AMS-02 Weekly Activity Report, July 22, 2005

Upcoming Events:

- AMS General Technical Interchange Meeting (TIM) with Phase II Safety Review Dry Run – July 25-29, 2005 – Geneva (CERN)
- Cryocooler Splinter Meetings (Tentative) – July 25-26 – Geneva (CERN)
- Cryocooler Electronics Meetings (Tentative) – July 28-29 – Zurich (ETH)
- Uninterruptible Power Supply (UPS) Critical Design Review (CDR) – August 8, 2005 – Taiwan
- USS-02 Extruded Beams Delivery – August 13, 2005
- STA Vacuum Case Delivery (on dock at STADCO) – September 29, 2005 (subject to weld inspection and review)
- AMS-02 Phase II Safety Review – Date TBD (Schedule under review) – JSC
- AMS-02 Technical Electronics Meeting (TEM) @ CSIST – September 26-30 – Taiwan

Upcoming Tests:

- Interface Plate Static Test – Date TBD – Location TBD
- Lower Joint Static Test – Date TBD – Location TBD
- STA Sine Sweep Test – January 2006 – INFN, Terni, Italy
- STA Acoustic Test – April 2006 – ESTEC, Noordwijk, Netherlands
- Full Assembly Modal & Static Tests – May 2006 – IABG, Munich, Germany

General

- Work continued on revisions to the AMS-02 Phase II Safety Data Package. All completed sections were integrated into a draft document suitable for preliminary review by the AMS subdetector and subsystem groups at the General Technical Interchange Meeting (TIM) at the European Center for Nuclear Research (CERN) in Geneva Switzerland, July 25-29.

USS-02 and GSE Manufacturing:

- The Unique Support Structure – 02 (USS-02) build up assembly drawing was completed and submitted to the checker.

- Work was initiated on modifications to the design of the Primary Support Stand. The modifications will provide the capability to transport the AMS-02 Payload in the mid-level configuration.

- Interim dispositions were prepared for three Discrepancy Reports (DRs) written against the USS-02 Center Body Joint. Two DRs document flaws on the Alodine surfaces of the joint, minor areas that are missing Alodine surfaces. The other DR documents minor damage to the Alodine surfaces that were applied to the Center Body Joints. The surface was damaged when key-locked inserts were installed in the hardware. All three

dispositions call for these areas to be touched up with brush Alodine to prevent corrosion of the exposed aluminum surfaces.

Vacuum Case:

- The Second Article (Conical Flange and Inner Cylinder) is being prepared for the second weld at STADCO. Due to a concern raised by ESCG engineers about the backside temperature, additional temperature strips are being added to the backside of the weld area. The entire area will then be backed by the same type of super insulation that will be used on the flight article. This configuration is more realistic and will yield a better temperature profile during the welding operation. Based on the results of this test, temperature labels may be added to the Structural Test Article (STA) Vacuum Case (VC) during the closeout weld at STADCO.

- A TPS Mod is being prepared for the Task Performance Sheet (TPS) used to remove the VC from the Shipping Fixture in Bldg 9. The Mod is required because non-calibrated load cells were issued for use during the lift. The error was not discovered until after the lift was completed.

- ESCG AMS engineers are in the process of preparing dispositions and supporting Material Review Board (MRB) activity for 11 DRs written against the Flight VC.

GSE & STE:

- Work was initiated on updates to the drawing for the integration of the VC to the Vacuum Case Test Fixture (VCTF).

Testing:

- The presentation for the Modal and Static Test of the AMS-02 Payload was updated by incorporating comments from the internal review. The presentation and associated documents were burned to a CD and shipped to IABG in advance of the pre-test meetings scheduled for July 29.

Avionics:

- ESCG personnel supported the Uninterruptible Power Supply (UPS) Battery pre-delivery acceptance (PDA) review at the Yardney-Lithion facility in Pawcatuck, Connecticut on July 18. The review was deemed very successful and the batteries were accepted on behalf of the AMS Collaboration.

- Work is continuing on the design of the AMS Crew Operations Post (ACOP) High Rate Data Link (HRDL) cables, including parts searched for this build-up.

Thermal:

- ESCG personnel supported the AMS-02 Thermal Working Group meeting at CERN. Presentations were made on the results of AMS-02 screening runs, Transition Radiation Detector (TRD) Gas Thermal Vacuum Testing, and Tracker Thermal Control System (TTCS) startup issues. Presentations from CRISA (Computadoras, Redes e Ingeniería, S.A) indicate that a Cryomagnet Avionics Box (CAB) thermal design may be nearing fruition. Additional hot cases still need to be analyzed and heaters for cold cases still need to be sized. A telecon to discuss CAB status is tentatively scheduled for late August or early September.

- TTCS presentations indicate some concern with the auto-regulation of the system. The working assumption by NLR (National Aerospace Laboratory – The Netherlands) is that more flow will automatically go to the coldest radiator. Analytical results performed by SYSU (Sun Yat-sen University) indicate that this regulation may not be enough to keep the coldest radiator from freezing and therefore forcing all flow to the hottest radiator. SYSU and NLR will compare models and verify results. Model will then be maintained under configuration management.

- Many additional cases need to be analyzed to verify TTCS performance. ESCG will provide screening results of critical cases to Carlo Gavazzi Space (CGS), so they can then provide interface data to NLR/SYSU.

- A Design Review of the TTCS is tentatively scheduled for mid-September at NLR-Amsterdam.