Instrument Qualification Review Proceedings

1 Introduction

The Instrument Qualification Review (IQR) for the Herschel / Planck instruments will be held at the time that the instrument teams have completed their CQM qualification and the Instrument Level Test (ILT).
The IQR is of particular importance to confirm the qualification of the entire instrument prior to the delivery to industry, and to demonstrate that the required scientific performance is achieved. In case the required performance has not been achieved on the CQM, all necessary measures and design improvements, to be implemented on the PFM have to be identified in detail.
Instrument operability, in particular at payload module level, and the availability and functionality of all related ground support equipment shall be demonstrated.

2 Objectives

The objectives of the review shall be :

- Confirmation of instrument CQM hardware qualification
- Assessment of scientific performance and compliance with scientific requirements
- Completion of instrument design verification and compliance with requirements
- Identification and confirmation of improvements/modifications for FM
- Completion of OBSW design and demonstration of functionality
- Confirmation of EGSE design and demonstration of functionality
- Confirmation of instrument operability and User Manual

3 Structure

The single steps of the IQR will be:

1. Kick-off Meeting (with Instrument presentations) and data package delivery
2. Document review phase with RID generation (~ 4 weeks)
3. Co-location meeting with instrument to clarify/answer all RIDs
4. Board Report

In order to ensure a proper review process, the timely availability of the entire document data package is absolutely mandatory. The data package shall be provided in CD-ROM (5 copies) at the kick-off meeting. The review team will not accept staggered delivery of the data package and failure to submit a complete document data package on the due date will result in postponement of the review.
During the kick-off meeting, the instrument teams shall give supporting presentations on the following areas:

- Instrument and instrument subsystems qualification
- Scientific performance achieved during ILT
- Budgets
- OBSW status and performance

- Mission Information Base (MIB) status
- IMT & IST test procedures
- Ground support equipment and facilities
- Product assurance
- Management and schedule

4 Deliverable Documentation

A data package shall be provided for the IQR. The package shall be delivered to the ESA Project Team in electronic form (PDF-file) on CD-ROM (5 copies) at the day of the kick-off meeting. The data package shall be organized in three classes:

- **Mandatory documentation (MD):** These documents or items have to be submitted and shall be up-to date - and complete - and will be reviewed in detail.

- **Supplementary documentation (SD):** The documents should be submitted and are supporting documents that will be used by the reviewers as reference for the mandatory documents.

- **List of other documents:** List of documents; the documents themselves are not deliverables unless, specifically requested. These are documents the instrument teams would like to announce to the reviewers.

The data package shall contain the following documents (or documents providing equal level of information):

1. Hardware design/development/interfaces
   - Design Description (SD)
   - Instrument Masterschedule of system and subsystem levels (MD)
   - IID-B (MD)
   - Instrument Budgets (MD)

2. Qualification
   - AIV Plan (MD)
   - Calibration Plan (MD)
   - Scientific Performance Test Specification (MD)
   - Scientific Performance Test Report (MD)
   - Vibration Test Specification of all units (MD)
   - Vibration Test 'as-run' Procedures of all units (SD)
   - Vibration Test Reports of all units (MD)
   - Thermal Test Specification of all units (MD)
   - Thermal Test 'as-run' Procedures of all units (SD)
   - Thermal Test Reports of all units (MD)
   - EMC Test Specification (MD)
   - EMC 'as-run' Procedure (SD)
   - EMC Test Reports (MD)

3. OBSW
   - URD (SD)
   - SSD (SD)
   - SW Installation Guide (MD)
   - HSIA (MD)
   - FDIR (MD)

- SVVP (MD)
- SW Acceptance Test Report (MD)
- SUM (MD, can be part of Instrument UM)
- SPR/SCR list (MD)
- MIB (MD)
- SW Configuration Management Plan (MD)

4. EGSE & operational documents
   - Transport and Handling Procedures (MD)
   - EGSE Requirement Document (SD)
   - EGSE Specification Document (SD)
   - EGSE User Manual (MD)
   - GSE Safety Analysis if applicable (MD)
   - Instrument User Manual (MD)
   - Integration procedures (MD)

5. PA documents
   - PA Plan (SD)
   - SW PA Plan (SD)
   - Cleanliness PlanCIL (SD)
   - CIDL/ABCL (MD)
   - Safety Analysis (MD)
   - FMECA (MD)
   - PSA (MD)
   - WCA (MD)
   - DML (MD)
   - DPL (MD)
   - EEE Parts (MD)
   - PAD Status Report (MD)
   - ECR Status Report (MD)
   - NCR Status Report (MD)
   - RfD/RfW Status Report (MD)
   - Manufacturing flowcharts with MIPs included, and agreed by ESA (MD)

5 Board Composition

The board will consist of:

Chairman (Payload Manager)
Co-Chairman (Project Scientist)
Secretary (Instrument System Engineer)
Board Members (4+) covering the following areas:
- –Product Assurance
- –AIV - Ground Support Equipment
- –Electrical - Thermal/Cryo - Mechanical
- –Data Management - On-board software - Operations

Industry Representative
Representative of the national funding agency (if proposed by the instrument team)

In addition, during the documentation review or for the review meeting, experts may be called upon. After mutual Instrument and ESA agreement, third parties may be Invited to the review as observers.