



# Zynq Processor as Candidate for Organic Class Y Device

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## Mission Profile:

- Type of mission;
- The Earth Surface Mineral Dust Source Investigation (EMIT) is an Earth Ventures-Instrument (EVI-4) Mission to map the surface mineralogy of arid dust source regions via imaging spectroscopy in the visible and short-wave infrared (VSWIR). By measuring in detail which minerals make up the dust, EMIT will help to answer the essential question of whether this type of aerosol warms or cools the atmosphere.

<https://science.jpl.nasa.gov/projects/EMIT/>

<https://www.jpl.nasa.gov/news/news.php?feature=7054>

## Mission Profile:

- Type of mission (continued)
  - Orbit – Attached to the International Space Station (ISS)
  - Life Span – 12 months
  - Reliability Level – EEE-INST-002 (Level 2)
  - Key Risk Areas –
    - Reliability
      - Zynq Z-7100 is currently being considered as COTS
    - Radiation
      - Not discussed for the purposes of this presentation



## The Screening Position EEE-INST-002 (Level 2):

- What level of Screen & Qual. is required for the mission?
  - Screening
    - Electrical Measurement, including Dynamic Burn-in with pre & post AC & DC characteristics.
  - LOT Qualification
    - Groups B, C & D

## The Screening Position EEE-INST-002 (Level 2) - continued

- Key risk areas concerning the screening due to schedule constraints.
  - Abbreviated Electrical test & simplified dynamic Burn-in with pre & post deltas.
  - Due to the complexity of this device, < XX% of the device's functionality will be tested.
  - During Burn-in, < 50% of the device's functionality will be exercised.
  - The application specific software will not be available during the screening.
  - A waiver against requirements will likely be needed.

## The Call for Action in the Community

- Need for Standards
  - Device manufacturers are the best technical & economic choice for accomplishing the required screening.
- Need for Classifications based on Mission Profiles
  - They are not all created equal
- Big national assets vs. short duration missions.
  - Compliance to entrenched requirements for small missions is not feasible.
- Cost prohibitive for users to qualify their own Lots.