CII Guidelines Update to Rev A

Craig Hutchinson
NASA CII Team
Guidelines Purpose

- Provide a prospective Instrument Developer with technical recommendations to help them design an Instrument that may be flown in LEO or GEO.
- Ensure maximum compatibility with Earth-orbiting satellite market, leading to increased likelihood of successful Instrument to HPO pairing
- Do not levy requirements
- Do not establish hard thresholds
Common Instrument Interface Project

Hosted Payload Guidelines Document

Earth System Science Pathfinder Program Office
NASA Langley Research Center
Hampton, VA 23681
Revision A Goals

- Provide more explicit definition of guideline scope and technical components
- Incorporate technical content for GEO domain
- Reduce design constraints on Instrument Developer
Hierarchical Guideline Levels
- Level 1 and Level 2
- Lower levels either removed or captured in Best Practices (not credible given hosted payload model)

Guideline Flavors
- Interface guidelines: direct interactions between Instrument and Host Spacecraft
- Accommodation guidelines: constraints on resources and services Instrument expected to draw from Host Spacecraft
Reference Material / Best Practices
- Additional technical information
- Not prescriptive

Assumptions: expected characteristics and behavior of Host Spacecraft and/or industry partners

Negotiated Parameters: agreements among Instrument Developer and industry partners
Hosted Payload Worldview: “Do No Harm”

GEO Domain
- Hosted Payload on Commercial Communications Satellite
- Request for Information for Geostationary Earth Orbit Hosted Payload Opportunities and Accommodations (March 2012)
- Industry Visits (September-October 2012)
New Content

- Explicit Environments
  - Shipping/Storage
  - Integration and Test
  - Launch
  - Operational
- Contamination
  - Instrument Generated
  - Externally Generated
- Hosted Payload Concept of Operations
Modified Content

- Content Moved to Appendix
  - Instrument Modes
  - Software and Electronic Ground Support Equipment Guidelines
  - Model Guidelines & Submittal Details
- Content Removed: Coordinate Reference Frames
Parties involved in hosted payload arrangement
- Instrument Developer
- Host Spacecraft
- Host Spacecraft Manufacturer
- Satellite Operator
- Systems Integrator

Verbs
- Should: Guidelines
- Will: Assumptions and Negotiated Parameters
Guideline Characteristics

- Syntax
  - Statement
    - “The Instrument should [verb] …” (guideline)
    - “The Host Spacecraft will …” (assumption)
    - “The Mechanical Interface Control Document [MICD] will document …” (negotiated agreement)

- Rationale

- Traceable

- Verifiable

- Active Voice
QUESTIONS / DISCUSSION
Guideline Development Timeline

- November 2011: Baseline Approved
- December 2012: Draft Rev A Released
- January-February 2013: Industry / Peer Review
- Spring 2013: Expected Rev A Approval