

Massachusetts Institute of Technology Kavli Institute for Astrophysics and Space Research (MKI)

QUALITY ASSURANCE MANUAL

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COMPILED BY:

APPROVED BY:

MICHELLE GABUTTI ADMINISTRATOR

ROBERT GOEKE CHIEF ENGINEER

APPROVED BY:

APPROVED BY:

BRIAN KLATT MISSION ASSURANCE MANAGER MARSHALL BAUTZ ASSOCIATE DIRECTOR, MKI

MASSACHUSETTS INSTITUTE OF TECHNOLOGY KAVLI INSTITUTE FOR ASTROPHYSICS AND SPACE RESEARCH 77 Massachusetts Avenue, Building NE83-541, Cambridge, MA 02139 Phone: 617-253-7555; E-Mail: bk@space.mit.edu; Website: space.mit.edu

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Α	N/A	Initial release	B. Klatt	M. Bautz	07/16/14
В	N/A	Added ESD Plan: 37-1004.38	B. Klatt	M. Bautz	09/16/14
С	N/A	Added paragraph on Quality Policy	B. Klatt	M. Bautz	11/06/14
D	37-366	Added references to procedures 99- 03004, 99-03005, & 99-03006	M. Gabutti	R. Goeke	03/03/16
E	37-401	Major rewrite and withdrawal of ISO 9001 intent.	J. Montigny	RFGoeke	05/13/16
F	37-520	Add listing for Pre-Mishap Plan.	J. Montigny	RFGoeke	12/01/16

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1.0 Preface

Revision A is the Initial Release of the Kavli Institute for Astrophysics and Space Research (MKI) Quality Assurance Manual. It was written by Brian Klatt on 5/15/14 and released on 7/16/14.

Revision B added a document reference of 37-11004.38 TESS ESD Plan. It was written by Brian Klatt on 9/16/14 and released on 9/16/14.

Revision C inserted a paragraph on Quality policy and changed SAE Aerospace Standard AS9100C, dated 2009-01 to ISO 9001:2008. It was written by Brian Klatt on 11/6/14 and released on 11/6/14.

Revision D added Procedures 99-03004, 99-03005 and 99-03006. Revision control changed from management approval to Change Control Board approval. It was written by Michelle Gabutti on 2/26/16 and released on 3/3/16.

Revision E was a significant rewrite of the quality manual to clarify the Quality Management System policy. Statements indicating the intent to meet ISO 9001:2008 were removed as a transition to a stand alone, self-directed system. It was written by Jeff Montigny on 5/1/16 and released on 5/13/16.

Revision F added a listing for the TESS Instrument Pre-Mishap Plan.

2.0 Objective

This Quality Assurance Manual establishes requirements and guidance for planning, design, fabrication, testing, delivery, and support of equipment and instruments for use in space experiments by Massachusetts Institute of Technology (MIT) Kavli Institute for Astrophysics and Space Research (MKI). Many of MKI products and services are used in a flight environment, and are therefore irreparable. "Getting it right" is of paramount importance. This manual outlines policies and procedures necessary to ensure the highest efficacy for MKI products and services.

3.0 Policy

The MKI Quality Management System (QMS) is planned and managed by the Mission Assurance Manager in concert with the Principal Investigator, scientists, program management, and engineering. It will be continually reviewed for suitability and improvement opportunity.

MKI management will ensure that the extent of the quality assurance activities and the resources available are appropriate for MKI and enable achievement of the objectives of each mission. The Mission Assurance Manager has direct access to the director of MKI as well as the program's Principal Investigator. The Mission Assurance Manager will report issues regarding the QMS and program/product quality issues to the program management at least on a weekly basis, and to MKI management as needed.

MKI Mission Assurance engineering staff is committed to compliance with the requirements and the improvement of the QMS.

4.0 General

The Quality Assurance Manual provides guidance for a QMS to support activities needed for programs and projects undertaken by MKI. It states what is to be controlled and defines the general requirements and policies to be followed. Programs, sponsors, or customers may have different requirements from those imposed herein or by MKI procedures. The MKI Mission Assurance Manager has the authority to implement adjustment to requirements as needed.

The Quality Assurance Manual is supplemented by procedures which contain detailed instructions defining the implementation of the QMS. These procedures are not limited to quality assurance but include engineering and fabrication.

5.0 Responsibilities

Mission Assurance at MKI is rather broad in scope. Mission Assurance is responsible not only for quality engineering, but also a number of other engineering and administrative functions.

List of responsibilities relevant to Mission Assurance functions:

- Quality Management System
- Hardware Quality Assurance
- Software Quality Assurance
- Supplier Quality Assurance
- Reliability
- Materials and Processing Oversight
- System Safety
- Control of Nonconforming Product
- Material Review Board, Failure Review Board
- Root Cause Analysis, Corrective Action, Preventative Action
- Calibration and Metrology
- Electronic, Electrical and Electro-mechanical (EEE) Parts Engineering & Control
- Government Industry Data Exchange Program (GIDEP)
- Inspections Incoming, In-process, and Final
- Procurement Requirements Flowdown
- Facility Oversight: Contamination Control and Electrostatic Discharge Control
- Workmanship and Product Acceptance Standards
- Personnel Training and Certification

6.0 Procedures

MKI has documented numerous policies and procedures to address program, customer, and industry requirements and to achieve best practice methodology. The majority of the referenced documents below are processes owned by Mission Assurance, but some are owned by various engineering groups at MKI. Not all of the procedures listed are applicable to a particular program.

List of procedures relevant to Mission Assurance functions:

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This Quality Assurance Manual and listed procedures are available at <u>http://snebulos.mit.edu/dbout/99-data.html</u>