



# **A Comment Session on the KSC Shock Failure Prediction Test Program**

**Isam Yunis and Caley Burke**  
**NASA Kennedy Space Center**

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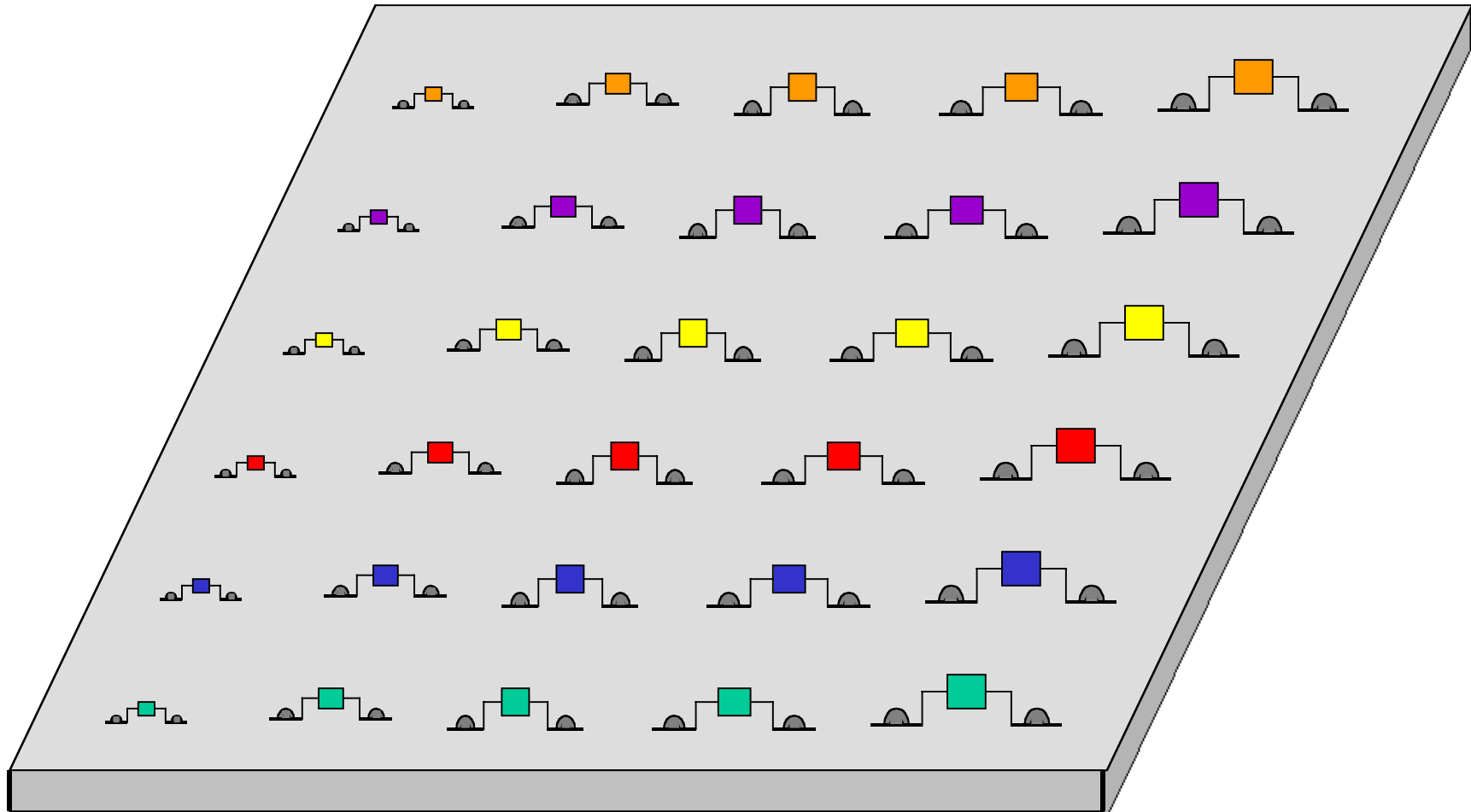


# Summary

- KSC is planning a parametric shock test program with the following goals:
  - Determine the best shock environmental specification to aid in design for shock
  - Investigate the SRS as a metric for shock specifications
  - Investigate other metrics as possible specifications
  - Use the test data to see if a better metric can be developed



# Test Article Schematic





# Test Plan

- A flat plate will be developed that is loaded with “structural resistors”
- The support plate:
  - Will be approximately 2’x2’x4” (250 lbs)
  - Will have a natural frequency >1000 Hz
- The resistors:
  - Will emulate simple (nearly single degree of freedom) system
    - » The bounce mode will be separated from other degrees of freedom
    - » The other degrees of freedom will have much higher strength
  - Will be mounted to avoid shock attenuation at attachment
  - Will span a frequency range:
    - » 100, 500, 1000, 2000 (Hz)
  - Will span a failure strength range:
    - » Some resistors will break and some will not



# Test Plan

- Two types of shock will be applied 3 times each:
  - Pyroshock (high frequency)
  - Mechanical (broader spectrum)
- Measurement will include (tentative):
  - Triaxial accelerometers on each resistor
  - Accelerometer at the base of each resistor
  - Strain gage on the peak stress point for each element
- Data will be processed:
  - SRS
  - TBD others
- After initial KSC report, the data will be made available to community



## Comment Focus Points

- Is this research and test not needed? Has it been done before?
- What should the support plate frequency be?
- What shock methodologies/metrics should we look at?
- What measurements should we get?
- Pass this out to anyone who is not here
- Email or phone in any comments by July 2003:
  - [isam.yunis@ksc.nasa.gov](mailto:isam.yunis@ksc.nasa.gov)
  - 321-476-3667