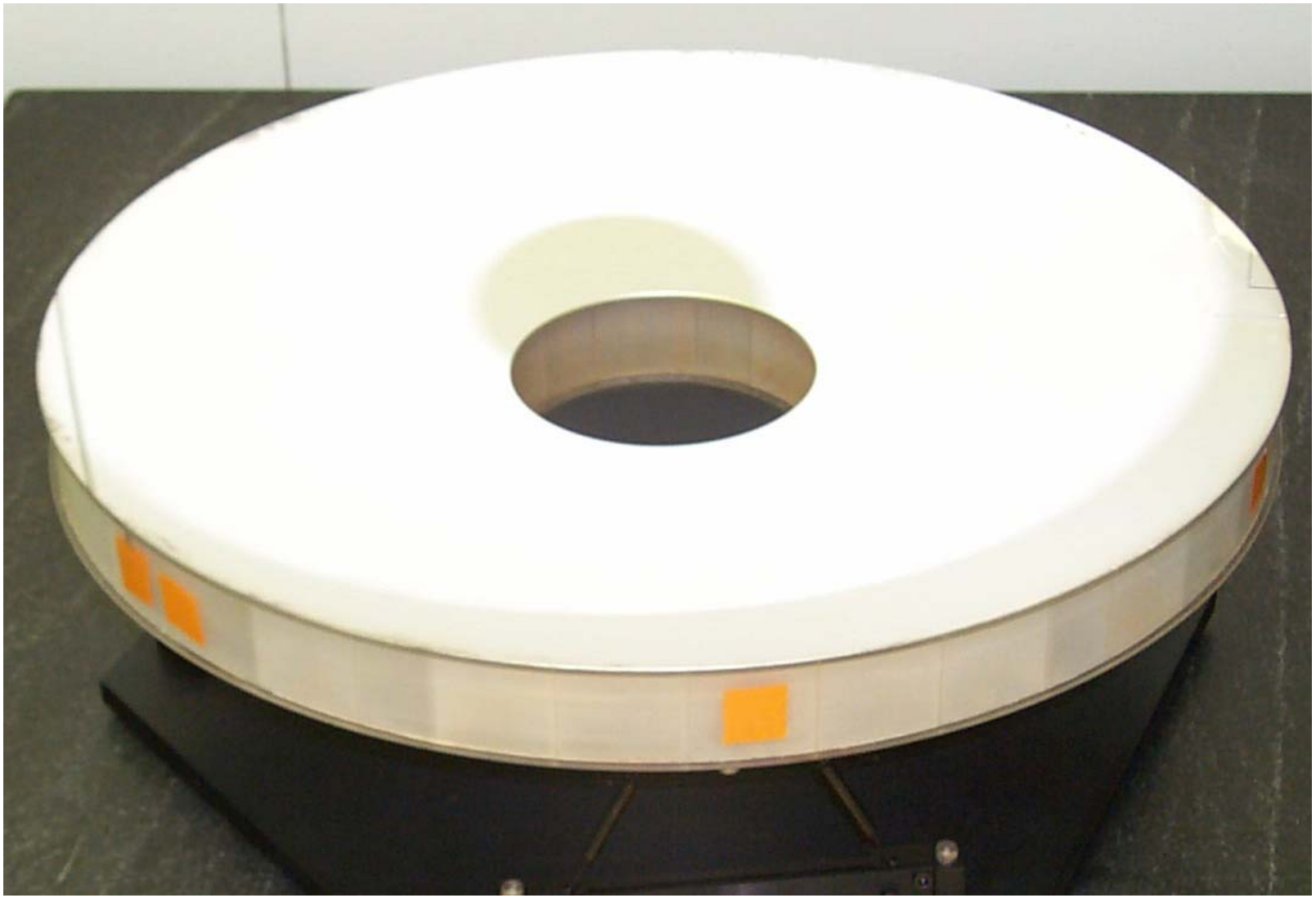
# In-Process Mirror



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# Overall Mirror System Design

# SHARPI

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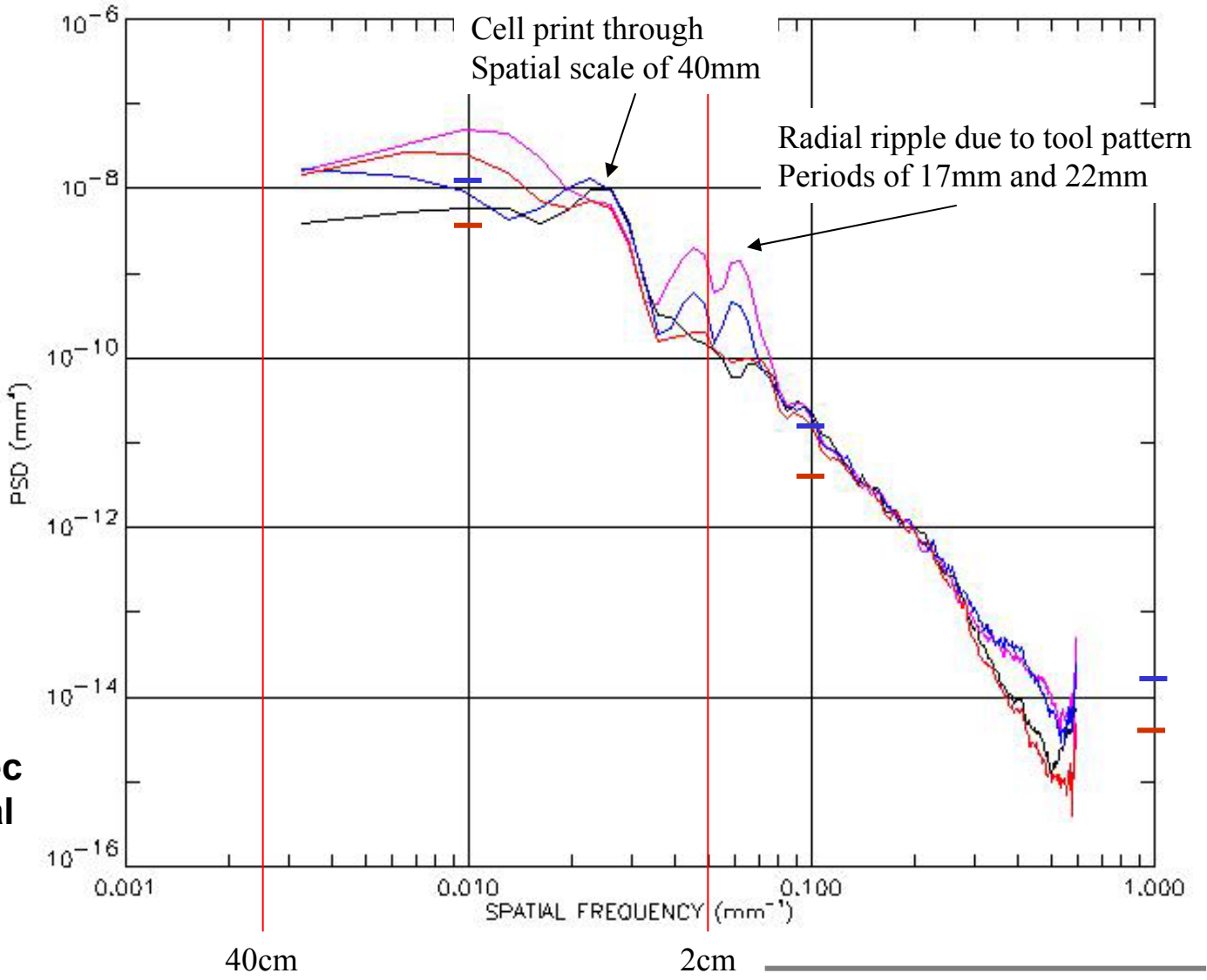
**PSD drop off shows a 5th power dependence.**

**TDM uses a 3rd power dependence.**

**The 2cm to 40cm TDM mid-spatial frequency band is indicated by the vertical red lines.**




— Represents TDM spec
— Represents TDM goal

# SHARPI Wavefront

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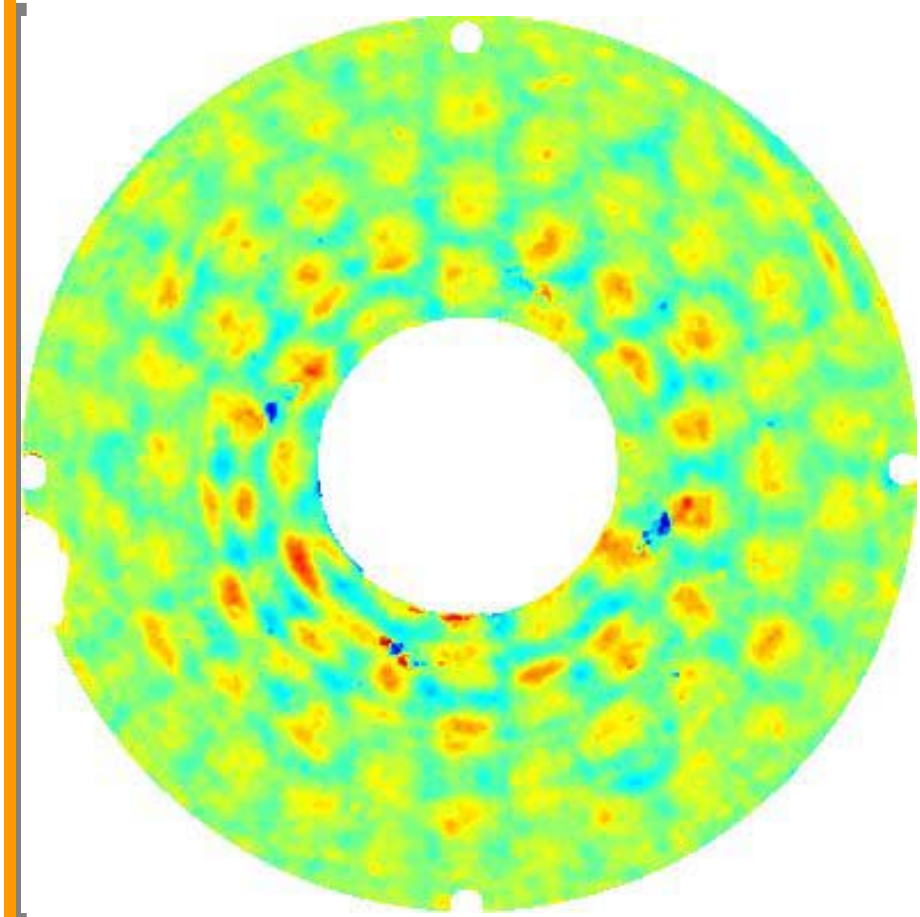
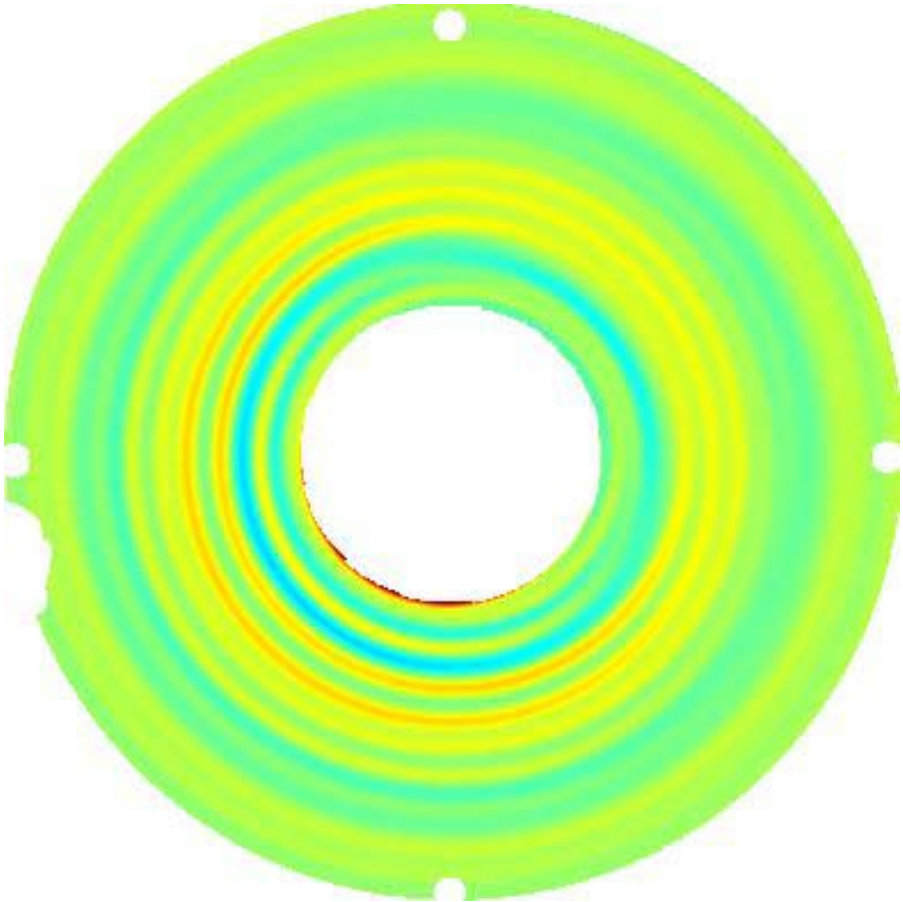


Quilting 2.6nm rms



Radial tool pattern 2.1nm rms

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# Summary

- **Mirror delivered to GSFC**
- **Many lessons learned during processing that can be applied to future mirrors such as TDM**
- **Combination of TDM/SHARPI/AMSD provide a database and processing technology for greatly improved mirror wavefront performance**
  - Minimal quilting that can be improved beyond the SHARPI performance
  - Minimal mount strain as demonstrated on SHARPI and AMSD