INTRODUCTION

Tony Dibbens PA Manager





MSSL Quality

PLAN FOR THE VISIT

Introduction to MSSL (APD) Project PA Structure for UVOT (MC) Quality Management Overview 5.1 NASA (MK) 5.2 PSU (MC) 5.3 MSSL (APD) MSSL UVOT PA Documents (APD) PA Plan **Cleanliness Control Plan** Verification Plan Configuration Control (CIDL) **Declared Components List Declared Materials List Declared Processes List Discussion on Topics so far (ALL) Tour of Facilities (ALL) Conclusions and Recommendations (ALL)**

Coffee, tea and lunch breaks to be taken as appropriate; lunch is nominally 12.30 to 13.30





MULLARD SPACE SCIENCE LABORATORY

MSSL

Background

History of Site

UCL





MSSL ORIGINS

- Space science in Britain was initiated and the foundations for its development were laid very largely by one man, the late Sir Harrie Massey who was Professor of Physics and Head of the Department of Physics at University College London from 1950 to 1975.
- Sir Harrie Massie was asked by an official of the Ministry of Supply in May 1953 whether he would be interested in using rockets available from the Ministry for scientific research.
- R.L.F. Boyd, a lecturer in the department who was carrying out experimental research work on rates of electronic and ionic collision processes in gases, using newly-developed probe methods, was particularly enthusiastic about the opportunity, and thereafter he led the UCL research effort.

It was from these beginnings that there grew up at University College London a space research group which, 13 years later, became the Mullard Space Science Laboratory.





HOLMBURY HOUSE

- Early in 1965 the electronics firm Mullard Ltd offered to donate to UCL funds for the purchase of premises which could be converted into a space science laboratory.
- After an intensive search, at a time when suitable premises were hard to find, Prof. Boyd found Holmbury House. Its previous owners included the Hon. A.E Guinness who lived here in the 1930s and 1940s.
- UCL took possession in 1965 and, as the alterations necessary for the conversion to a laboratory were completed during 1966, the building came progressively into use.
- The Mullard Space Science Laboratory was opened formally on 3rd May 1967 by Dr F. E. Jones, then Managing Director of Mullard Ltd.





MSSL

The Department undertakes front-line research in: Climate Physics High Energy Astrophysics Solar Physics Space Plasma Physics Photon and Particle Detection Systems





UCL MISSION STATEMENT

THE VISION: FAME THROUGH EXCELLENCE Specifically UCL intends:

- To be and to be acknowledged as, one of the greatest metropolitan Universities in the world, serving local and international needs.
- To be and to be recognised as, a world leader in teaching, scholarship and research across the sciences and the arts.
- To be in the forefront in tackling mankind's environmental, communication and health care problems.
- To continue its founders' vision by providing educational opportunities of the highest quality to all, regardless of ackground.

OUT SWITCHE



MSSL's INVOLVEMENT IN SWIFT UVOT

Funded by PPARC on basis of repeat of XMM-OM Cost-capped mission Memo of Understanding between PPARC and NASA Under overall control of Penn State Very tight schedule





RECENT MSSL PROJECTS

ESA Missions

NASA Missions

Other Agencies





ESA MISSIONS

GIOTTO SOHO CLUSTER I and II XMM - Optical Monitor XMM - RGS SPIRE (FIRST) BEAGLE 2





NASA MISSIONS

CASSINI GOES SXI JPEX SWIFT UVOT Solar B FPP





OTHER AGENCIES

Solar A (Yoko)JapanMARS 96RussiaSolar B EISJapanRESIKRussia







MSSL QUALITY - 1

MSSL General Project Specific





MSSL QUALITY - 2

Two levels of quality management at MSSL:-

MSSL PA Manager: Responsible for MSSL PA system Project PA Manager: Responsible for a specific project





MSSL QUALITY - 3

Quality Manual

Processes

Procedures

Configuration Control

ESD

Handling of CCDs

Documents On-line

Cleanroom





MSSL CLEANROOM - 1

The Facility (Audited by LMSS & NASA) Cleanliness Levels Monitoring Gowning Training Maintenance





MSSL CLEANROOM - 2

Cleanroom Documents:

MSSL Cleanroom Cleanroom Gowning Procedures Cleanroom Operating Procedures Particulate Contamination Monitoring Molecular Contamination Monitoring





MSSL DOCUMENTS

SEE HANDOUT





PROJECT SPECIFIC DOCUMENTS

PA Plan Cleanliness Control Plan Verification Plan Configuration Control (CIDL) Declared Components List Declared Materials List Declared Processes List





SWIFT-UVOT PA PLAN

Document Number – MSSL/SWT-UVOT/PA001

- 1. INTRODUCTION
- 2. DOCUMENTS
- 3. GENERAL REQUIREMENTS
- 4. QUALITY ASSURANCE
- 5. RELIABILITY ASSURANCE
- 6. SAFETY ASSURANCE
- 7. COMPONENT QUALITY, SELECTION & PROCUREMENT ASSURANCE
- 8. MATERIALS AND PROCESSES SELECTION AND CONTROL
- 9. CONFIGURATION MANAGEMENT AND CONTROL
- 10. ACCEPTANCE REVIEW, ACCEPTANCE DATA PACKAGE





SWIFT-UVOT CLEANLINESS CONTROL PLAN

Document Number MSSL/SWT-UVOT/PA002

1. INTRODUCTION

- 2. APPLICABLE DOCUMENTS
- 3. CONTAMINATION SOURCES GENERAL
- 4. CLEANLINESS REQUIREMENTS SPECIFICATION
- 5. CLEANLINESS CONTROLS
- 6. OPERATION





CONFIGURATION MANAGEMENT

- A discipline applying technical and administrative direction and surveillance to do the following:
- 1. Identify and document the functional and physical characteristics of configurable items(CI)
- 2. Control changes to the CI and their documentation
- 3. Record and report change processing and implementation status
- 4. Audit CI to verify conformance to their documentation and other contract requirements





SWIFT-UVOT CONFIGURATION CONTROL

Change Control Data Bases (ECR/NCR)

Configuration Item Data List (CIDL)





DATA PACKAGES

Preliminary Design Review
Critical Design Review
Test Readiness Reviews
Delivery Review Board
Acceptance Data Package
Input to Operation Manuals





SOFTWARE QUALITY ASSURANCE - 1

Requirements

 A software requirements definition for the UVOT ICU has been produced (MSSL/SWT-UVOT/SP/001.01)

Architecture

The software architecture/design will be guided by ESA software engineering standards (ESA-PSS-05-0 issue 2) and will be available after delivery

Design reviews

 Formal QA shall only be performed on software that interfaces to the spacecraft





SOFTWARE QUALITY ASSURANCE - 2

Verification

 The UVOT ICU/DPU software verification matrix shall be written by the UVOT software lead (with input from MSSL)

Configuration Control

 Configuration control has been implemented using CVS. It will be the responsibility of MSSL up until delivery. It shall then be transferred to PSU.



