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COMMON PARTS/MATERIALS,
SPACE USE,
GENERAL SPECIFICATION FOR

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JAPAN AEROSPACE EXPLORATION AGENCY

This document is the English version of JAXA QTS/ADS which was originally written and authorized in Japanese and carefully translated into English for international users. If any question arises as to the context or detailed description, it is strongly recommended to verify against the latest official Japanese version.

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Revision History				
Rev.	Date	Major changes		
NC	3 Dec. 1999	Original		
A	31 Mar. 2003	Revised for transition to the QML certification system.		
B	31 Mar. 2004	Revised for improvements. • Clarified the definition of “failure.” • Clarified the definitions of Groups A, B and C of the quality conformance inspection. • Added provisions required for transition from the QPL certification system to the QML certification system.		
C	2 Oct. 2006	Incorporated changes contained in Notices of Change 1 and 2 of JAXA-QTS-2000B. Major additions and modifications are as follows. • Paragraph 3.2.2: Modified to allow JAXA to prepare detail specifications. • Paragraph 3.4.1.10: Added a certification requirement on JAXA-developed parts. • Appendix A, Paragraph A.3.1.4: Changed “NASDA” to “JAXA” in part numbers. • Appendix E, Paragraph E.5.3.4: Clarified the provision for review of the Application for Retention of qualification. • Figure E-2: Clarified the flowchart for initial qualification. • Appendix G, Section G.3: Added a provision on issuing Notice of Change for Application Data Sheet. • Appendix K, Paragraph K.3.5.1.5: Added material changes to the review items. Paragraph K.3.6.2, item c): Clarified items to be reported to JAXA in addition to scheduled reports on TRB activities.		
D	7 July 2016	• Reflected Change Notices 1 through 3 of JAXA-QTS-2000C in to text. • Replaced “Common parts/materials” with “Qualified parts” in the text after certification. • Appendix C: Deleted the reference paragraph number of ISO9001. • Paragraph 1.3: Defined “Certification” and “Qualified parts”. • Paragraph 1.4: Defined “Obligation of JAXA” and “Responsibility and obligation of the QML manufacturer”. • Paragraph 1.5: Reviewed the following definitions. l) Registered inspector r) QML manufacturer v) Quality assurance manager • Paragraph 1.5: Added the following definitions. z) Anomaly - aa) manufacturer		

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Rev.	Date	Major changes		
D	7 July 2016	• Paragraphs 3.3.3 and C.4.2: Deleted the definition of quality assurance manager since it is defined in paragraph 1.5 Terms and Definitions. • Paragraph 3.3.4: Deleted the definition of registered inspector since it is defined in paragraph 1.5 Terms and Definitions. • Paragraph 3.3.5: Clarified that QML manufacturer does not just submit TRB status report but JAXA will review the activity status, and added that JAXA will notify the QML manufacturer the review results and that this is a part of the review for retention of certification. • Paragraph 3.3.6: Modified the expression using the word “qualification” defined in JMR-004 “Reliability program standards” and JMR-005 “Quality assurance program standards”. • Paragraphs 3.4.1.2 and 3.4.2: Deleted the description of audit since it is defined in paragraph 3.3.6 and instead, listed the paragraph number to be referred. • Paragraph 3.4.1.2: Clarified that the QML manufacturer may start its production of the sample for qualification test upon approval of the qualification test application. • Paragraph 3.4.2.1: Clarified the target period of the TRB Status Report accompanied with application for retention of certification. • Paragraph 3.4.4: Modified the wording in line with the description in paragraph 1.3.1 Certification. • Paragraph 3.4.5: Modified the de-certification conditions to be consistent with JAXA regulations. Clarified that JAXA informs QML manufacturer of its de-certification with the request for return of the QML certificate. • Paragraph 3.4.6: Added paragraph for procedure of suspending the shipment of a part of qualified parts. • Paragraph 3.4.7: Added paragraph describing consolidating of the effective period of the certification if the manufacturer have more than one qualified parts. • Paragraph 3.6: Clarified that JAXA could stop shipment on the products of QML manufacturer in case of nonconformance. Also clarified the conditions to lift the stop shipment and disposition of the products in the storage. • Paragraph 6.4: Clarified that detail specifications, Application Data Sheet and notices of changes shall be prepared and established by QML manufacturer, and registered with registration number and issued by JAXA. • Section 8: Added Appendix Z “Procedure after Revision of QTS-2000”. • Paragraph A.3.2.4.4: Changed the word “requirement criteria” to “requirements” • Paragraph A.3.3.2.2: Corrected error from paragraph 3.4 to 3.4.1. • Paragraph C.4.6.7 a): Added requirement of Trend analysis. • Paragraph C.4.11: Specified classification Grades I through III and defined each grade in the requirement of change control.		

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Rev.	Date	Major changes		
D	7 July 2016	• Paragraph C.4.11.1: Removed the facility for analysis from the change list to be determined due to the facility for analysis not directly associated with production and shipment of qualified parts. • Paragraph C.5.1 b) Changed the time to review quality assurance program plan from “at the time of certification” to “after application for certification is submitted”. • Paragraph D.3: Modified role and responsibility of the Quality Assurance Manager. • Paragraph D.4: Modified role and responsibility of the registered inspector. • Paragraph D.5: Modified qualification and selection criteria for registered inspector. • Paragraph D.7: Deleted paragraph D.7 due to the contents herein included in role and responsibility of registered inspector. • Paragraph E.5.3.4 a) Clarified that JAXA reviews the application and supporting documents. • Paragraphs F.3.5.1, F.3.6.1, Formats F-14, and F-24: Modified to clarify that JAXA does not certify an individual part but the capability of the manufacturer. • Formats F-14 and F-24: Added a sentence clarifying that the applicant will agree to be bound by the obligation specified in paragraph 1.4 at the application of certification. • Paragraph K.3.2 d), e), f): Added to clarify that TRB’s responsibility includes planning phase of failure analysis, corrective action, and changes to tests and inspections. • Paragraph 3.5.3 a) 4): Clarified the action when TRB status report submission is exempted. • Paragraph K.3.6.2: Added a provision in which QML manufacturer can be exempt from submitting TRB status report in the case of no production of qualified parts or no changes to the quality assurance program plan concerning qualified parts. • Paragraph K.3.6.3 b), c): Added reference paragraphs “paragraph C.4.9” and “paragraph C.4.11” due to omission of these numbers. • Added Appendix Z “Procedures after Revision of QTS-2000”		

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E	15 March 2021	• Revised completely to address the issues identified at certification activity, to make certification system efficient, to utilize ISO9001 for general requirements of JAXA-QTS-2000, to clarify JAXA requirements, to improve operational issues, to utilize electronic data or e-mail, to clarify requirements for the company, and to clarify issues necessary for certification activity. • Reflected Change Notices 1 and 2 of JAXA-QTS-2000D in to text. • Paragraph 1.5: Integrated and revised “Terms and Definitions”. • Paragraph 3.3.1: Clarified that ISO9001 is basic requirement. • Paragraph 3.3.2: Clarified that quality assurance program plan shall be reviewed at least once a year. • Paragraphs 3.3.3 and 3.3.4: Clarified requirements for qualities and ability of quality assurance manager and registered inspector. Furthermore, clarified requirements for assistant. • Paragraph 3.4.1.8: Clarified that effective period of certification shall be three years. • Paragraph 3.4.1.9: Clarified criteria at on-site audit. Furthermore, clarified that certification cancellation of JAXA QPL parts and cancellation of detail specifications and ADS are required for transition to QML certification system. • Paragraph 3.4.1.10: Clarified that preliminary examination shall be equivalent to qualification test application review. Clarified that certification application review shall be conducted in a manner similar to ordinary review. • Paragraph 3.4.2.1: Corrected that “The QML manufacturer shall submit an application for Retention of qualification to JAXA no later than 90 days prior to the expiration date of the certification period” (Reflected Change Notices 1 of JAXA-QTS-2000D to the text). • Paragraph 3.4.2.3: Established a provision of postponement for retention of qualification and provided disposition when certification period will be expired. • Paragraph 3.4.3: Clarified disposition when production or shipment is conducted at existing production line during requalification period. Defined disposition when certification period will be expired during requalification review and clarified that retention of qualification application will be required. • Paragraph 3.4.5: Provided correction period to coordinate with JAXA internal rules. • Paragraph 3.4.5: Specified that certification was removed when retention of qualification application was not submitted within the effective period of certification. • Paragraph 3.4.6: Changed “Stop Shipment of the Qualified Parts” as “Declination of Certification” and clarified procedures for declination of certification and rules for returning certificate. • Paragraph 3.4.8: Established a provision of available supplies part list. • Paragraph 3.4.9: Established a provision of disposition when shipment was suspended temporarily and clarified disposition in time of disaster occurrence. • Paragraph 3.6: Reviewed description and reorganized completely to clarify	

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		requirements when nonconformance was identified and to refine the requirements. • Paragraph 3.6.1: Reviewed and clarified disposition when anomaly or nonconformance occurred from the point of view of the rapid response. • Paragraph 3.6.2: Reviewed and clarified disposition after nonconformance notification from the point of view of the successive information sharing. • Paragraph 3.6.3: Regarding to stop shipment, clarified procedures from nonconformance occurrence to stop shipment. • Paragraph 3.6.4: Clarified procedures of release from stop shipment. • Paragraph 3.6.5: Established a provision when certification period will be expired during nonconformance disposition. Furthermore, clarified that requalification application will be required when nonconformance disposition completed. • Paragraph 4.3.3.2: Clarified disposition when production or shipment was not conducted within the effective period of certification. • Paragraph 6: Reviewed completely and resolved duplication with Appendix A (to be defined in Appendix A). • Paragraph 7: Integrated into paragraph 1.5 “Terms and Definitions” and deleted paragraph 7. • Paragraph A.2.1.3: Clarified requirements and correspondence to revision and supersession of applicable specifications (Reflected Change Notices 1 of JAXA-QTS-2000D in to text). • Paragraph A.2.4.8: Added example of tolerance expression with reference to JIS etc. • Paragraph A.3: Clarified that reasons for revision shall be included in revision history. • Paragraph A.3.4.9: Clarified and itemized tests and inspections available for change and optimization. • Paragraph A.4: Clarified that reasons for revision shall be included in revision history. • Paragraph A.4.2: Clarified that applicable documents shall be the latest version basically and clarified the requirements when revision of applicable documents was specified. • Paragraph A.4.4.1: Added a provision when previous revision of applicable document was applied. • Paragraph A.5.1: Clarified criteria for release of change notice. • Example: Format A-2: Revised on the basis of release of detail specification by JAXA at certification. • Paragraph C.1: Clarified that ISO9001 is a requirement item of JAXA-QTS-2000. Furthermore, clarified that Appendix C provided only JAXA-specific requirements. • Paragraph C.2.1: Deleted “:2000” from “JIS Q 9001: 2000”. • Paragraph C.4: Defined only JAXA requirements as requirements and reviewed completely.	

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		• Paragraph C.4.3.4: Provided that JAXA-specific requirements are also within the scope of QMS internal audit. • Paragraph C.4.3.7.1: Changed retention of quality records to 15 years. • Paragraph C.5: Clarified that no requirements for format of quality assurance program plan existed and deleted example of format. • Paragraph C.5.1: Added A3 paper size. • Paragraph C.5.2.3.3: As requirements for approval of quality assurance program plan, clarified that registered inspector verified the plan and quality assurance manager approved the plan. • Paragraph C.5.2.4: Clarified that reasons for revision shall be included in revision history. • Paragraph C.5.2.5: Deleted “Education and training”, “Design control” and “Management system of measuring instruments”, since the requirements are general requirements and no JAXA-specific requirements existed. • Paragraph C.5.3: Deleted examples of format, except for JAXA-specific requirements “Flow chart”, “FMAT” and “List of change category”. • Paragraph D.3: Clarified that assistant could be assigned for quality assurance manager. Furthermore, clarified that quality assurance manager was decision authority of TRB. • Paragraph D.4: Rearranged items a) to j) in the order of priority and clarified TRB report destination. • Paragraph D.5: Clarified qualities and abilities of registered inspector demanded by JAXA. Provided only that assistant could be assigned for registered inspector. • Paragraph E.5.2.2: Clarified that qualification test application shall be conducted prior to sample manufacturing for qualification tests. Added description when omission of qualification tests was applicable. Furthermore, added description that quality manual should be submitted “if possible”. Added TRB operational provision and submittal requirements for DPA manual. Clarified deadline for submission as “no later than 90 days prior to planned starting date of sample manufacturing for qualification tests” (Reflected Change Notices 1 of JAXA-QTS-2000D in to text). • Paragraph E.5.2.3: Added that on-site audit of the company (including suppliers) was included in qualification test review and clarified requirements. Furthermore, clarified that audit shall be conducted from the point of view of system and processes. • Paragraph E.5.2.8: Clarified requirements for qualification test termination and application withdrawal (Reflected Change Notices 1 of JAXA-QTS-2000D in to text). • Paragraph E.5.2.9: Clarified that TRB reports shall be submitted for requalification application. • Paragraph E.5.3.3: Changed submittal deadline of application for retention of qualification as “no later than 90 days prior to expiration date of certification”.	

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		• Paragraph E.5.3.4: Clarified criteria for omission of audit when ISO9001 was applicable. • Paragraph E.5.4.1: Clarified that requalification was required when a part of qualification coverage was declined. • Paragraph E.5.4.2: Added notes when a part of test items was omitted at requalification tests. • Paragraph E.6: Added items to clarify processing flow for nonconformance reporting. • Figure E-2 and Figure E-3: Corrected flow correspondingly to text. • Figure E-4: Added flow of qualification declination. • Figure E-5: Added nonconformance processing flow (identified at the QML manufacturer). • Figure E-6: Added nonconformance processing flow (identified at user). • Paragraph F.2: Added description that arbitrary format was acceptable and clarified application. Added requirements for submittal of TRB operational provision at initial qualification. Added requirements for submittal of TRB status reports at requalification. Clarified that submittals of formats F-2, F-15 and F-20 was not required. • Paragraph F.3.1: Permit A3 size paper. • Paragraph F.3.2.2 and paragraph F.3.5.2: Clarified that submittal of these formats was not required, since JAXA prepared these formats. • Paragraph F.3.2.4: Added item “Purpose (and focus points / background)” in format. Clarified that technical rationale shall be shown clearly when test items were omitted. Added operation method when parts were manufactured according to existing specifications in parallel to requalification review. • Paragraph F.3.2.6 and paragraph F.3.5.6: Added description that item number may be added when required condition corresponded to text referred by item number of applicable specification. • Paragraph F.3.2.8: Added requirements to show manufacturing schedule of test vehicle or sample. • Paragraph F.3.2.9: Deleted guide map. • Paragraph F.3.2.10: Specified requirements for submittal / disclosure of quality manual. • Paragraph F.3.2.15: Added submittal requirements for TRB operation provision. • Paragraph F.3.2.16: Added submittal requirements to attach TRB status reports at requalification test application. • Paragraph F.3.4: Reflected Change Notices 1 of JAXA-QTS-2000D in to text. • Paragraph F.3.5.7: Clarified that records, to confirm that tests were conducted in accordance with requirements, shall be submitted. • Paragraph F.3.5.10: Added requirements to attach quality assurance program plan and quality manual to certification application. • Paragraph F.3.5.11: Added requirements to attach TRB status reports to	

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		certification application. • Paragraph F.3.6.2 and paragraph F.3.6.4: Clarified that company's format was also acceptable. • Paragraph F.3.6.5: Added requirements to describe reason for change. • Paragraph F.3.12: Added guidelines of request for postponement of retention of qualification review. • Paragraph F.3.13: Added example format of technical notice. • Example format: Changed following formats correspondingly to Appendix F text. • Example: Formats F-2, F-15, F-20 and F-24: Added “/ not approved”, since qualification application may not be approved. • Example: Format F-15 and F-20: Reflected Change Notices 2 of JAXA-QTS-2000D in to text. • Example: Format F-28: Added column of JAXA review results. • Paragraph G.2: Clarified management of application data sheet. • Paragraph G.3: Clarified that part manufacturer shall prepare and establish application data sheet. • Paragraph G.4: Added requirements to include reasons for change in revision history. • Paragraph H.3.2: Reviewed completely to clarify provisions. • Paragraph H.3.2.3: Reviewed completely to clarify provisions. • Paragraph H.3.3.1, paragraph H.3.3.2, and paragraph H.3.3.3: Integrated into Appendix A, paragraph A.3.4.6.5 “disposition after tests” and deleted. • Paragraph K.3.3: Clarified that quality assurance manager was decision authority of TRB. Deleted management of supplier TRB. • Paragraph K.3.4: Added and clarified requirements for FMAT / FMEA. • Paragraph K.3.5.1.3 and paragraph K.3.5.3: Added requirements for confirmation on revision and cancellation status of applicable documents. • Paragraph K.3.5.5: Added requirements for TRB minutes of meeting. • Paragraph K.3.6.1: Added provision that status reports may be submitted all at once. Clarified that status reports shall be submitted within 1 year from the date of previous reporting. Added description that review materials described in TRB minutes of meeting shall be attached as necessary. • Paragraph K.3.6.2: Clarified omission rules of status reporting. Clarified that status reporting shall not be omitted at retention of qualification. • Appendix Z: Defined 6 months as transition period and clarified that quality assurance program plan shall be reviewed by JAXA at TRB status report etc.	

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COMMON PARTS/MATERIALS, SPACE USE, GENERAL SPECIFICATION FOR			
1. GENERAL			
1.1 Objective			
The purpose of this specification is to define requirements for companies involved in Japan Aerospace Exploration Agency (herein after referred to as “JAXA”) qualified parts commonly used for JAXA electronic equipment installed on space systems and to define required items for qualification activity by JAXA, companies and users.			
1.2 Scope			
This specification is applicable for preparation and maintenance of documents related to certification, quality assurance and applicable specifications of JAXA qualified parts, when parts and materials (herein after referred to as “common parts/materials”), of which reliability and quality shall be confirmed by JAXA, shall be qualified as JAXA qualified parts.			
1.3 Certification and JAXA Qualified Parts			
1.3.1 Certification			
Certification is that JAXA recognizes that a company has the capability of supplying JAXA qualified parts on the basis of this specification and applicable specifications by reviewing the conditions of design, production, reliability, quality control requirements and the qualification test results using samples of common parts/materials.			
1.3.2 JAXA Qualified Parts			
JAXA qualified parts are the common parts/materials which will be supplied under the quality assurance provisions specified in applicable specifications which are fulfilled by the QML manufacturer.			
1.4 Obligations			
1.4.1 Obligations of JAXA			
a) JAXA establishes and maintains the applicable specifications as well as defining the requirements of quality, tests and inspections for qualification therein. b) JAXA determines whether the qualification test results using quality control system and the samples are conformance to the requirements of the applicable specifications, and decides whether to certify the company based on its application for certification. c) JAXA reviews the quality control system of the QML manufacturer periodically and as needed, and confirms that the system is maintained. d) JAXA provides technical supports such as cause analysis of anomaly/nonconformance, and quality evaluation of the JAXA qualified parts as needed.			

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e) JAXA issues “Shinraisei Gijutsu Jouhou” (Reliability Technical Alert Information) when anomaly or nonconformance of the JAXA qualified parts which are considered pervasive is found, and notifies all relevant parties. f) JAXA verifies the measures proposed by the QML manufacturer, and corrective actions with the verification results when nonconformance of the JAXA qualified parts is found. 1.4.2 Responsibilities and Obligations of the QML manufacturer a) The QML manufacturer is responsible for that the delivered products conform to the requirements of applicable specifications. The QML manufacturer shall explain to the customers as needed that JAXA is not responsible for that the delivered products conform to the requirements in detail specifications. b) The QML manufacturer shall address the issues when anomaly or nonconformance is found in the delivered products. c) In the case of certification removal, the de-certified QML manufacturer shall notify the users of the de-certified JAXA qualified parts and the user considering a purchase at once of its de-certification. d) In the case of suspending the shipment of the JAXA qualified parts, the QML manufacturer shall notify the users at once of the suspension of the shipment. 1.5 Terms and Definitions The following terms and definitions are used in this specification: a) DPA (Destructive Physical Analysis): Inspections or analyses performed destroying the device to confirm the compliance with the applicable design, manufacturing processes, structure, materials and workmanship requirements. b) FMAT (Failure Mechanism and Assurance Technique): Failure mechanism and assurance technique. c) FMEA (Failure Mode and Effect Analysis): The systematic methods to analyze potential failures in order to prevent failures and nonconformance. The technique to analyze failure modes in each element and the effectiveness of upper level item in order to identify incomplete design and potential faults. There are different FMEA types such as Design FMEA used on design phase and Process FMEA focusing on manufacturing process elements of operation and control. d) IATF 16949: International standard for quality management system to specialize in automotive industry. e) ISO9001 (Quality Management Systems – Requirements): Quality management systems – requirements established by International Organization for Standardization (ISO). ISO 9001 establishes the requirements for a quality management system in which the concept of quality assurance is taken one step further by covering the improvement of customer satisfaction. JIS Q 9001 is established as domestic industrial standard. f) JAXA-developed parts: JAXA qualified parts developed under a contract with JAXA. g) JIS Q 9100: JIS standard regarding to quality management system based on ISO9001 and specific items for aerospace industry are added. Mutual authentication is obtained among US standard, AS9100 and European standard, EN9100.			

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h) QML (Qualified Manufacturers List): The QML is a list of companies certified on the QML system. The list provides information such as the names of companies, production sites, names of parts (products), qualification coverage, applicable specifications (titles and specification numbers) and contact information. i) QML qualification: Certification of common parts/materials in accordance with the specification system defined in the General Specification for Space Use Common Parts/Materials (JAXA-QTS-2000). j) QPL (Qualified Products List): The QPL is a list of qualified parts. The list provides information on parts certified on the QPL system including the names of the QML manufacturers, production sites, name of parts, summary of part characteristics, applicable specifications (titles and numbers) and contact information. k) QPL qualification: Certification of common parts/materials in accordance with the specification system defined in the Common Parts etc., Space Development Use, General Specification for (NASDA-QTS-38100). l) TRB (Technology Review Board): The TRB is a multi-functional organization established by the QML manufacturer to review and determine the validity of establishment, maintenance, revisions (changes) and implementation of the quality assurance program and as well as corrective actions. m) Anomaly: Abnormal or questionable condition. Anomaly includes questionable symptoms identified at manufacturing process of JAXA qualified parts (including in-process inspection) and abnormal symptoms identified at screening, qualification tests and quality conformance inspections. n) Spacecraft: A generic term referring to satellites, space experiment equipment, space stations and their launch vehicles. o) Entrustment: To outsource whole or a part of manufacturing, inspection and test processes. p) Supplier: Company entrusted with whole or a part of manufacturing, inspection and test processes. q) Development test: Tests to confirm quality and performance of parts at final stage of parts development. r) Company: Generic designation of company, QML manufacturer, manufacturer and supplier, which wish to acquire certification. s) Available Supplies Parts List: List of parts, which are to be supplied by the QML manufacturers listed in JAXA QML as JAXA qualified parts, and list of sales volume. t) Retention of qualification: A process to retain qualification of the JAXA qualified parts conducted at the end of effective period of qualification. u) Defect: A state in which JAXA qualified parts are unable to fulfill the intended applications or requirements for specified applications. v) Inspection Lot: An inspection unit for a qualification test or quality conformance inspection. As a rule, an inspection lot consists of a production lot. w) On-site Audit: System and process audit based on the quality assurance program performed at the company's site in order to review comprehensively that quality assurance program is definitely maintained and operated. x) In-process Inspection: Inspections which are performed during the manufacturing process to detect defects which could significantly affect the reliability and quality of			

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the product or to examine the characteristics of the product which cannot be measured using finished products. y) Purchase: Parts procured as a basis of JAXA qualified parts and of which quality is assured by the QML manufacturer. z) Failure: The loss of the ability of a JAXA qualified part to perform its required functions. - aa) Failure Rate Level: Numerical representation of a degree of reliability based on failure rate. - ab) Requalification: A qualification process performed to change the qualification coverage. - ac) Non-JAXA-Developed Parts: Common parts/materials developed by a company at its own expense to acquire certification without a JAXA contract. - ad) Field Data: The test data, actual failure rate and nonconformance information of the products which are manufactured in the same production line and with the same or similar design, processes and quality assurance program as the product group to be qualified. - ae) Sales Volume and Customers List: A list of the number of shipment and primary customers (including trading companies) of JAXA qualified parts. - af) Passive Part: Parts consuming, accumulating and discharging supplied electrical power. - ag) Registered inspector: A person to control that the QML manufacturer certainly fulfils the functionality, performance and quality assurance requirements of the JAXA qualified parts, independent from any quality assurance section in the production department of the company by acting as an inspector of JAXA. - ah) Initial qualification: A qualification process to register new common parts/materials as the JAXA qualified parts. - ai) High Reliability Parts: JAXA qualified parts whose failure rate level is not specified in the applicable specification, however, whose quality is assured by means of stringent design control, process control and quality conformance inspections for each production lot. - aj) Established Reliability Parts: JAXA qualified parts whose failure rate is specified in the applicable specification and whose quality is assured by means of stringent design control, process control and quality conformance inspections for each production lot. - ak) Quality Conformance Inspection at Restarting Production: Quality conformance inspection performed when certification is retained without performing quality conformance inspection within effective period of certification and production of JAXA qualified parts restarts - al) Manufacturer: A company which performs most of fabrication process and assemble of the parts and materials purchased or provided, and manufactures the finished products. - am) Quality Conformance Inspection during the Production Process: Quality conformance inspection performed prior to shipment of JAXA qualified parts. - an) Production Lot: A production unit whose products can be considered as identical in regards to the production line continuity, production efficiency and quality.			

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ao) Products: The QML system certifies a group of products represented by the test vehicles or samples. The QML manufacturer, therefore, is allowed to develop new detail specifications and supply products as JAXA qualified parts within the qualification coverage. The term “products” in the QML system is used corresponding to “part” in the QPL system to help users understand this concept. ap) User: Parts user (including trading company) aq) Applicable specifications: Applicable specifications include generic specifications for each part type and detail specifications applicable to JAXA qualified parts. ar) Application Data Sheet: A sheet summarizing test data and applications of the JAXA qualified parts. as) Qualification test: A series of tests to certify common parts/materials as JAXA qualified parts. The tests are performed to verify that the common parts/materials meet the requirements of applicable specifications. at) Qualification coverage: Qualification coverage is a scope of characteristics, performance and technology which are represented by a test vehicle. Qualification coverage shall be defined in the applicable specifications. au) QML manufacturer: A manufacturer that acquired certification. av) Quality Conformance Inspection within the Effective period of Certification: Quality conformance inspection to confirm process stability, using first production lot manufactured within the effective period of certification one time. aw) Active part: Parts amplifying or rectifying by supplied electrical power. ax) Catastrophic failure: A failure leading to loss of functionality and performance of JAXA qualified parts. ay) Test vehicle: A device or sample that represents the products manufactured in the manufacturing line to be qualified. az) Quality conformance inspection: Tests specified in the applicable specifications and performed by the QML manufacturer to confirm the lot integrity of JAXA qualified parts. ba) Quality assurance manager: A person who has the responsibility and authority to establish, implement, maintain and control the quality assurance program and to assure quality of the JAXA qualified parts as a representative of the QML manufacturer. bb) Quality assurance program: A program that includes all quality assurance activities required to manufacture and supply JAXA qualified parts. bc) Quality Assurance Program Plan: Document in which the complete quality assurance program is established. bd) Quality Assurance Level: A category of quality assurance for parts. Screening, quality conformance inspection, etc. are required according to risk. be) Part Group: Names of parts when the parts are sorted by class. There are 22 part groups, consists of 20 of EEE (Electrical, Electronic and Electromechanical) parts and 2 materials; integrated circuits, hybrid integrated circuits, transistors, diodes, capacitors, resistors, connectors, crystals and crystal oscillators, filters, relays, switches, transformers and coils, wires and cables, solar cells, printed wiring boards, thermistors, heaters, sensors, fuses, RF devices, thermal control films and thermal control paint.			

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bf) Nonconformance: The performance of the JAXA qualified parts inconsistent with requirements. Nonconformance includes failure, deviation, defect, lack and malfunction. bg) Failure analysis: The detailed analysis of reliability data such as life, numbers of failed parts, failure conditions and degree of deterioration to physically characterize the failure status. bh) Part Type: Part identification further classifies the part group. The part type is described such as “Microcircuits, CMOS 32 bit MPU, monolithic silicon, high reliability, space use”, “Resistors, fixed, film, high reliability, space use”, and “Capacitors, multiple layer, fixed, ceramic dielectric, high reliability space use” bi) Storage Temperature Range: Ambient temperature range that JAXA qualified parts can be stored with no loads.			
1.6 Classification of JAXA Qualified Parts JAXA qualified parts, defined in the applicable specifications which are developed in accordance with this specification shall be classified as follows:			
1.6.1 Reliability Category a) Established reliability parts b) High reliability parts.			
1.6.2 Quality Assurance Level Quality assurance level for parts shall be classified as follows: a) Class I parts: Officially qualified parts with highest quality assurance level and the lowest risk. b) Class II parts: Officially qualified parts with next-highest quality assurance level after Class I parts and a lower risk. c) Class III parts: Officially qualified parts with quality assurance level lower than the Class II parts and a high risk.			
2. APPLICABLE DOCUMENTS			
2.1 Applicable Documents The documents listed below form a part of this specification to the extent specified herein. The issues of these documents are the latest issues available at the time of contract award or application.			
a) JIS Z 8201 Mathematical Symbols			
b) JIS Z 8202 Quantities and Units – Part 0: General Principles through Part 13: Solid State Physics			
c) JIS Z 8203 SI Units and Recommendations for the Use of their Multiples and of Certain Other Units			
d) JIS Z 8301 Rules for the layout and drafting of Japanese Industrial Standards			
e) JIS Z 8401 The Rounding of Numbers			

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f) JIS Z 9015-1 g) ISO 9001 (JIS Q 9001)	Sampling Procedures for Inspection by Attributes – Part 1: Sampling Plans Indexed by Acceptable Quality Level (AQL) for Lot-by-Lot Inspection Quality management Systems – Requirements		
2.2 Reference Documents Reference documents are as follows: a) JMR-004 Reliability Program Standard b) JMR-005 Quality Assurance Program Standard c) JMR-012 Electrical, Electronic, and Electrochemical Parts Program Standard d) JMR-013 Quality Assurance Program Standard (basic requirements: JIS Q 9100)			
2.3 Order of Precedence In the event of a conflict between the text of this specification and the applicable specifications, the following order of precedence shall apply: a) Detail specification b) Generic specification for each product type c) This specification d) Applicable documents of this specification (paragraph 2.1)			
3. REQUIREMENTS			
3.1 General Requirements General requirements for JAXA qualified parts shall be in accordance with the requirements specified in this specification.			
3.2 Detail Requirements			
3.2.1 Requirements for Each Product Type General requirements for each product type of JAXA qualified parts shall be in accordance with generic specifications for each product type. JAXA shall prepare and establish the generic specifications for each product type in accordance with Appendix A (Preparation of Applicable Specifications).			
3.2.2 Detail Requirements Detail requirements for individual JAXA qualified parts which are not covered in the generic specifications for each product type shall be in accordance with the detail specification. The QML manufacturer or company which wishes to acquire certification shall prepare detail specifications in accordance with Appendix A.			
3.3 Requirements for a Quality Assurance Program			
3.3.1 Establishment of a Quality Assurance Program The company shall establish a quality assurance program in compliance with Appendix C to assure that the JAXA qualified parts meet the requirements for space use and that			

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	the company is able to sustain production and supply of the product with a consistent quality. At the establishment of quality assurance program, ISO9001 requirements form a part of JAXA requirements. The company may utilize public certification standards, JIS Q 9100 and IATF16949, of which basic requirements are ISO9001. The company shall store applicable documents to be available at all times and shall utilize them in accordance with quality assurance program.		
3.3.2	Quality Assurance Program Plan The quality assurance program, which is established in accordance with paragraph 3.3.1, shall be comprehensively documented as the Quality Assurance Program Plan (hereinafter referred as “QAP Plan”) and the QAP plan shall be submitted to JAXA for review. After a certification is granted, the company shall implement the quality assurance activity in accordance with the QAP plan. Any change to the quality assurance program shall be documented at the timing of at least TRB status reporting in accordance with Appendix C to insure accurate program status in the QAP plan.		
3.3.3	Quality Assurance Manager The company shall select and designate a quality assurance manager, who is available for performing tasks defined in paragraph D.3 and register this person with JAXA. Any change to quality assurance manager shall be promptly reported to JAXA in accordance with paragraph D.6. The company shall designate assistant quality assurance manager in accordance with paragraph D.3 when applicable.		
3.3.4	Registered Inspector The company shall select and designate a registered inspector, who is available for performing tasks defined in paragraph D.4 and register this person with JAXA. The company shall designate assistant registered inspector in accordance with paragraph D.5 when applicable.		
3.3.5	TRB The company shall establish and manage TRB in accordance with Appendix K. JAXA shall review the TRB status report at each submission and notify the QML manufacturer of the results.		
3.3.6	Audit of the Quality Assurance Program At an audit, JAXA shall evaluate implementation status of the quality assurance program which was established by the company. The company shall cooperate with JAXA audit. If JAXA requests corrective action, the company shall take appropriate actions.		
3.4	Certification Requirements The company, which wishes to supply JAXA qualified parts, shall acquire QML certification. The QML certification consists of following three types.		

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a) Initial qualification b) Retention of qualification c) Requalification The qualification procedures shall be as specified in Appendix E. The qualification application and formats to acquire a QML certification shall be as specified in Appendix F.			
3.4.1 Initial Qualification a) The company shall acquire JAXA certification in the following cases that: 1) The company supplies common parts/materials as JAXA qualified parts for the first time. 2) The company adds product(s) which are not included in certification coverage. 3) The company applies certification again after de-certification (refer to paragraph 3.4.5). b) For initial qualification, the company shall submit the following applications to JAXA: 1) Application for Qualification Test 2) Application for Certification			
3.4.1.1 Application for Qualification Test The company shall submit the Application for Qualification Test to JAXA in accordance with Appendix E.			
3.4.1.2 Approval of Application for Qualification Test JAXA shall review the application for qualification test and perform an audit of the quality assurance program in accordance with paragraph 3.3.6. If the application is acceptable, JAXA approves the application and notify the company of the approval. The company shall start manufacturing the test vehicle or the sample for the qualification test upon receiving the approved qualification test application from JAXA.			
3.4.1.3 Changes to Qualification Test After approval of the Application for Qualification Test, any changes to the qualification test contents by the company shall be approved by JAXA in accordance with paragraph E.5.2.7.			
3.4.1.4 Witnessing of Qualification Tests Upon approval of the Qualification Test Application, JAXA shall designate a witness for the qualification test in accordance with paragraph E.5.2.5 and perform witness in accordance with paragraph 5.2.6. JAXA coordinates with the company on the schedule, etc.			
3.4.1.5 Performing Qualification Test The company shall perform qualification test in accordance with qualification test application which was approved by JAXA. When start of qualification test is more than 3 months behind start date shown in qualification test application, the company shall submit change request of application for qualification test to JAXA for approval.			

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	If the change request of application for qualification test is not submitted to JAXA and the company does not initiate the qualification test within 3 months after the approved start date, JAXA will revoke approval of the Qualification Test Application and notify the company.		
3.4.1.6	Termination of Qualification Test In the event of nonconformance, erroneous tests or an excess of the allowable numbers of failure on test vehicles or samples at qualification tests, the company shall report the event to JAXA promptly. As a result, if the qualification test is to be terminated, the company shall submit a Notice of Qualification Test Termination / Application Withdrawal to JAXA in accordance with paragraph E.5.2.8.		
3.4.1.7	Application for Certification After all the qualification tests are completed in accordance with the Implementation Plan for Qualification Test, the company shall submit an Application for Certification in accordance with paragraph E.5.2.9 within 30 days after completion of the qualification test.		
3.4.1.8	Approval of Certification JAXA shall review the application for certification and shall approve the application when the Application for Certification meets all the requirements in this specification and applicable specifications. Effective period of certification shall be 3 years. QML manufacturer is allowed to supply products within an approved qualification coverage in accordance with detail specifications registered with JAXA. After approval of certification application, JAXA shall add the certification to JAXA QML.		
3.4.1.9	Transition from QPL Certification to QML Certification In the event of transition from QPL certification to QML certification, the QPL manufacturer may submit the Application for QML Certification without the qualification test, provided that there are no changes to the test items and criteria, workers, materials, production processes and facilities. The detailed requirements for transition shall be as follows. Qualification Test Application Submittal of a Qualification Test Application may be exempted. However, the detail specifications and Notice of Quality Assurance Manager/Registered Inspector shall be attached to the Application for QML Certification. Correlation table of the qualification test items and criteria in QPL certification and QML certification The QPL manufacturer shall prepare a table correlating the qualification test items and criteria specified in the respective applicable specifications of QPL certification and QML certification. It shall demonstrate that the qualification test for QPL certification conforms to that of QML certification. Quality conformance inspection within the effective period of QPL certification		

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	The quality conformance inspection within the effective period of QPL certification may be performed as Group B inspection of the quality conformance inspection required for the first production lot of QML certification. d) On-site audit The quality assurance program shall be audited by JAXA at the company's site as specified on the certification application. The purpose of this audit is to review reflection and implementation status of documents such as specifications, procedures, operation standards and process records which comprise quality assurance program. e) QPL products manufactured in the transition to the QML certification If QPL products were manufactured during transition to the QML certification, QPL products in progress and inventory of finished QPL products are considered to be QML parts. f) The company shall report certification declination of QPL parts and cancellation of detailed specifications and application data sheets to JAXA by technical notice.		
3.4.1.10	Certification of JAXA-Developed Parts When the company acquires certification for parts/materials developed under a contract with JAXA (hereinafter referred to as JAXA-developed parts) and acquires certification based on the results and recorded data of development tests, the following provisions shall apply. a) Preliminary Review Prior to start of manufacturing samples for development tests, at the review of quality assurance program in accordance with paragraph 3.3.6, establishment of quality assurance program plan and detail specifications, selection and registration of quality assurance manager and registered inspector, establishment of TRB, manufacturing and test processes, development test items and conditions, etc. shall be reviewed. This review includes on-site audit of the company (including suppliers). JAXA shall review in accordance with paragraph 3.4.1.2 and judge manufacturing readiness. b) Correlation Table between Qualification and Development Test Items Correlation table between the qualification test items specified in applicable specifications and development test items shall be prepared by the company in accordance with F.3.5.3 to verify compliance of the development tests with the requirements of qualification tests. c) Certification Application The company shall prepare certification application in accordance with paragraph 3.4.1.7 and submit the application to JAXA. For any changes after preliminary review, JAXA may perform on-site audit at certification application review.		
3.4.2	Retention of Qualification When QML manufacturer wishes to acquire retention of qualification, the QML manufacturer shall apply for retention of qualification in accordance with paragraph		

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E.5.3.3 and shall acquire retention of qualification within the effective period of certification. If it revealed that the JAXA qualified parts are not produced as specified in the quality assurance program, JAXA may revoke the certification or request the QML manufacturer to perform requalification procedures. 3.4.2.1 Application for Retention of Qualification The QML manufacturer shall submit an Application for Retention of Qualification and following documents to JAXA no later than 90 days prior to the expiration date of the certification period in accordance with Appendix E. a) Report of Quality Conformance Inspection Status (paragraph F.3.6.2) b) Quality Assurance Program Plan (the latest version) c) TRB Status Report (paragraph F.3.7) 1) Report of Qualification and Delivery Status (paragraph F.3.6.4) 2) Change Status Report of Quality Assurance Program (paragraph F.3.6.5) 3) Nonconformance information (paragraph F.3.9) Submission of the Report of Quality Conformance Inspection Status is not required when it was included in the TRB Status Report. Target period of TRB Status Report is from the latest TRB status reporting until submission of application for retention of qualification. JAXA shall audit the TRB status report submitted as a part of the application documents for retention of qualification in accordance with paragraph 3.3.5. 3.4.2.2 Approval for Retention of Qualification Based on the application for retention of qualification, JAXA shall review accompanied documents and quality assurance program in accordance with paragraph 3.3.6. On the basis of review results, JAXA shall approve the application when it meets all the requirements of this specification and applicable specifications. The retention of qualification shall be effective on the day following the last day of the current qualification period and remain effective for three years. 3.4.2.3 Postponement of Retention of Qualification When QML manufacturer suffers from disaster ^(*1) and period of recovery operation is considered to be long-term over effective period of certification, the QML manufacturer shall submit request for postponement of retention of qualification review. After confirmation and approval of request for postponement of retention of qualification, JAXA shall remove the concerned JAXA qualified parts from JAXA QML list at expiration date of certification, and shall announce the removal on Database of JAXA Qualified EEE Parts and Materials. The QML manufacturer shall submit recovery plan to JAXA within 3 months after suffering from disaster. When retention of qualification review is postponed, certification during postponement period is expired and the concerned JAXA qualified parts shall not be shipped.			

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When recovery operation is completed and retention of qualification review is practical, the QML manufacturer shall apply retention of qualification in accordance with paragraph 3.4.2.1 immediately. For any changes to qualification coverage due to the recovery operation, the QML manufacturer shall apply requalification in accordance with paragraph 3.4.3. When JAXA judges that retention of qualification is acceptable based on the review results of retention of qualification, JAXA shall approve the application for retention of qualification and define the day following expiration date of certification as the commencing date of retention of qualification. For requalification, the commencing date is as follows: a) When all requalification tests are performed (without optimizing requalification tests), approval date of requalification is commencing date. b) When requalification tests are optimized, the day following the expiration date of certification is commencing date. (*1) When product line of QML manufacturer is not operable or when material supplies suffer from disaster and supply chain is not established. 3.4.3 Requalification The QML manufacturer shall apply for requalification in accordance with paragraph E.5.4 in order to change the qualification coverage for the JAXA qualified parts. When the QML manufacturer produces and delivers JAXA qualified parts in accordance with existing specifications prior to approval of requalification application, the QML manufacturer shall add implementation methods of quality assurance program within the period of the production and shipment in requalification test application. When it is obvious that a series of requalification review will not be completed within effective period of current certification, the QML manufacturer shall submit application for retention of qualification of current qualification coverage in accordance with paragraph 3.4.2. In that case, application for the retention of qualification shall be submitted together with application for the requalification test. Furthermore, when requalification process proves not be completed within effective period of certification, the QML manufacturer shall apply for retention of qualification of current qualification coverage immediately in accordance with paragraph 3.4.2 regardless of requalification process in progress. 3.4.4 Certificate Notification JAXA will send a Certificate (format: F-30) to the QML manufacturer upon completion of the initial qualification, retention of qualification or requalification. The certificate shall specify the name of the QML manufacturer, production sites, titles and document numbers of applicable specifications and the quality assurance program plan, the certification number, the certification date and the effective period of certification. The QML manufacturer shall present the certificate if requested by JAXA or a user of the JAXA qualified parts. 3.4.5 De-Certification JAXA may revoke the certification if any of the following cases, a) through j). If the certification is revoked, JAXA will notify the QML manufacturer of the de-certification			

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and request for return of the certificate. And the information on the relevant products shall be removed from the JAXA QML. If any of the following cases, a) through j), JAXA will cooperate with QML manufacturer and establish period needed for corrective operation. When JAXA judges that the events are not eliminated after the established period for corrective operation, JAXA will revoke certification. However, JAXA may revoke certification even within the period for corrective action or without de-certification notification in the cases of d), f) and i). a) Application for retention of qualification was not submitted within effective period of certification. b) Application for retention of qualification fails to meet the requirements for retention of the qualification. c) Review results of qualification retention or an audit requested by JAXA indicate that the quality assurance program has been implemented falsely. d) The QML manufacturer applies for declination of the certification. e) An uncorrectable defect is found in the manufacturing process of the JAXA qualified parts. f) Applicable specifications are cancelled. g) Although applicable specifications are changed and requalification tests in accordance with the new specification is required, the requalification tests are not performed. h) There is false statement in the test results or in the application for the JAXA qualified parts. i) All supplies of the JAXA qualified parts are no longer available. j) The QML manufacturer is found to have no ability to acquire certification. 3.4.6 Declination of Certification When the QML manufacturer declines whole or a part of certification, the declination shall be processed in accordance with paragraph E.5.5. After approval of advance notice submitted by the QML manufacturer, JAXA will announce the last time buy. JAXA will approve notification for certification declination received from the QML manufacturer after final order, and notify the date of certification declination. When notification for certification declination is approved by JAXA, the QML manufacturer shall return the certificate to JAXA promptly after the date of certification declination. When declination of a part of certification is approved, JAXA shall issue new certificate in accordance with paragraph 3.4.4. After receiving new certificate, the QML manufacturer shall return the certificate issued before certification declination to JAXA. 3.4.7 Arranging the Certification Periods In the case of having certifications for more than one applicable specifications, the QML manufacturer may aggregate those different certification periods in one period at the timing of retention of qualification or requalification for one of the certifications. For that purpose of aggregating certifications, the application for retention of qualification may be submitted anytime regardless of the specific timing stated in paragraph 3.4.2.1 and			

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	on-site audit may be aggregated. However, the current certification period cannot be expired. 3.4.8 Available Supplies Parts List The QML manufacturer shall prepare list of available JAXA qualified parts and shall operate and maintain the list up to date. The QML manufacturer shall prepare the available supplies parts list in accordance with Appendix F, Format F-31 or original format by the QML manufacturer, and submit the available supplies parts list to JAXA at the time of initial qualification and TRB status reporting. When the type of the JAXA qualified parts is specified in detail specification, submission of the list may be exempted. 3.4.9 Disposition of Temporarily Stopped Shipment When production and shipment of JAXA qualified parts are not possible within the effective period of certification due to suffering from disasters, the QML manufacturer shall report to JAXA. JAXA shall confirm the report and announce the status at Database of JAXA Qualified EEE Parts and Materials. When recovery operation is completed and production of JAXA qualified parts is possible, the QML manufacturer shall report to JAXA promptly. However, for any changes to qualification coverage accompanied with recovery operation, the QML manufacturer shall apply for requalification in accordance with paragraph 3.4.3. When JAXA confirms application for requalification and judges that production of JAXA qualified parts is possible, JAXA will approve restarting of production and shipment of JAXA qualified parts and announce the status at Database of JAXA Qualified EEE Parts and Materials. 3.5 Part Number and Marking 3.5.1 Part Number The part number shall be identified as JAXA qualified parts and shall be specified in the applicable specifications in accordance with paragraph A.3.1.4. 3.5.2 Marking Each product shall be marked with the part number, lot number and other items by the QML manufacturer as specified in the applicable specifications. All markings shall be easily visible when the product is used in a normal configuration. When markings cannot be conducted on individual product, indication methods shall be specified in detail specification (for example, label indication for each packing unit). 3.6 Anomaly and Nonconformance 3.6.1 Initial Report of Anomaly or Nonconformance If any of the following events occurs and quality assurance manager or authorized personnel of the QML manufacturer identifies anomaly or nonconformance of JAXA		

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	qualified parts, registered inspector shall inform JAXA of the anomaly or nonconformance status. a) When quality assurance manager of QML manufacturer judges that the anomaly or nonconformance may impact on the reliability and quality of the shipped JAXA qualified parts. b) When quality conformance inspection by QML manufacturer was failed (including quality conformance inspection for long-term storage products). c) When the QML manufacturer receives anomaly or nonconformance notification on shipped JAXA qualified parts from user, or when nonconformance of JAXA qualified parts is concluded as a result of consultation with the user. Contact address for anomaly/nonconformance shall be “BUHIN-FUGUAI@ml.jaxa.jp” and the QML manufacturer shall report date and time of occurrence, site of incidence, target parts (product name and parts number), quantity and descriptions of anomaly or nonconformance. For nonconformance in the quality conformance inspection, the QML manufacturer shall dispose the lots containing the failed products as specified in the applicable specifications.		
3.6.2	Nonconformance Report As soon as extent of the impact of anomaly and nonconformance informed to JAXA in accordance with paragraph 3.6.1 is specified, the QML manufacturer shall report the extent of the impact to JAXA. The QML manufacturer shall share information with JAXA in a timely way and cooperate with JAXA on the following issues: a) Disposition of failed parts b) Failure analysis and investigation of root cause c) Corrective and preventive actions When corrective actions (including verification and rolling-out to other dept.) are completed, the QML manufacturer shall submit final nonconformance report to JAXA. Furthermore, the QML manufacturer shall reflect results of final nonconformance report on FMAT and FMEA as necessary. JAXA will review final nonconformance report according to paragraph 3.4.3. However, requalification tests may be omitted according to corrective actions. JAXA will conduct on-site audit of the QML manufacturer as necessary.		
3.6.3	Stop Shipments When nonconformance of JAXA qualified parts is identified, JAXA can impose stop shipment. When stop shipment is directed, JAXA will announce target products and extent of the impact at Database of JAXA Qualified EEE Parts and Materials. Under the direction of JAXA, the QML manufacturer shall stop the shipment of the JAXA qualified parts immediately.		
3.6.4	Lifting of Stop Shipment When final nonconformance report submitted by the QML manufacturer in accordance with paragraph 3.6.2 is approved by JAXA, JAXA will lift the stop shipment of the JAXA		

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qualified parts and announce the status at Database of JAXA Qualified EEE Parts and Materials. 3.6.5 Nonconformance Disposition over Expiration Date of Certification When disposition of nonconformance is taking a long time and the disposition will not be completed within the effective period of certification, the QML manufacturer shall submit request for postponement of qualification retention review in accordance to paragraph 3.4.2.3. Shipment of JAXA qualified parts is not allowed within the postponed period of retention of qualification review as well as the requirements specified in paragraph 3.4.2.3. When nonconformance disposition is completed, the QML manufacturer shall apply for requalification in accordance with paragraph 3.4.3. 4. QUALITY ASSURANCE PROVISIONS 4.1 Implementation of the Quality Assurance Program The QML manufacturer is responsible for implementing the quality assurance program established in accordance with paragraph 3.3. 4.2 Change Control for the Quality Assurance Program The QML manufacturer shall control any changes to the quality assurance program in accordance with paragraph C.4.3.3. 4.3 Requirements for Tests and Inspections The QML manufacturer shall perform the tests and inspections shown below to verify the functionality, performance and quality assurance requirements of the JAXA qualified parts specified in Section 3 of this specification. a) In-process inspection b) Qualification test c) Quality conformance inspection 4.3.1 In-Process Inspection The in-process inspection is performed during the manufacturing processes to detect defects that could significantly affect the reliability and quality of the products, and to examine characteristics which cannot be measured with finished products. Data on in-process inspections may also be used as the data on quality conformance inspection during the manufacturing. In that case, the pass/fail criteria for the lot shall be in accordance with the conditions specified in quality conformance inspection. Details of the in-process inspection shall be defined in the applicable specifications. 4.3.2 Qualification Test The qualification test is performed to qualify common parts/materials as a JAXA qualified parts and to verify that the common parts/materials meet the requirements specified in the applicable specifications. The details of the qualification test shall be defined in the applicable specifications.			

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4.3.3	Quality Conformance Inspection The quality conformance inspection shall be performed to verify that the products meet the functionality, performance, and quality as confirmed by the qualification. The quality conformance inspection shall be classified in following three groups. These three groups are further divided into the groups specified in applicable specifications. This classification is in accordance with paragraph A.3.4.6.1. Inspection items and methods shall be defined in the applicable specifications. 4.3.3.1 Quality Conformance Inspection during the Manufacturing Process The quality conformance inspection shall be performed by the QML manufacturer during manufacturing process of JAXA qualified parts for all inspection lots. 4.3.3.2 Quality Conformance Inspection within the Effective Period of Certification The quality conformance inspection shall be performed by the QML manufacturer using the first production lot within the effective period of certification. Inspection samples shall be taken from products which have completed the quality conformance inspections specified in paragraph 4.3.3.1. The manufacturer shall report the results of quality conformance inspection to JAXA by the TRB status report or application for retention of qualification after completion of the inspections. In the case of applying for retention of qualification when no production or shipment of JAXA qualified parts within effective period of certification, and no change made to quality assurance program, quality conformance inspection specified in this paragraph may be omitted based on the consultation with JAXA prior to application for retention of qualification if process stability can be verified by another means such as that production and shipment of similar products, whose production line is identical to that of JAXA qualified parts, are conducted continuously. When the QML manufacturer acquires retention of qualification with omitted quality conformance inspection, the QML manufacturer shall conduct quality conformance inspection at restarting production as specified in paragraph 4.3.3.3. 4.3.3.3 Quality Conformance Inspection at Restarting Production The quality conformance inspection shall be performed by the QML manufacturer at the time of restarting the production when the manufacturer acquires the retention of qualification without quality conformance inspection due to no production within the effective period of the certification. Inspection samples shall be taken from products which have completed the inspections specified in paragraph 4.3.3.1. The QML manufacturer shall complete the quality conformance inspection specified in paragraph 4.3.3.2 and this paragraph prior to shipment of JAXA qualified parts. The results of quality conformance inspection shall be reported to JAXA by the TRB status report after completion of the inspections.		

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4.3.4 Long-Term Storage of Products 4.3.4.1 Disposition of Lots Stored for a Long-Term at the QML Manufacturer's Site When products have been stored longer than specified in the applicable specifications after the completion of the quality conformance inspection required at the time of shipment, the QML manufacturer shall perform the inspections required at the time of shipment of the long-term stored products prior to delivery as specified in the applicable specifications. The QML manufacturer shall conduct failure analysis of lots that failed the inspection, verifying that the cause of the failure is not due to lot dependency or long-term storage, and shall confirm extent of impacts and determine propriety of shipment of the accepted products. The date of the inspection shall be marked on the package. 4.3.4.2 Storage by User Storage conditions and shelf life requirements for the user shall be specified by the QML manufacturer in the detail specifications or application data sheets. 4.3.5 Changes or Optimization of Test and Inspections When a part of quality conformance inspections and in-process inspections specified in the generic specification for each product type is changed or optimized, the company shall deal with the changes or optimization in accordance with paragraph C.4.3.3. The company shall specify the changed or optimized items in detail specification. 5. PREPARATION FOR DELIVERY For delivery from the QML manufacturer to the users, the JAXA qualified parts supplied in accordance with this specification shall be properly packaged as JAXA qualified parts, and shall have required markings. The packaging materials shall not degrade the quality and reliability of the JAXA qualified parts. The QML manufacturer shall prepare a packaging specification as part of the quality assurance program. The markings on packages shall include the following items as a minimum: a) Part name b) Part number c) Document number of applicable specifications d) Lot identification code e) Name of customer f) Name of the QML manufacturer g) Quantity of packages h) Inspection date (day, month, year) i) Inspection results j) ESD sensitive (if specified) k) Prohibited materials (in accordance with paragraph C.4.4.1) (when used) If the JAXA qualified parts require electrostatic discharge protection, an appropriate action shall be taken. In addition, an "ESD sensitive" marking shall be provided on the package. If the JAXA qualified parts contain prohibited materials (refer to paragraph C.4.4.1, item a)),			

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detailed issues regarding marking methods on packages and handling precautions including disposal and DPA shall be specified in detail specifications.

6. CONTROL OF APPLICABLE SPECIFICATIONS

Applicable specifications are controlled with regard to establishment, revisions, changes, cancellation and registration. Detailed control is specified in Appendix A.

Certification of the JAXA qualified parts manufactured, stored or procured under a cancelled version of the applicable specifications prior to the cancellation date shall remain effective after the cancellation date.

JAXA establishes and release generic specification, generic specifications for each product type, detail specifications and application data sheet through Database of JAXA Qualified EEE Parts and Materials.

7. APPENDIX

Appendix A	Preparation of Applicable Specifications
Appendix B	Deleted
Appendix C	Requirements for Quality Assurance Program
Appendix D	Quality Assurance Manager and Registered Inspector
Appendix E	Certification Procedures
Appendix F	Application Forms and Procedures
Appendix G	Guideline for Preparation of Application Data Sheet
Appendix H	Supplementary Requirements for Tests and Inspections
Appendix J	Deleted
Appendix K	TRB Guidelines
Appendix Z	Procedure after Revision of JAXA-QTS-2000

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This document is the English version of JAXA QTS/ADS which was originally written and authorized in Japanese and carefully translated into English for international users. If any question arises as to the context or detailed description, it is strongly recommended to verify against the latest official Japanese version.

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APPENDIX A PREPARATION OF APPLICABLE SPECIFICATIONS A.1. Scope This appendix establishes the rules for preparation of applicable specifications as required in paragraph 3.2 of this specification. A.2. General This specification defines general requirements for JAXA qualified parts and others. In order to acquire certification from JAXA for JAXA qualified parts in accordance with this specification, applicable specifications shall be prepared to define detail requirements. JAXA establishes generic specifications for each product type to specify general requirements for each product type of JAXA qualified parts. In order to acquire certification, the company shall prepare detail specifications to specify detailed requirements for individual JAXA qualified part on the basis of this specification. A.2.1 Sub-Tier Specifications and Contents of Applicable Specifications A.2.1.1 Sub-Tier Specifications Applicable specifications shall be composed of the following sub-tier specifications. a) Generic specifications for each product type: Generic specifications which define general requirements common to each product type of JAXA qualified parts. b) Detail specifications: Detail specifications which define qualification coverage and requirements unique to the individual JAXA qualified part. Note: Change notice, which partially changes generic specifications for each product type or detail specifications, shall constitute a part of generic specification for each product type or detail specification. A.2.1.2 Contents Unless otherwise specified, applicable specifications shall consist of the contents as shown in Table A-1.			

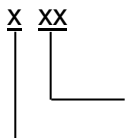
Table A-1. Contents of Applicable Specifications

Sub-tier specification	Contents
Generic specification for each product type	(1) Cover (2) Revision history (3) Table of contents (4) Main body (5) Appendix (prepared for each matter relevant to the main body, or for each part type designation)
Detail specification	(1) Cover (2) Revision history (3) Table of contents (4) Main body (5) Appendix (If necessary)

A.2.1.3 Management

- a) Applicable specifications shall be maintained and controlled.
Applicable specifications shall be revised in the following cases that:
 - 1) Number of pages of main body of change notice will be equal to or more than 10 pages, or the 10th change notice will be issued.
 - 2) Equal to or more than half of applicable specification will be corrected.
 - 3) Applicable documents will be cancelled or replaced by an alternative documentation.
 - 4) JAXA receives revision request from the QML manufacturer and considers the request to be appropriate.
- b) Generic specifications for each product type shall be prepared by JAXA in accordance with Appendix A and shall be established by JAXA after discussion at review board and review by experts.
- c) Detail specifications and change notices shall be prepared and established by the QML manufacturer or the company which wishes to acquire certification and shall be registered with JAXA after review and agreement on contents.
Based on the request from the QML manufacturer or the company which wishes to acquire certification, JAXA shall register after review and agreement on contents.
- d) The applicable specifications shall be issued by JAXA and shall be published on Database of JAXA Qualified EEE Parts and Materials.
- e) When the generic specifications for each product type are revised, the previous version (including change notices) shall be cancelled on the date the new revision is established.
When the detail specifications are revised, registration of the previous version (including change notices) shall be cancelled on the date the new revision is established.
The JAXA qualified parts manufactured in compliance with the previous version of the applicable specifications prior to the cancellation date shall remain effective as JAXA qualified parts after the cancellation date.

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f) When the previous version of the specifications are not cancelled on the date the new version is established, the extended cancellation date shall be clearly stated in main body or on the cover of the revised version. When the specifications are cancelled without revision, cancellation date shall be shown in change notices. g) JAXA will revoke the applicable specifications or suspend release of the applicable specifications in the following cases that: h) Application is difficult due to obsolescence of technical or control requirements. 1) Alternative applicable specifications are established. 2) The applicable specifications are considered to complete given purpose. 3) The QML manufacturer declines certification. 4) Other cases when JAXA accepts cancellation. A.2.2 Document Number of Applicable Specifications A.2.2.1 Generic Specification The document number of applicable specifications to be established by JAXA shall be provided as follows. JAXA-QTS- <u>2xxx</u> □ (1) (2) (1) Document number of generic specification for each product type (paragraph A.2.2.1.1) (2) Revision letter (paragraph A.2.2.1.2) A.2.2.1.1 Document Number of Generic specification for each Product Type Document number of generic specification for each product type shall be a four-digit number for which the first generic specification number is provided with “2010.” A.2.2.1.2 Revision Letter A revision letter shall be assigned in an alphabetical order. The first revision shall be identified by “A”. Alphabets of “I”, “O” and “Z” shall not be used as a revision letter. a) Where a generic specification for each product type is revised. Example: JAXA -QTS-2040 → JAXA -QTS-2040A A.2.2.2 Document Number of Detail Specification Document number of detail specification established by the QML manufacturer shall be provided by JAXA at certification as follows. JAXA-QTS- <u>2xxx</u> / A <u>xxx</u> □ (1) (2) (3) (4) (1) Document number of generic specification for each product type (paragraph A.2.2.2.1)			

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(2) Appendix letter of generic specification for each product type (paragraph A.2.2.2.2) (3) Individual identification (paragraph A.2.2.2.3) (4) Revision letter (paragraph A.2.2.2.4) A.2.2.2.1 Document Number of Generic specification for each Product Type Document number shall be the document number of applicable generic specification for each product type. However, no revision letter shall be involved. A.2.2.2.2 Appendix Letter of Generic specification for each Product Type The appendix letter shall be provided to identify the applicable appendix of the generic specification for each product type. The appendix letter shall be omitted for the following cases. a) The generic specification for each product type contains of main body only. b) Appendixes of the generic specification for each product type are applied to the whole of the target product type. A.2.2.2.3 Individual Identification Number The individual identification number shall be a three-digit number to identify detail specification. The first digit shall identify the QML manufacturer and shall be assigned by JAXA, and the other two digits shall be assigned by the QML manufacturer.  2-digit number assigned by the QML manufacturer 1-digit number to identify the QML manufacturer assigned by JAXA A.2.2.2.4 Revision Letter A revision letter shall be assigned in an alphabetical order. The first revision shall be identified by “A”. Alphabets of “I”, “O” and “Z” shall not be used. a) When a detail specification is revised. Example: JAXA-QTS-2040/A101 → JAXA-QTS-2040/A101A b) When the detail specification is revised to reflect changes in the revised generic specification for each product type. Example: JAXA-QTS-2040/A101A → JAXA-QTS-2040/A101B c) When the applicable detail specification is not affected by changes in the revised generic specification for each product type. Example: JAXA-QTS-2040/A101A → JAXA-QTS-2040/A101A (The detail specification is not revised.) A.2.2.3 Cancellation of Applicable Specification When an applicable specification is revised, the previous version shall be cancelled on the date the new revision is established. The document number of the cancelled applicable specification and date of cancellation shall be shown in the revised applicable specification.			

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a) When generic specification and generic specifications for each product type are revised, the previous version shall be cancelled on the date the new revision is established. The document number of the cancelled specification and date of cancellation shall be shown on the revised specification.

Example: Where revised as “revision A”.	JAXA-QTS-2010A <u>DD MM 20YY</u> Superseding JAXA-QTS-2010 Cancelled DD MM 20YY
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b) When detail specifications are revised, registration of the previous version shall be cancelled on the date the new revision is established. The document number of the cancelled detail specification shall be shown on the cover of the revised detail specification.

Example: Where revised as “revision A”.	JAXA-QTS-2010/101A <u>DD MM 20YY</u> Superseding JAXA-QTS-2010/101 Cancelled DD MM 20YY
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A.2.2.4 Numbering of Change Notice

The document number of a change notice (including revision letter) shall be assigned as follows.

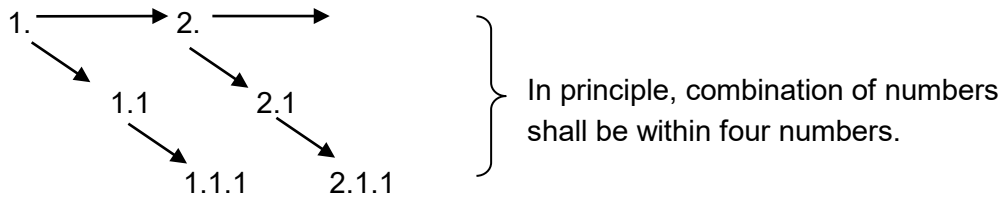
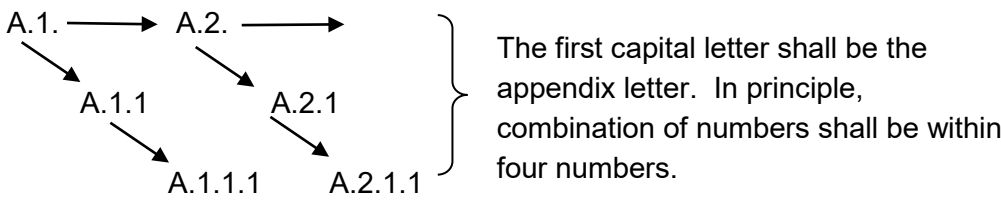
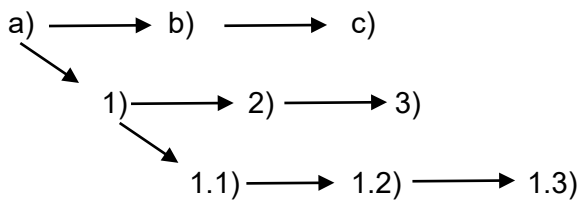
Example:
JAXA-QTS-2000A
NOTICE 1
 (1)
(1) Serial number provided for each notice

A.2.3 Title

Unless otherwise specified, the title shall be provided as follows.

A. B. C
(1) (2) (3)

(1) Nomenclature (paragraph A.2.3.1)
(2) Name of JAXA qualified parts (paragraph A.2.3.2)
(3) Sub-tier specification (paragraph A.2.3.3)

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A.2.3.1 Nomenclature Nomenclature shall be indicated as either “established reliability” or “high reliability” to identify reliability category of JAXA qualified parts. A.2.3.2 Name of JAXA Qualified Parts Name of JAXA qualified parts shall be determined in accordance with public standards such as JIS standards. A.2.3.3 Sub-Tier Specifications The applicable specifications, which are established by JAXA, shall be indicated as either “generic specification” or “generic specification for each product type”. Applicable specifications, which are prepared by the company, shall be indicated as “detail specification”. A.2.4 Description Rules of Applicable Specification Applicable specifications shall be prepared in accordance with the following description rules. A.2.4.1 Paragraph Numbering a) In the main body, the paragraph number shall be provided as follows.  <pre> graph LR 1[1.] --> 2[2.] 1 --> 11[1.1] 11 --> 111[1.1.1] 2 --> 21[2.1] 21 --> 211[2.1.1] </pre> In principle, combination of numbers shall be within four numbers. b) In appendices, the paragraph number shall be provided as follows.  <pre> graph LR A1[A.1.] --> A2[A.2.] A1 --> A11[A.1.1] A11 --> A111[A.1.1.1] A2 --> A21[A.2.1] A21 --> A211[A.2.1.1] </pre> The first capital letter shall be the appendix letter. In principle, combination of numbers shall be within four numbers. c) To itemize requirements in a paragraph, the itemization number shall be provided as follows.  <pre> graph LR a[a)] --> b[b)] b --> c[c)] a --> 1[1)] 1 --> 2[2)] 2 --> 3[3)] 1 --> 11[1.1)] 11 --> 12[1.2)] 12 --> 13[1.3)] </pre> A.2.4.2 Numbering of Figures, Tables and Pages a) Figure and table numbers shall be sequentially assigned for the main body or each appendix.			

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b) The identification number and title of a figure shall be indicated at the bottom of the figure. For a table, the number and title shall be indicated at the top of the table. Figure or Table <u>x</u> - <u>xx</u> <u>title</u> Appendix letter Serial number (left blank in the main body) Example: Table A-3. Performance																	
c) The page number shall be indicated at the top of the page. - <u>x</u> - <u>xx</u> - Appendix letter Serial number (left blank in the main body) Example: - A-3 -																	
A.2.4.3	Notes																
a) Symbols of notes link terms in the main body to corresponding supplementary explanation and shall be given in the form of “(x)”, where X is a sequential number starting “1” in each paragraph. Example: Note: ⁽¹⁾ Corrosion which will affect performance of the part.																	
b) Symbols of notes for figures or tables link figures or tables to corresponding supplementary explanation and shall be given in the form of “(x)”, where X is a sequential number starting “1” for each figure or table. Example: Note: ⁽¹⁾ Shall apply to qualification tests.																	
A.2.4.4	Unit Symbol																
Unless otherwise specified, unit symbols shall comply with the following standards.																	
<table><tr><td>a) JIS Z 8202-0</td><td>Quantities and Units - Part 0: General Principles</td></tr><tr><td>b) JIS Z 8202-1</td><td>Quantities and Units - Part 1: Space and Time</td></tr><tr><td>c) JIS Z 8202-2</td><td>Quantities and Units - Part 2: Periodic and Related Phenomena</td></tr><tr><td>d) JIS Z 8202-3</td><td>Quantities and Units - Part 3: Mechanics</td></tr><tr><td>e) JIS Z 8202-4</td><td>Quantities and Units - Part 4: Heat</td></tr><tr><td>f) JIS Z 8202-5</td><td>Quantities and Units - Part 5: Electricity and Magnetism</td></tr><tr><td>g) JIS Z 8202-6</td><td>Quantities and Units - Part 6: Light and Related Electromagnetic Radiations</td></tr></table>				a) JIS Z 8202-0	Quantities and Units - Part 0: General Principles	b) JIS Z 8202-1	Quantities and Units - Part 1: Space and Time	c) JIS Z 8202-2	Quantities and Units - Part 2: Periodic and Related Phenomena	d) JIS Z 8202-3	Quantities and Units - Part 3: Mechanics	e) JIS Z 8202-4	Quantities and Units - Part 4: Heat	f) JIS Z 8202-5	Quantities and Units - Part 5: Electricity and Magnetism	g) JIS Z 8202-6	Quantities and Units - Part 6: Light and Related Electromagnetic Radiations
a) JIS Z 8202-0	Quantities and Units - Part 0: General Principles																
b) JIS Z 8202-1	Quantities and Units - Part 1: Space and Time																
c) JIS Z 8202-2	Quantities and Units - Part 2: Periodic and Related Phenomena																
d) JIS Z 8202-3	Quantities and Units - Part 3: Mechanics																
e) JIS Z 8202-4	Quantities and Units - Part 4: Heat																
f) JIS Z 8202-5	Quantities and Units - Part 5: Electricity and Magnetism																
g) JIS Z 8202-6	Quantities and Units - Part 6: Light and Related Electromagnetic Radiations																

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	h) JIS Z 8202-7 Quantities and Units - Part 7: Acoustics i) JIS Z 8202-8 Quantities and Units - Part 8: Physical Chemistry and Molecular Physics j) JIS Z 8202-9 Quantities and Units - Part 9: Atomic and Nuclear Physics k) JIS Z 8202-10 Quantities and Units - Part 10: Nuclear Reactions and Ionizing Radiations l) JIS Z 8202-12 Quantities and Units - Part 12: Characteristic Numbers m) JIS Z 8202-13 Quantities and Units - Part 13: Solid State Physics n) JIS Z 8203 SI Units and Recommendations for the Use of their Multiples of Certain Other Units		
A.2.4.5	Mathematical Symbols and Formula Unless otherwise specified, mathematical symbols and formula shall comply with the following standard. a) JIS Z 8201 Mathematical Symbols		
A.2.4.6	Rounding of Numbers Unless otherwise specified, numbers shall be rounded in accordance with the following standard. a) JIS Z 8401 Rounding of Numbers		
A.2.4.7	Drafting of Specifications Unless otherwise specified, drafting of specification shall comply with the following standard. a) JIS Z 8301 Rules for the Layout and Drafting of Japanese Industrial Standards		
A.2.4.8	Tolerances Tolerances shall be indicated as follows in accordance with paragraph A.2.4.7, item a). Example: 2000^{+72}_0 hours $2.54\text{mm} \pm 0.25\text{mm}$ $(2.54\text{mm} \pm 0.25) \text{ mm}$ $2.54\text{mm}^{+0.20}_{-0.25} \text{ mm}$ $2.54 \pm 0.25 \text{ mm}$		
A.3.	Generic specification for Each Product Type As a minimum, the following 8 requirements shall be defined in the main body of generic specification for each product type in accordance with this specification. Common requirements to all appendixes shall be defined in the main body, if any. a) Revision history (including reasons for revision) b) General c) Applicable documents d) Requirements		

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e) Quality assurance provisions f) Preparation for delivery g) Notes h) Appendix A.3.1 General The following items shall be defined. a) Scope b) Definition of terms c) Classification of product type d) Part number A.3.1.1 Scope a) The text of this paragraph shall be in the following format. Example: This specification establishes the general requirements and quality assurance provisions for space use, high reliability, resistors (hereinafter referred to as "resistors") which are used for electronic equipment installed on spacecrafts. This specification complies with JAXA-QTS-2000 (Common Parts/Materials, Space Use, General Specification for) which is based on the qualified manufacturing line system, and replaces the following specification. a) NASDA-QTS-55182G Resistors, Fixed, Film, High Reliability, Space Use, General Specification for b) If the above format cannot adequately define the scope of the specification, any necessary modification shall be made. A.3.1.2 Definition of Terms a) Unless otherwise specified, the definition of terms shall conform to public standards such as JIS corresponding to JAXA qualified parts. b) Special terms, which are not covered in public standards such as JIS, and ambiguous terms shall be listed and defined in the specification. c) If there are so many terms to be defined, the definitions of those terms may be provided in the notes paragraph or in appendixes. In this case, the reference to a paragraph containing the definitions of terms shall be provided here. A.3.1.3 Classification of Product Type Product type of the JAXA qualified parts shall be further divided into part groups per configuration or functionality. Example: The classification of resistors shall be specified in Table 1.			

Part group	Appendix of this specification	Equivalent QPL specification
Resistors, fixed, film	A	NASDA-QTS-55182G
Resistors, fixed, film, insulated small	B	NASDA-QTS-39017C

The part number shall be assigned as follows.

- | Example 1: JAXA ⁽¹⁾ | <u>RNS55</u> | <u>J</u> | <u>1001</u> | <u>F</u> |
|--------------------------------|----------------|-----------------------|-------------------------|----------|
| Style | Characteristic | Nominal
resistance | Resistance
tolerance | |
| (para. 1.3.1) | (para. 1.3.2) | (para. 1.3.3) | (para. 1.3.4) | |
| | | | | |

When a QPL specification is superseded by a generic specification, part numbers used in QPL specification may be also used in the generic specification.

Example 2: NASDA⁽¹⁾ CKS05 BX 100 K
 Style Characteristic Nominal Capacitance
 capacitance tolerance
 (para. 1.3.1) (para. 1.3.2) (para. 1.3.3) (para. 1.3.4)

b) Otherwise, use the following format.

Example: JAXA ⁽¹⁾	<u>2345</u>	/	<u>A</u>		<u>101</u>		<u>(-A6G8)</u>
	Generic		Appendix		Individual		Characteristic
	specification		letter		identification		identifier
	number				number		
	(para. 1.2.1)		(para. 1.2.2)		(para. 1.2.3)		(para. 1.2.4)

c) In addition to items a) and b), unique part numbers may be defined in each generic specification.

Example: Use the JEITA parts' numbering system for semiconductor devices.

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A.3.2 Applicable Documents This section shall specify the following items. a) Applicable documents b) Reference documents c) Order of precedence d) Detail specifications A.3.2.1 Applicable Documents a) The text of this paragraph shall be in the following format. Example: The documents listed below form a part of this specification to the extent specified herein. The issues of these documents are the latest version available at the time of contract award or application. If it is necessary to designate an issue, the issue shall be specified in the detail specification. NASDA-QTS-12345 (Title) MIL-STD-23456 (Title) b) A revision letter shall not be given. A.3.2.2 Reference Documents Documentation to be quoted as a reference for the JAXA qualified parts shall be shown. A.3.2.3 Order of Precedence The order of precedence of applicable specifications and applicable documents shall be specified in accordance with paragraph 2.2 of this specification. A.3.2.4 Detail Specifications Unless otherwise specified, the text of this paragraph shall be in the following format. Example: Detailed requirements for style and performance of the resistors are specified in detail specification. A.3.2.4.1 Detail Specification Number a) It shall be stated that the detail specification number shall be assigned in accordance with paragraph A.2.2.2 of this appendix. b) Rules to assign detail specification number shall be illustrated using an example. A.3.2.4.2 Revision Letter of Detail Specification It shall be stated that a revision letter in the detail specification number shall be assigned in accordance with paragraph A.2.2.2.4 of this appendix.			

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A.3.2.4.3	Independency of Detail Specification The text of this paragraph shall be in the following format. Example: The detail specification shall be a stand-alone document with a unique document number.		
A.3.2.4.4	Format of Detail Specification It shall be stated that the format of detail specification shall be in accordance with paragraph A.6, item b) of this appendix. It shall be also stated that requirements in the detail specification shall be specified in accordance with paragraph A.4 of this appendix.		
A.3.3	Requirements The following items shall be defined. a) General requirements b) Certification c) Quality assurance program d) Materials e) Design and construction f) External view, physical dimensions, mass and marking g) Workmanship h) Rating i) Prevention of Initial failure j) Electrical performance k) Mechanical performance l) Environmental performance m) Durability		
A.3.3.1	General Requirements General requirements shall be specified only when deemed necessary. For example, it shall be stated that detail requirements of the JAXA qualified parts shall comply with the detail specification.		
A.3.3.2	Certification Requirements for certification and retention of certification shall be specified with regard to the items listed in the following paragraphs in accordance with this specification.		
A.3.3.2.1	Qualification Coverage The coverage of qualification for each item (element) shall be specified in the main body or each appendix. It shall be stated that details of qualification coverage, which cannot be specified in the main body or appendix, shall be covered in the detail specification.		

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A.3.3.2.2	Initial Qualification		
	It shall be stated that qualification test shall be conducted in accordance with paragraph 3.4.1 of this specification.		
	Example: To acquire certification under this specification, the company shall establish a quality assurance program that meets the requirements specified in paragraph 3.3, conduct the qualification test specified in paragraph 4.3.2, and acquire an approval from JAXA as specified in paragraph 3.4.1 of JAXA-QTS-2000. The company shall be listed on the Qualified Manufacturers List of the Japan Aerospace Exploration Agency (JAXA QML).		
A.3.3.2.3	Retention of Qualification		
	It shall be stated that the company shall apply for retention of the qualification in accordance with paragraph 3.4.2 of this specification, with results of the quality conformance inspection and maintenance status of quality assurance program within the effective period of certification. A procedure to apply for retention of qualification shall be specified, when no product was manufactured within the effective period of certification.		
A.3.3.2.4	Effective Period of Certification		
	Effective period of certification shall be three years.		
A.3.3.2.5	Change of Qualification Coverage		
	When qualification coverage is changed, it shall be stated that the QML manufacturer shall acquire requalification in accordance with paragraph 3.4.3 of this specification.		
	It shall be stated that, in principle, requalification shall be conducted only for the items which might be affected by the change.		
A.3.3.3	Quality Assurance Program		
A.3.3.3.1	Quality Assurance Program		
	It shall be stated that the company shall establish a quality assurance program in accordance with paragraph 3.3 and Appendix C, and prepare a quality assurance program plan (hereinafter referred to as "QAP plan") which comprehensively documents the quality assurance program.		
A.3.3.3.2	TRB Establishment		
	It shall be stated that the company shall establish TRB in accordance with paragraph 3.3.5 of this specification.		
A.3.3.4	Materials		
	a) Requirements for materials shall be defined.		
	b) Prohibited materials for space use shall be specified.		

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	c) It shall be stated that general requirements for materials shall be specified in the documents that define manufacturing conditions of the quality assurance program. d) If necessary, it shall be stated that detail requirements shall be defined in the detail specification.		
A.3.3.5	Design and Construction		
	a) Requirements for critical design and construction of the JAXA qualified parts shall be defined. b) If necessary, it shall be stated that detail requirements shall be defined in the detail specification.		
A.3.3.6	External View, Physical Dimensions, Mass and Marking		
	a) Requirements for external view, physical dimensions, mass and marking shall be defined. b) For example, requirements for interface with other devices including leads, mounting structure, plating and mass shall be defined. c) If necessary, it shall be stated that detail requirements shall be defined in the detail specification.		
A.3.3.7	Workmanship		
	a) Requirements for workmanship shall be defined. b) For example, verification requirements such as precap, PIND, radiography and DPA shall be specified. c) If necessary, it shall be stated that detail requirements shall be defined in the detail specification.		
A.3.3.8	Rating		
	a) Rating shall be specified. b) If necessary, it shall be stated that detail requirements shall be defined in the detail specification.		
A.3.3.9	Prevention of Initial Failure		
	a) Requirements for prevention of initial failure shall be defined. b) For example, verification requirements such as thermal tests, mechanical tests, radiography or other appropriate methods shall be defined. c) If necessary, it shall be stated that detail requirements shall be defined in the detail specification.		
A.3.3.10	Electrical Performance		
	a) Requirements for electrical performance shall be defined. b) If necessary, it shall be stated that detail requirements shall be defined in the detail specification.		
A.3.3.11	Mechanical Performance		
	a) Requirements for mechanical performance shall be defined.		

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b) For example, verification requirements with regard to terminal strength, solderability, resistance to soldering heat and seal shall be defined. c) If necessary, it shall be stated that detail requirements shall be defined in the detail specification. A.3.3.12 Environmental Performance a) Requirements for environmental performance shall be defined. b) For example, verification requirements such as shock test, acceleration test, vibration test, resistance to solvent test, salt spray test, barometric pressure (reduced) test, thermal shock test, thermal and immersion cycling test, humidity test, thermal vacuum test, radiation hardness test, flammability test, offgas test, outgassing test and odor test shall be defined. c) If necessary, it shall be stated that detail requirements shall be defined in the detail specification. A.3.3.13 Durability a) Requirements for durability shall be defined. b) For example, verification requirements such as storage life and operating life shall be defined. c) If necessary, it shall be stated that detail requirements shall be defined in the detail specification. A.3.4 Quality Assurance Provisions The following items shall be specified in the quality assurance provisions. a) General requirements b) Classification of tests and inspections c) In-process inspection d) Qualification test e) Prevention of initial failure f) Quality conformance inspection g) Test method h) Long-term storage i) Change and optimization of tests and inspections A.3.4.1 General Requirements It shall be stated that the company shall be responsible for implementation of the quality assurance program in accordance with paragraphs 4.1 and 4.2, and that the company shall have the obligation to manage the TRB properly. Other requirements specially required for quality assurance provisions shall be specified. A.3.4.2 Classification of Tests and Inspections Paragraph 4.3 of this specification shall be referred. Taking classification of the JAXA qualified parts and others into accounts, other requirements shall be also defined as necessary.			

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A.3.4.3 In-Process Inspection	a) The in-process inspection shall be specified, in order to detect any failure which could seriously affect the reliability and quality of the products, assure the workmanship, and identify the characteristic properties which cannot be measured after finished products. Examples are shown below. 1) Internal visual inspection of semi-finished products (100% or sampling inspection for non-destructive inspection) 2) Physical and chemical inspection of semi-finished products (destructive inspection or 100% or sampling inspection for non-destructive inspection) 3) Characterization of semi-finished products (100% or sampling inspection for non-destructive inspection) b) It shall be stated that the in-process inspection shall be shown in the manufacturing process flow chart of a QAP plan specified in Appendix C, and that the in-process inspection shall be conducted.		
A.3.4.4 Qualification Test	The following items shall be specified in the provision of qualification test. a) Samples b) Production records c) Test items and number of samples d) Criteria for pass/fail e) Miscellaneous		
A.3.4.4.1 Samples	a) It shall be stated that samples shall be manufactured in accordance with the manufacturing conditions specified in the quality assurance program. b) Selection of samples shall be specified in relation to the qualification coverage.		
A.3.4.4.2 Production Records	It shall be stated that the company, which wishes to acquire certification, shall archive and manage certificates of materials, incoming inspection data or test data of materials, and process records during the production of samples and in-process inspection data, and submit them upon request.		
A.3.4.4.3 Test Items and Number of Samples	a) Test items for qualification test shall be provided in the form of tables. b) Sampling plan, distribution of samples to each test group and order of tests shall be specified. c) If necessary, it shall be stated that detail requirements of test methods shall be defined in the detail specification.		
A.3.4.4.4 Criteria for Pass/Fail	a) Criteria for pass/fail shall be specified.		

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	b) Disposition of the accepted products shall be specified, when the number of defectives does not exceed the permitted number of defectives specified, but the failure mode of the defectives is catastrophic. A.3.4.4.5 Miscellaneous Miscellaneous items such as disposition of non-conformance, post-test disposition of samples, and sample storage shall be specified. A.3.4.5 Prevention of Initial Failure The following items shall be specified in the provision of prevention of initial failure. a) Samples b) Test items c) Criteria for pass/fail d) Post-test disposition of sample e) Miscellaneous A.3.4.6 Quality Conformance Inspection The following items shall be specified in the provision of quality conformance inspection. a) Classification of tests 1) Electrical performance 2) Mechanical performance 3) Environmental performance 4) Durability b) Samples c) Test items and number of samples d) Criteria for pass/fail e) Post-test disposition of sample f) Miscellaneous A.3.4.6.1 Classification of Tests Classification of quality conformance inspection shall be basically specified as follows. A.3.4.6.1.1. Active Parts Quality conformance inspection of active parts shall be grouped into the following five groups and shall be conducted for each inspection lot at shipment as specified in applicable specifications. c) Group A: Electrical characteristic tests d) Group B: Evaluation tests of products stability. e) Group C: Die related tests. f) Group D: Package related tests g) Group E: Radiation hardness tests		

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A.3.4.6.1.2. Passive Parts Quality conformance inspection of passive parts shall be grouped into the following three groups. a) Quality conformance inspection group A (quality conformance inspection during manufacturing) This quality conformance inspection shall be conducted during manufacturing of the JAXA qualified parts. All inspection lots shall be inspected. b) Quality conformance inspection group B (quality conformance inspection within the effective period of certification) This quality conformance inspection shall be conducted for the first production lot (first production lot manufactured within the effective period of certification). This quality conformance inspection is not required within the first effective period of certification after initial qualification and requalification. Inspection samples shall be taken from products which have passed the quality conformance inspection (group A). The QML manufacturer shall report the results of quality conformance inspection (group B) to JAXA by the TRB status report or application for retention of qualification after completion of inspections. c) Quality conformance inspection group C (quality conformance inspection at restarting production) This quality conformance inspection shall be performed at restarting production, when the JAXA qualified parts are not manufactured within the effective period of certification and the QML manufacturer acquires qualification retention without performing quality conformance inspection. When quality conformance inspection group C is not specified in applicable certification, test items of quality conformance inspection group B shall be considered as test items of group C. Inspection samples shall be taken from products which have passed the quality conformance inspection (group A). The QML manufacturer shall complete the quality conformance inspection (group B) and quality conformance inspection specified in this paragraph prior to shipment. The results of quality conformance inspection (group C) shall be reported to JAXA by the TRB status report or application for retention of qualification after completion of inspections. A.3.4.6.2 Samples Criteria for sample selection (including constitution of an inspection lot) shall be specified. A.3.4.6.3 Inspection Items and Number of Samples a) Inspection items and the number of samples shall be specified in proportion to that of qualification test.			

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	b) Order of each inspection item of the quality conformance inspection shall be specified. c) If necessary, it shall be stated that detail requirements shall be defined in the detail specification.		
A.3.4.6.4	Criteria for Pass/Fail a) Criteria for pass/fail shall be specified. b) Disposition of the accepted products shall be specified, when the number of failed products does not exceed the permitted number of defects specified, but the failure mode of the defect is catastrophic. c) If necessary, it shall be stated that detail requirements shall be defined in the detail specification.		
A.3.4.6.5	Post-Test Disposition of Sample a) In the case of non-conformance, disposition of the products shall be specified. b) Disposition of the products subjected to destructive test shall be specified.		
A.3.4.6.6	Miscellaneous If necessary, it shall be stated that detail requirements shall be defined in the detail specification.		
A.3.4.7	Test Method a) Conditions of the tests and inspections shall be specified. b) Test methods shall be specified to verify the conformance of the common parts/materials to the following requirements which are defined in each applicable specification in accordance with paragraphs A.3.3.4 through A.3.3.13 of this appendix. 1) Materials 2) Design and construction 3) External view, physical dimensions and marking 4) Workmanship 5) Prevention of initial failures 6) Electrical performance 7) Mechanical performance 8) Environmental performance 9) Durability c) It shall be stated that requirements shall be verified by analysis when they cannot be verified by tests. d) It shall be stated that detail requirements shall be defined in the detail specification, if necessary.		
A.3.4.7.1	Materials a) Verification methods for the requirements of the materials shall be specified. b) Verification requirements for qualification such as certificates of materials and review of quality assurance program shall be specified.		

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A.3.4.7.2	Design and Construction a) Verification methods for the requirements of design and construction such as DPA shall be specified. b) Verification requirements for qualification and shipment shall be specified.		
A.3.4.7.3	External View, Physical Dimensions and Marking a) Verification methods for the requirements of external view, physical dimensions and marking shall be specified. b) Accuracy and magnification requirements of measuring equipment shall be specified.		
A.3.4.7.4	Workmanship Verification methods for the requirements of workmanship shall be specified.		
A.3.4.7.5	Prevention of Initial Failures Verification methods for the requirements of prevention of initial failures shall be specified.		
A.3.4.7.6	Electrical Performance a) Verification methods for the requirements of electrical performance shall be specified. b) Unless otherwise specified, test methods shall be in accordance with the following standards. Special conditions for tests shall be specified, if necessary. 1) MIL-STD-202 Test Method Standard, Electronic and Electrical Component Parts 2) MIL-STD-750 Test Method Standard, Semiconductor Devices 3) MIL-STD-883 Test Method Standard, Microcircuits c) When no standards of test methods are available, the test methods shall be specified.		
A.3.4.7.7	Mechanical Performance a) Verification methods for the requirements of mechanical performance shall be specified. b) Unless otherwise specified, test methods shall be in accordance with the standards specified in paragraph A.3.4.7.6, item b). Special conditions for tests shall be specified, if necessary. c) When no standards of test methods are available, the test methods shall be specified.		
A.3.4.7.8	Environmental Performance a) Verification methods for the requirements of environmental performance shall be specified.		

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	b) Unless otherwise specified, test methods shall be in accordance with the standards specified in paragraph A.3.4.7.6, item b). Special conditions for tests shall be specified, if necessary. c) When no standards of test methods are available, the test methods shall be specified. A.3.4.7.9 Durability a) Verification methods for the requirements of durability shall be specified. b) Unless otherwise specified, test methods shall be in accordance with the standards specified in paragraph A.3.4.7.6, item b). Special conditions for tests shall be specified, if necessary. c) When no standards of test methods are available, the test methods shall be specified. A.3.4.8 Long-Term Storage A.3.4.8.1 Disposition of Lots Stored for a Long-Term at the QML Manufacturer's Site Disposition of lots stored for long-term shall be specified in accordance with paragraph 4.3.4 of this specification as follows. a) Period of storage b) Test item c) Test date d) Identification of products A.3.4.8.2 Storage by Users It shall be stated that conditions and period of storage by users shall be as specified in the detail specification. A.3.4.9 Change and Optimization of Tests and Inspections The change and optimization of tests and inspections for the following items shall be specified. - Test and inspection items applied as in-process inspection. - Test and inspection items applied as qualification test. - Test and inspection items applied as quality conformance inspection. Example: If the company wishes to change or optimize the test and/or inspections of the in-process inspections and quality conformance inspections, paragraphs 4.3.5 of JAXA-QTS-2000 shall apply. A.3.5 Preparation for Delivery For preparation for delivery, paragraph 5 of this specification shall be referred, and the following shall be specified. a) Packaging b) Marking on package		

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A.3.6 Notes Miscellaneous things that are not covered in the previous paragraphs shall be specified. Examples are shown below. a) Note for QML manufacturer b) Note for user (Items to be specified at the time of procurement such as part number, applicable specification number, deliverable data and source inspection shall be specified.) c) Notes for preparation and registration of application data sheets A.3.7 Appendix Appendixes shall be prepared, if necessary, to supplement or add details to the main body. Unless otherwise specified, appendixes shall be prepared separately for each item of the main body or for each type of JAXA qualified parts. A.4. Detail Specification The detail specification shall specify the following items. a) Revision history (reasons for revision shall be included) b) General c) Applicable documents d) Requirements e) Quality assurance provisions f) Preparation for delivery g) Notes A.4.1 General Unless otherwise specified, the following items shall be specified. a) Scope b) Part number c) Rating d) Miscellaneous A.4.1.1 Scope The scope of the detail specification shall be specified, indicating the applicable generic specification for each product type. Example: This specification establishes the detailed requirements for JAXA-QTS-2050 Appendix A, the space use, high reliability, film, fixed resistors (hereinafter referred to as "resistors") RNS50, 55, 60, 65 and 70 types. A.4.1.2 Part Number Part number shall be specified in accordance with the applicable generic specification for each product type.			

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A.4.1.3 Rating Major characteristics of the parts such as operating temperature range, electrical characteristics, mechanical characteristics, environmental characteristics and durability shall be specified. A.4.1.4 Miscellaneous Miscellaneous shall be specified if necessary. A.4.2 Applicable Documents a) Applicable documents shall be specified. b) It shall be stated that the latest version of applicable documents shall be applied. When applicable version is specified , revision letter of the version shall be given. A.4.3 Requirements a) Requirements shall be specified in accordance with the applicable generic specification for each product type. b) Unique requirements shall be specified if necessary. c) A detail specification shall specify items that are required in the generic specification for each product type to specify in a detail specification. d) Performance requirements, which are to be specified in detail specification, may be tabulated, indicating compliance with the requirements defined in the generic specification for each product type. A.4.4 Quality Assurance Provisions A.4.4.1 General a) Quality assurance provisions shall be specified in accordance with the applicable generic specification for each product type. b) Unique requirements shall be specified. c) Test items of screening test (if applicable), in-process inspection, qualification test and quality conformance inspection may be tabulated in association with the requirements of the generic specification for each part type. d) When the previous version of applicable documents are applied at establishment or revision, test conditions, test methods, etc. shall be defined. A.4.4.2 Change or Optimization of Tests and Inspections If the company changes or optimizes the tests and inspections of the in-process inspections and quality conformance inspection specified in the applicable generic specifications for each product type at the establishment of a detail specification or the revision, the company shall describe changed items and describe the rationale that the products have capable of satisfying the quality assurance requirements after the implementation of the change as specified in paragraphs 4.3.5 of this specification.			

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A.4.5 Preparation for Delivery a) Requirements of preparation for delivery shall be specified in accordance with the applicable generic specification for each product type. b) If there are conditions and storage period that must be observed by users, those conditions and storage period shall be specified. c) Unique requirements shall be specified, if necessary. A.4.6 Notes Notes shall provide items that are not specified above. A.5. Change Notice A.5.1 Scope Change notice shall be prepared when minor changes occurred in generic specifications for each product type and detail specifications. “Minor changes” are as follows: a) Correction of misspelling in provisions b) Change of terms c) Change of figures and tables Furthermore, change notice may be prepared when control by change notice is easier. Number shall be assigned in numerical order for each change notice of applicable specifications and the change notice shall be controlled using the assigned number. A.5.2 General Requirements a) Change notices shall be issued for each generic specification for each product type and detail specification. b) Change notices shall remain effective until a revision is issued for the original specification. A.5.3 Instructions for Preparation a) Each change shall be described in the order of pages on which the paragraph appears in the original specification. Description before and after the change and rationale for the change shall be shown. b) To delete a paragraph, the subsequent paragraph numbers shall remain unchanged. Example: 3.4.2 (title) Deleted c) A paragraph shall be added without affecting existing paragraph numbers. d) When numerous changes are made to a paragraph, the whole paragraph shall be rewritten. A.6. Formats of Applicable Specifications a) An example of generic specifications for each product type is shown in Format A-1. b) An example of detail specifications is shown in Format A-2. c) An example of change notice is shown in Format A-3.			

Example: Format A-1 Generic specification

(Cover sheet)⁽¹⁾

Registration No. xx

JAXA-QTS- xxxxG
(date)

Superseding
JAXA -QTS-xxxxF
Cancelled
(date)

RESISTORS,
HIGH RELIABILITY,
SPACE USE,
GENERAL SPECIFICATION FOR

JAXA
JAPAN AEROSPACE EXPLORATION AGENCY

Note: ⁽¹⁾ The purpose of Example Format A-1 is to show the format for generic specification.
Contents used here vary for each part type. (The same applies next few pages)

[illegible][illegible]

Example: Format A-1
(Revision history)

JAXA-QTS-xxxxG Day Month Year	J A X A Parts Specification	Page	- i -									
<table><tr><th colspan="3">Revision history</th></tr><tr><th>Rev.</th><th>Date</th><th>Description</th></tr><tr><td></td><td></td><td></td></tr></table>				Revision history			Rev.	Date	Description			
Revision history												
Rev.	Date	Description										

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Example: Format A-1 (Table of contents)			
JAXA-QTS-xxxxG Day Month Year	J A X A Parts Specification	Page	- ii -
Contents 1. GENERAL1 1.1 Scope.....1 1.2 Terms and Definitions.....1 1.3 Classification.....2 1.4 Part Number1 (continues) 2. APPLICABLE DOCUMENTS2 2.1 Applicable Documents.....2 (continues)			

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Example: Format A-1
(Text)

JAXA-QTS-xxxxG Day Month Year	J A X A Parts Specification	Page	- 1 -
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**RESISTORS,
HIGH RELIABILITY, SPACE USE,
GENERAL SPECIFICATION FOR**

1. GENERAL

1.1 Scope

This specification establishes the general requirements and quality assurance provisions for space use, high reliability, resistors..... (continues)

1.2 Terms and Definitions

The definitions for terms used herein are as shown below.

a) Derating curve: The curve(continues)

1.3 Classification

Products covered by this specification shall (continues)

1.4 Part Number

The part number is defined in the following format and identifies the style, characteristic, nominal resistance and resistance tolerance.

Example: JAXA⁽¹⁾ RNS55 - J - 1001 - F

Style	Characteristic	Nominal Resistance	Resistance tolerance
(see 1.4.1)	(see 1.4.2)	(see 1.4.3)	(see 1.4.4)

Note: ⁽¹⁾ “JAXA” indicates the common part for space use and may be abbreviated to “J”.
(continues)

2. APPLICABLE DOCUMENTS

2.1 Applicable Documents

The documents listed below form a part of this specification as specified herein. These documents are(continues)

JAXA-QTS-2000	Common Parts/Materials, Space Use, General Specification for
MIL-STD-202	Test Method Standard, Electronic and Electrical Component Parts

(continues)

Example: Format A-2 Detail Specification

(Cover sheet)⁽¹⁾

Registration No. xx

JAXA-QTS-xxxx/AxxxA
(date)

Superseding
JAXA -QTS-xxxx/Axxx
Cancelled
(date)

RESISTORS, FIXED, FILM,
HIGH RELIABILITY,
SPACE USE,
DETAIL SPECIFICATION FOR

Prepared and Established by: ABCD CORPORATION

Issued by: JAPAN AEROSPACE EXPLORATION AGENCY

Note: ⁽¹⁾ The purpose of Example Format A-2 is to show the format for detail specification.
Contents used here vary for each part type. (The same applies next few pages)

JAXA-QTS-xxxx/AxxxxA Day Month Year	J A X A Parts Specification	Page	- i -									
<table border="1"><thead><tr><th colspan="3">Issuance History</th></tr><tr><th>Rev.</th><th>Date</th><th>Description</th></tr></thead><tbody><tr><td></td><td></td><td></td></tr></tbody></table>				Issuance History			Rev.	Date	Description			
Issuance History												
Rev.	Date	Description										

JAXA-QTS-2000E 15 March 2021	J A X A Parts Specification	Page	– A-31 –
Example: Format A-2 (Table of contents)			
Document number by the company	J A X A Parts Specification	Page	- ii -
Contents 1. GENERAL 1.1 Scope..... 1.2 Part Number..... 1.3 Ratings..... (continues) 2. APPLICABLE DOCUMENTS (continues) 3. REQUIREMENTS 3.1 Performance (continues) 4. QUALITY ASSURANCE PROVISIONS 4.1 In-Process Inspection 4.2 Qualification Test..... 4.3 Quality Conformance Inspection 4.4 Long-Term Storage..... 4.5 Changes of Tests and Inspections 5. PREPARATION FOR DELIVERY 6. NOTES			

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Example: Format A-2
(Text)

Document number by the company	J A X A Parts Specification	Page	- 1 -
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**RESISTORS, FIXED, FILM,
HIGH RELIABILITY,
SPACE USE,
DETAIL SPECIFICATION FOR**

1. GENERAL

1.1 Scope

This specification establishes the detailed requirements for JAXA-QTS-2050 Appendix A, the space use, high reliability, film, fixed resistors (hereinafter referred to as "resistors") RNS50, 55, 60, 65 and 70 types.

1.2 Part Number

The part number is defined in the following format and identifies the style, characteristic, nominal resistance and resistance tolerance.

Example: JAXA⁽¹⁾ RNS55 - J - 1001 - E

Style	Characteristic	Nominal resistance	Resistance tolerance
(see A.1.3.1)	(see A.1.3.2)	(see A.1.3.3)	(see A.1.3.4)

Note: ⁽¹⁾ "JAXA" indicates the common part for space use and may be abbreviated to "J."

Table 1. Part Number

Item	Applicable paragraph of JAXA- QTS-xxxx	Specification
Style	A.1.3.1	RNS55
Characteristic	A.1.3.2	J ($\pm 25\text{ppm}/^{\circ}\text{C}$ for -55°C to 175°C)
Resistance	A.1.3.3	Example: 100R00=100 Ω (Identified by a six-digit number.) ⁽¹⁾
Resistance tolerance	A.1.3.4	V ($\pm 0.005\%$), T ($\pm 0.01\%$), A ($\pm 0.05\%$), B ($\pm 0.1\%$), C ($\pm 0.25\%$), D ($\pm 0.5\%$), F ($\pm 1.0\%$)

Note: ⁽¹⁾ For the resistance tolerance of C, D or F, the resistance shall be identified by a four-digit number.

Example: Format A-2
(Text)

Document number by the company	J A X A Parts Specification	Page	- 2 -
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1.3 Ratings

The ratings are shown in Table 2.

Table 2. Ratings

Item	Requirement paragraph of JAXA- QTS-xxxx	Specification
Operating temperature range (°C)	A.3.5.2	-55 to +175
Rated ambient temperature (°C)	A.3.5.3	125
Derating curve	A.3.5.4	As specified in Figure 1.
Style	-	RNS55
Nominal resistance range (Ω)	A.3.5.1	30.1 to 100k
Power rating (W)	A.3.5.3	0.3
Maximum operating voltage (V)	A.3.5.5	300
Power rating at 70°C	-	0.6
Maximum operating voltage at 70°C	-	300

(continues)

2. APPLICABLE DOCUMENTS

Applicable documents are as specified in paragraph 2.1 of JAXA-QTS-xxxx.

(continues)

3. REQUIREMENTS

Requirements shall be as specified in paragraph A.3 of JAXA-QTS-xxxx.

3.1. Performance

The performance shall comply with Table 3.

Example: Format A-2
(Text)

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Table 3. Performance

Item	Test method paragraph of JAXA-QTS-xxxx	Performance (Numerical values should be shown as much as possible)
Materials	A.3.2	As specified in Appendix A of JAXA-QTS-xxxx.
External view, physical dimensions, marking	A.3.3	As specified in Supplementary Figure X.
Thermal shock (I)	A.3.8.3	Allowable resistance change: $\pm 0.5\%$
Thermal shock (II)	A.3.8.3	Allowable resistance change: $\pm 0.5\%$
Overload	A.3.6.1	Allowable resistance change: $\pm 0.5\%$
Resistance	A.3.6.2	Within the specified resistance tolerance
Radiography	A.3.4.1	As specified in Appendix A of JAXA -QTS-xxxx.

(continues)

4. QUALITY ASSURANCE PROVISIONS

The quality assurance provisions shall comply with paragraph A.4 of JAXA-QTS-xxxx.

4.1 In-Process Inspection

The in-process inspection shall comply with paragraph 4.3 of JAXA -QTS-xxxx. [The changes shall be made to xxx test. The details and rationale of the change shall be specified in paragraph 4.4. (These sentences are added when any changes have been made.)]

Table 4. In-Process Inspection

Test item	Requirement paragraph	Test method paragraph	Sample size
External view and physical dimensions	A.3.3	A.4.3.2	100%
Plating thickness	-	-	100%

(continues)

(continues)

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Example: Format A-2
(Text)

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4.3. Quality Conformance Inspection

The quality conformance inspection shall comply with paragraph A.4.2 of JAXA-QTS-xxxx. [The changes shall be made to xxx tests. The details and rationale of the change shall be specified in paragraph 4.4. (These sentences are added when any changes have been made.)]

Table 9. Quality Conformance Inspection (Group A)

Test			Requirement paragraph	Test method paragraph	Pass/fail criteria	
Sub-group	Order	Item			Sample size	Quantity of allowable defects
A1	1	Thermal shock (I)	A.3.8.3.1	A.4.3.6.3.1	100%	0
	2	Overload	A.3.6.1	A.4.3.4.1		
	3	Resistance	A.3.6.2	A.4.3.4.2		
A2	1	External view, physical dimensions and marking ⁽¹⁾	A.3.3	A.4.3.2	AQL 4.0%	
A3	1	Radiography ⁽²⁾	A.3.4.1	A.4.3.3.1	100%	0
A4	1	DPA ⁽³⁾	A.3.4.2	A.4.3.3.2	2 or 3	0
A5	1	Resistance-temperature characteristic	A.3.6.3	A.4.3.4.3	AQL 2.5%	
	2	Dielectric withstanding voltage (atmospheric pressure)	A.3.6.4	A.4.3.4.4		
	3	Insulation resistance	A.3.6.6	A.4.3.4.5		

(continues)

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Example: Format A-2
(Text)

Document number by the company			J A X A Parts Specification		Page	- 6 -
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Table 10. Quality Conformance Inspection (Group B)

Sub-group	Order	Test	Requirement paragraph	Test method paragraph	Pass/fail criteria	
		Item			Sample size	Quantity of allowable defects
B1	1	Resistance-temperature characteristic	A.3.6.3	A.4.3.4.3	10	0
	2	Dielectric withstanding voltage	A.3.6.4	A.4.3.4.4		
	3	Insulation resistance	A.3.6.6	A.4.3.4.5		
	4	Resistance to soldering heat	A.3.7.4	A.4.3.5.4		
	5	Moisture resistance	A.3.8.4	A.4.3.6.4		
B2	1	Solderability	A.3.7.3	A.4.3.5.3	5	0
	2	Resistance to solvents	A.3.8.5	A.4.3.6.5		
B3	1	Low temperature storage	A.3.8.6	A.4.3.6.6	10	0
	2	Low temperature operation	A.3.8.7	A.4.3.6.7		
	3	Terminal strength	A.3.7.1	A.4.3.5.1		
B4	1	Life (125°C)	A.3.9.1	A.4.3.7.1	10	0
B5	1	Life (70°C)	A.3.9.2	A.4.3.7.2	10	0
B6	1	Stability ⁽¹⁾	A.3.8.8	A.4.3.6.8	10	0

Note: ⁽¹⁾ After the stability test, the dielectric withstanding voltage test (at atmospheric pressure) and insulation resistance test shall be performed.

(continues)

Table 11. Quality Conformance Inspection (Group C)

Sub-group	Order	Test	Requirement paragraph	Test method paragraph	Pass/fail criteria	
		Item			Sample size	Quantity of allowable defects
C1	1	Shock	A.3.8.2	A.4.3.6.2	10	0
	2	High frequency vibration	A.3.8.1.1	A.4.3.6.1.1		
C2	1	Thermal shock (II)	A.3.8.3.2	A.4.3.6.3.2	10	0
C3	1	Random vibration	A.3.8.1.2	A.4.3.6.1.2	10	0
C4	1	Voltage coefficient	A.3.6.5	A.4.3.4.6	10	0
	2	Mechanical shear ⁽¹⁾	A.3.7.2	A.4.3.5.2		

Note: ⁽¹⁾ Applicable to RNS50.

(continues)

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Example: Format A-2 (Text) <table> <tr> <td>JAXA-QTS-xxxx/AxxxxA Day Month Year</td><td>J A X A Parts Specification</td><td>Page</td><td>- 7 -</td></tr> </table> 4.4. Long-Term Storage Long-term storage shall be as follows and in accordance with paragraph A.4.4 of JAXA-QTS-xxxx, Appendix A. (continues) 4.5. Changes and Optimization of Tests and Inspections Example 1 There is no change to the test or inspection from the quality conformance inspection specified in Appendix A of JAXA-QTS-xxxx. Example 2 The changes has been made to xxx test. a) Change description: xxx b) Rationale: xxx (continues) 5. PREPARATION FOR DELIVERY Preparation for delivery shall comply with paragraph 5 of JAXA-QTS-xxxx and the following requirements. (continues) 6. NOTES Notes shall comply with paragraph 6 of JAXA -QTS-xxxx and the following requirements. (continues)				JAXA-QTS-xxxx/AxxxxA Day Month Year	J A X A Parts Specification	Page	- 7 -
JAXA-QTS-xxxx/AxxxxA Day Month Year	J A X A Parts Specification	Page	- 7 -				

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Example: Format A-3 Change Notice ⁽¹⁾

JAXA-QTS-xxxx Notice 1 Date	J A X A Parts Specification	Registration No. xx
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CHANGE NOTICE

XXXXX
HIGH RELIABILITY,
SPACE USE,
GENERAL SPECIFICATION FOR

Page	Paragraph	Line	Change description		
			Before	After	Rationale

Note: ⁽¹⁾ The purpose of Example Format A-3 is to show the format for Change Notice.

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REQUIREMENTS FOR QUALITY ASSURANCE PROGRAM			
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This document is the English version of JAXA QTS/ADS which was originally written and authorized in Japanese and carefully translated into English for international users. If any question arises as to the context or detailed description, it is strongly recommended to verify against the latest official Japanese version.

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APPENDIX C REQUIREMENTS FOR QUALITY ASSURANCE PROGRAM C.1. Scope This appendix covers the general requirements for the quality assurance program (hereinafter referred to as “QAP” in this appendix) that the company, which wishes to acquire certification and the QML manufacturer (herein after referred to as “the company” in this appendix), shall establish in accordance with paragraph 3.3 of this specification in order to acquire certification of JAXA. Although this appendix defines JAXA specific requirements, ISO9001 requirements are a part of JAXA requirements. C.2. Applicable Documents C.2.1 Applicable Documents a) ISO 9001 Quality Management Systems - Requirements (JIS Q 9001 Quality Management Systems - Requirements) b) ISO 9000 Quality Management Systems - Fundamentals and Vocabulary (JIS Q 9000 Quality Management Systems - Fundamentals and Vocabulary) C.2.2 Reference Documents a) IATF 16949 Automotive Quality Management System Standard (Quality management system requirements for automotive production and relevant service parts organizations) b) JIS Q 9100 Quality management systems - Requirements for aviation, space and defense organizations C.3. Definition of Terms a) Company “Company” corresponds to “organization” used in ISO 9001. b) Quality assurance program “Quality assurance program” corresponds to “quality management system” used in ISO 9001 and also includes the JAXA requirements. c) Nonconformance “Nonconformance” includes “nonconformity” specified in ISO9001. d) JAXA qualified parts “JAXA qualified parts” corresponds to “products and services” specified in ISO9001. C.4. Requirements The company shall meet the following requirements for JAXA qualified parts. The company may establish quality assurance program by incorporating documents applied within the qualification coverage of ISO9001, since ISO9001 requirements are a part of JAXA requirements. If the company already acquires public certification, the company shall specify the name of the applicable public certification in QAP plan.			

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C.4.1 Applicable Documents The company shall specify applicable documents and reference documents for established quality assurance program and shall keep the documents available for use. Following documents shall be included: a) Generic specification b) Generic specifications for each product type. c) Detail specifications C.4.2 Organization C.4.2.1 Quality Assurance Manager The company shall assign the person, who is responsible for quality assurance and has qualities performing tasks defined in paragraph D.3 properly, as quality assurance manager. The name, responsibility and authority of the quality assurance manager shall be defined in QAP plan. When the company assigns assistant quality assurance manager, responsibility and authority of the assistant shall be specified. C.4.2.2 Registered Inspector The company shall assign the person, who has qualities performing tasks defined in paragraph D.4 properly, as registered inspector. The name, responsibility and authority of the registered inspector shall be defined in QAP plan. When the company assigns assistant registered inspector, responsibility and authority of the assistant shall be specified. C.4.2.3 TRB The company shall establish and manage TRB in accordance with Appendix K. Relationship between TRB and in-house organization and TRB member shall be shown in organizational chart. TRB member shall include quality assurance manager and registered inspector. When the company has a standing committee equivalent to a TRB, the committee or activities based on change control provision may be considered as the TRB. Design review based on design and development provision, quality meeting and provision of response to complaints from customers, etc. are corresponding to TRB. C.4.3 Quality Assurance Program C.4.3.1 Establishment and Maintenance of Quality Assurance Program The company shall establish and maintain QAP to meet ISO9001 requirements and JAXA specific requirements. Suitability of establishment and maintenance of QAP shall be judged at TRB in accordance with Appendix K. C.4.3.2 Quality Assurance Program Plan The company shall document and maintain QAP in accordance with paragraph C.5. C.4.3.3 Change Control of Quality Assurance Program The company shall establish and maintain change control of QAP.			

Change control of quality assurance program for JAXA qualified parts shall be conducted as follows:

Change category list shall be prepared or revised in accordance with following items a), b) and c) and shall be approved by JAXA.

- a) Grade I: Requalification is required. Requalification application is required.
- b) Grade II: Preliminary coordination with JAXA is required. Principle shall be determined on the basis of coordination with JAXA.
- c) Grade III: Requalification is not required. The company may change independently based on the TRB review.

Change control of QAP for JAXA qualified parts are as follows. TRB shall be conducted in accordance with Appendix K.

- 1) For change of QAP, the company shall prepare change plan and shall judge corresponding category in change category list at TRB.
- 2) When the change occurs, the company shall prepare change plan in accordance with in-house change control provision and shall judge corresponding category in change category list at TRB.
- 3) When the change is considered to be Grade III, the company shall conduct in-house change procedure and shall judge propriety of the change at TRB. The company shall report the results to JAXA by TRB status report.
- 4) When the change is considered to be Grade II, the company shall submit change plan to JAXA and shall determine change category on the basis of coordination with JAXA. When the change is determined to be Grade I by the coordination with JAXA, the company shall acquire requalification in accordance with paragraph E.5.4. When the change is determined to be Grade III, the company shall dispose the change in accordance with paragraph C.4.3.3, item c) above. When the change is determined to be Grade III, the company may reflect the change in change category list and revise the list. The company shall apply the revision of the change category list as Grade II to JAXA.

Even though TRB results are reported at preliminary coordination with JAXA, the TRB results shall be included in TRB status report.

Change control flow is shown in Figure C-1.

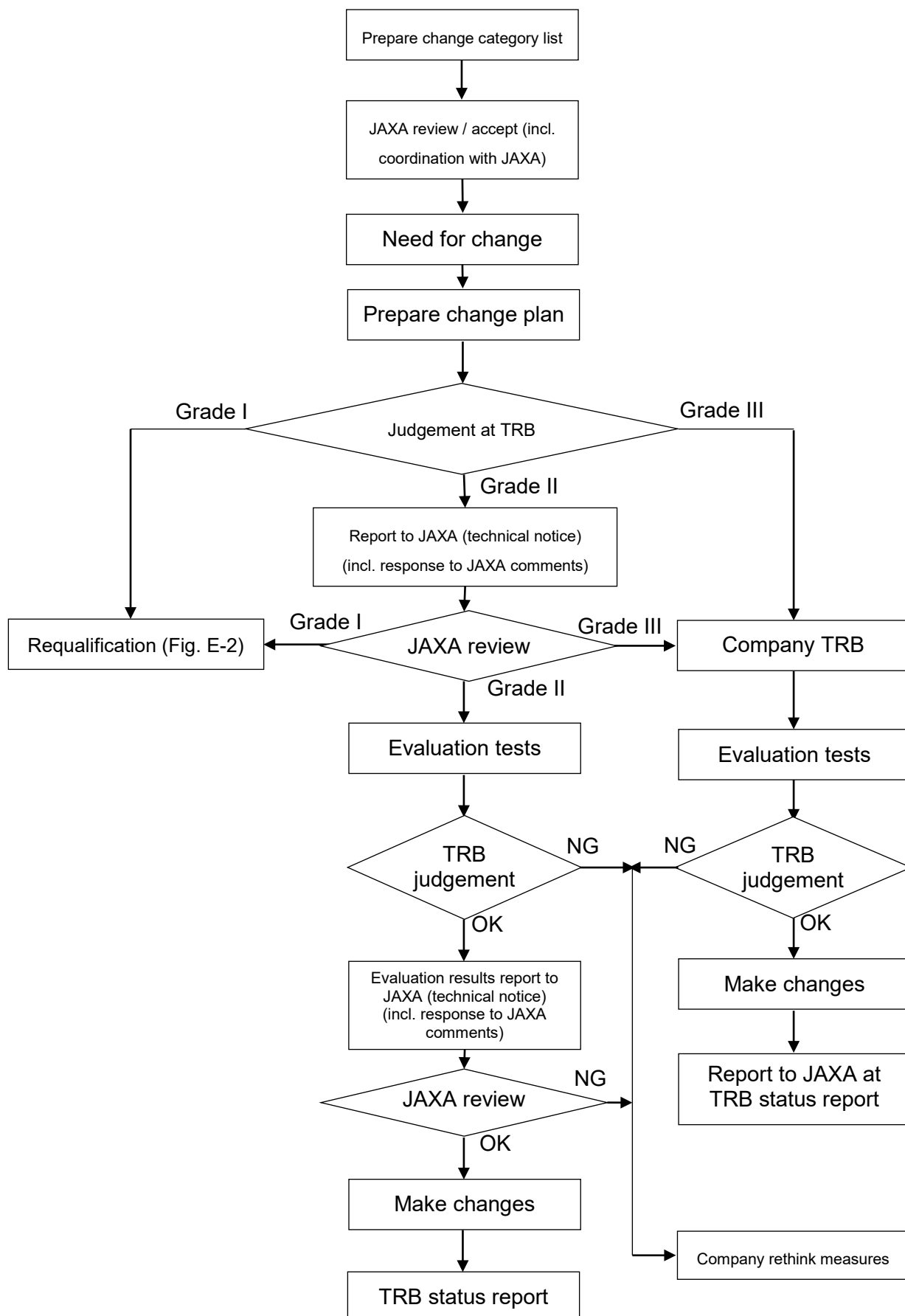


Figure C-1. Change Control Flow

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C.4.3.4	Internal Audit The company shall include JAXA specific requirements in the scope of internal audit by existing QMS.		
C.4.3.5	Quality Assurance Program of Supplier		
	When the company outsources a part of manufacturing, tests and inspections to supplier, the supplier shall be controlled by management program equivalent to quality assurance program defined in this specification or shall be controlled by quality assurance program of the QML manufacturer.		
C.4.3.6	Lot Definition		
	Lot identification methods for JAXA qualified parts shall be defined such as material lot, manufacturing lot and inspection lot, and the definition shall be provided in QAP plan. If the definition is provided in applicable specification, the definition shall be provided and specified in quality assurance program.		
C.4.3.7	Manufacturing Process Control		
C.4.3.7.1	Retention of Quality Records		
	The company shall establish quality records and the quality records shall be retained for 15 years from the date of shipment of JAXA qualified parts. Production records (such as lot sheets, travelers and work sheet) and results of quality conformance inspection shall be included in quality records. The quality records shall be kept to be available as needed. Either paper or electrical data may be used for storage.		
C.4.3.7.2	Flow Chart		
	The company shall prepare and maintain flow charts presenting manufacturing processes, screening (if applied), qualification test and quality conformance inspection. Materials, procedures, process control points, control methods and environmental conditions and the document number of relating standards shall be shown in flow charts of manufacturing processes for JAXA qualified parts. Flow charts represents control plan, QC process chart, etc. and applicable generic specification for each product type and in-process inspection specified in detail specifications shall be included in flow charts.		
	The company shall include at least following items in flow charts:		
	a) Process number		
	b) Process chart		
	c) Process name		
	d) Purpose of work		
	e) Materials		
	f) Facilities and / or jigs and tools		
	g) Control items (including items related to group of factors and group of results)		
	h) Control criteria		
	i) Frequency		
	j) Records		
	k) Department		

JAXA-QTS-2000E 15 March 2021	J A X A Parts Specification	Page	– C-6 –
I) Relating standards C.4.3.7.3 Control of Critical Processes If any production process might have significant impacts on reliability and quality of JAXA qualified parts (hereinafter referred to as “critical process”), the company shall establish and maintain standards to identify and control specifically. a) Establishment of the selection criteria and control items of critical processes, and control categories (Including trend analysis items) b) Education and training for critical processes Critical processes shall be shown in flow charts. C.4.4 Procurement Management of Materials C.4.4.1 Materials The company shall apply following items as requirements by law and regulation: a) Following materials shall not be used for manufacturing, tests and inspections of JAXA qualified parts. If usage of the materials are not avoidable, the materials shall be specified in detail specification. Pure tin and tin alloy with lead content of 3% or less, beryllium oxide, cadmium, lithium, magnesium, mercury, zinc, radioactive materials and all other materials that may cause safety hazards. b) Materials designated in generic specification for each product type. C.4.4.2 Material Traceability The company shall secure the lot traceability of JAXA qualified parts. Lot traceability shall enable to trace to material lot used. C.4.5 Nonconformance disposition C.4.5.1 Disposition System of Anomaly and Nonconformance The company shall establish disposition process for anomaly and nonconformance. This process shall include following items: a) Anomaly or nonconformance information (paragraph 3.6.1) b) Nonconformance reporting (paragraph 3.6.2) c) Disposition of failed parts (paragraph 3.6.2) d) Failure analysis and cause investigation (paragraph 3.6.2) e) Corrective action and prevention of recurrence (paragraph 3.6.2) f) Final nonconformance reporting (paragraph 3.6.2) C.4.6 Failure analysis and corrective action C.4.6.1 Failure analysis When nonconformance occurs on parts, the company shall conduct failure analysis specified in quality assurance program.			

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C.4.6.2 Failure Mode and Effect Analysis The company shall conduct analysis of nonconformance expected at design phase by FMAT and FMEA (design FMEA and process FMEA) and shall develop and maintain countermeasures against the potential nonconformance. At analysis, the company shall summarize in which process (material, design, manufacturing process, test and inspection) potential defects of each element (such as materials and relating manufacturing process) composing JAXA qualified parts shall be detected and outflow of failed parts shall be prevented. FMAT example is shown in Example-2. C.4.7 Packaging, Storage and Shipment The company shall establish packaging specifications applicable to transportation and shipment of JAXA qualified parts in accordance with paragraph 5. This packaging specifications shall meet requirements of this specification and applicable specification. C.4.7.1 Shipment Judgement by Registered Inspector At the shipment of JAXA qualified parts, registered inspector of the company shall judge shipment propriety by tasks specified in Appendix D. C.5. Quality Assurance Program Plan This section provides the company, which wishes to acquire certification, with the guidelines to prepare and maintain a QAP plan in accordance with paragraph C.4 and general operation and maintenance procedures. Format of QAP plan is not provided. The company may prepare QAP plan in accordance with the company's internal document preparation provision. C.5.1 General Requirements The company, which wishes to acquire certification, shall prepare QAP plan in consideration of uniqueness for space-use, identification of JAXA qualified parts supplied in accordance with this specification and applicable specification, and post-certification maintenance. C.5.2 Preparation of Quality Assurance Program Plan C.5.2.1 General Instructions for Preparation of Quality Assurance Program Plan a) Terms shall be those generally used. b) A4-size or A3-size paper shall be used. Document creating software shall be used. c) QAP plan shall be prepared for each company who wishes to acquire certification. d) If there are certification of multiple production lines, a general QAP plan may be prepared for provisions common to all production lines, and a detail QAP plan may be prepared for provisions unique to individual production line. e) For each item specified in paragraph C.5.2.6, the company may provide an overview by referring to titles and document numbers of applicable or related provisions or documents, and also provide detailed descriptions of systems using figures and / or tables.			

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	f) When affiliated entities are involved, QAP of those entities shall be outlined in QAP of the company. When documentation applied in public certification is used, the document shall be outlined in QAP of the company.		
C.5.2.2	Overall Structure of Quality Assurance Program Plan Unless otherwise specified, the QAP plan shall be organized as follows. a) Cover b) Revision history c) Table of contents d) Text, figures and tables e) Blank formats of documents and examples to fill the formats f) Supplementary documents (when specified in applicable specifications) Note: Unless otherwise specified, when both general and detail QAP plans are to be prepared, they shall have the same document structure.		
C.5.2.3	Cover The cover shall include at least the following items. a) Document number of the QAP plan and date of issue (including revision identification) b) Title c) Name of quality assurance manager d) Name of registered inspector e) Name of the QML manufacturer		
C.5.2.3.1	Document Number of Quality Assurance Program Plan and Date of Issue The document number and control methods shall be in accordance with in-house provision such as document control provision of the QML manufacturer.		
C.5.2.3.2	Title a) The title shall be in the same format as that of applicable specifications. Example: Resistors, High Reliability, Space Use, Quality Assurance Program Plan for b) Product identification such as part number may be provided if necessary. c) When both general and detail QAP plans are to be prepared, the titles shall be in the following formats, respectively. Example 1: Resistors, High Reliability, Space Use, General Plan of Quality Assurance Program for Example 2: Resistors, Fixed, Film, High Reliability, Space Use, Detail Plan of Quality Assurance Program for		
C.5.2.3.3	Approval of Quality Assurance Program Plan QAP plan shall be reviewed by registered inspector and approved by quality assurance manager.		

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C.5.2.4	Revision History Revision history shall include the following items. When the QML manufacturer has their own document management provisions, the forms and guidelines of the provisions may be used. a) Revision letter b) Revision date c) Reason for revision d) Records of review by registered inspector and approval by quality assurance manager (such as signature or seal) C.5.2.5 Table of Contents a) A table of contents shall be provided. b) A separate list of figures and tables shall follow the table of contents. C.5.2.6 Instructions for Preparation of Text The text of the quality assurance program plan shall include at least the following items. a) Scope b) Organizational structure (including relationship between TRB and internal department) c) Quality assurance system d) Quality assurance program e) Control of production processes (processes and control items which specific control is required for JAXA qualified parts) f) Management of production facilities (if the facilities are managed by QMS, the QMS management may be used) g) Procurement management of materials (supply items which specific control is required for JAXA qualified parts) h) Nonconformance disposition system i) Failure analyses and corrective actions (failure analysis and corrective action which is needed specifically for JAXA qualified parts) j) Packaging, storage and delivery k) Change control of quality assurance program l) Design and construction C.5.3	Example	Examples of tables and figures to be attached to QAP plan are shown in format example. Example: Format C-1 Flow Chart Example: Format C-2 FMAT Example: Format C-3 Change Category List

[illegible]

Example: Format C-2 FMAT

Type or part number		NASDA RNR XX			Disposition ⁽⁵⁾					
No.	Element ⁽¹⁾	Failure mode ⁽²⁾	Failure mechanism ⁽³⁾	Impacts on product ⁽⁴⁾	Raw materials ⁽⁶⁾	Production processes ⁽⁷⁾	Design items ⁽⁸⁾	In-process inspections ⁽⁹⁾	Tests/ inspections of final products ⁽¹⁰⁾	Test methods ⁽¹¹⁾
1	Lead wires	Breakages	Breakages	Open circuit	1. Core materials (frequency/anneal) (material spec. no.)	1. Handling methods (prevention of breakage) (process spec. no.)	1. Materials 2. Dimensions (lead wire diameter) (doc. no.)	1. Visual 2. Dimensions (inspection spec. no.)	1. Terminal strength 2. Vibration resistance 3. Visual 4. Dimensions 5. Shock	Paragraph number of JAXA-QTS-2*** 1. 4.7.15 2. 4.7.21 3. 4.7.3 4. 4.7.3 5. 4.7.20
		Insulation failures (with substrate)	Surface oxidation	Loose joints	1. Plating materials (composition/plating thickness) (material spec. no.)	1. Handling and storage methods 2. Material cleaning (process spec. no.)	1. Plating composition 2. Plating thickness (doc. no.)	1. Plating thickness 2. Externals (inspection spec. no.)	1. Solderability	1. 4.7.10
2	Head part of lead wires	Incomplete electrical continuity (with resistor body)	Contaminat ion (e.g., oil.)	Excessive current noises, Loose joints		1. Handling and storage methods (process spec. no.)		1. Current noises (all samples) 2. Head dimensions 3. Load selection (all samples) (inspection spec. no.)	1. Voltage coefficient 2. Life 3. Thermal shock	1. 4.7.25 2. 4.7.22 3. 4.7.4
			Non-conforming shapes and/or dimensions			1. Head processing (process spec. no.)	1. Head construction (doc. no.)			
			Surface oxidation			1. Handling and storage methods (process spec. no.)				

Example: Format C-2 (continued)

3	Connection between head and body	Resistance value drift (rise)	Incomplete connection	Resistance value drift (rise)	1. Material Carbon: specific resistance, volumetric density Silica: grain size, purity Resin: resin content, viscosity (material spec. no.)	1. Mixture 2. Mixing conditions (temperature, time) 3. Molding conditions (temperature, time) (process spec. no.)	1. Material (doc. no.)	1. Current noise (all samples) 2. Voltage coefficient 3. Resistance stability 4. Fluidity 5. Material use test 6. Load selection (all samples) 7. External selection (all samples) (Inspection spec. no.)	1. Voltage coefficient 2. Terminal strength 3. Life 4. Thermal shock	1. 4.7.25 2. 4.7.15 3. 4.7.22 4. 4.7.4
		Excessive current noise		Excessive current noise						

(The rest of the table is not shown.)

Notes:

- (1) A part shall be de-integrated into individual elements. The elements shall be listed sequentially in column (1). Connections between elements shall be considered as an element.
- (2) Failure mode and failure mechanism of each element shall be listed in columns (2) and (3) respectively.
- (3) Effects of the failure shall be listed in column (4).
- (4) Disposition for the failure shall be listed in column (5).
- (5) Disposition for raw materials shall be listed in column (6). For example, incoming inspection items and the inspection documents shall be listed.
- (6) Disposition for production processes shall be listed in column (7). For example, the control items specified in the production specifications and applicable document numbers shall be listed.
- (7) Design philosophy shall be listed in column (8). For example, the requirements and document numbers specified in assembly specifications shall be listed.
- (8) Disposition for in-process inspection shall be listed in column (9). For example, the control items and document numbers specified in inspection specifications shall be listed. The inspections defined here shall be limited to those conducted during a production process.
- (9) Disposition for tests and inspections of final products shall be listed in column (10). For example, the test and inspection items specified in applicable specifications shall be listed in column (10). Paragraph number of applicable test methods shall be listed in column (11).
- (10) Structural drawings shall be attached and the tests and inspections shall correspond to individual elements of the parts.

Example: Format C-3 Change Category List

		Grade →	Grade 1	Grade 2	Grade 3
		Definition →	• Changes exceeding qualification coverage • Changes regarding to basic quality design of manufacturing and production • Critical changes with possibility of affecting characteristics and reliability.	• Changes within qualification coverage • Changes regarding to manufacturing condition, facilities, material specification • Changes needed for review of evaluation data and have little possibility of affecting characteristics and reliability.	• Change within qualification coverage • Changes to be considered not to affect quality of products directly • Changes to be considered not to affect characteristics and reliability.
		Procedure →	Requalification	Prior to change, coordination with JAXA is required after TRB review →Change after JAXA approval	Changeable by TRB review and approval →To be reported to JAXA at TRB status report all at once.
Change Category	Changes	Items and points to be considered			
MAN	Manufacturing Worker	• Process that worker is qualified?		Except for Grade 1 and 3	• When the company is able to explain that the changes do not affect.
	Inspection Worker				• When the company is able to explain that the changes do not affect.
	Organization	• Only change of organization name?			• Change of department name
MACHINE	Production Line (factory)	• Within one site / another site / outhouse in one site?	• Line transfer to another base and new factory (new line)	Except for Grade 1 and 3	
	Inspection Line (factory)				
	Manufacturing Facility	• Facility / control program?	• Introduction of new facility (new specification) with different principle		• Additional introduction of facilities of identical part number and specification • When the company is able to explain that the changes of control program do not affect.
	Inspection Facility				• When the company is able to explain that the facility improvement does not affect.
	Layout Change	• Within one building / another building / accompanied with room transfer?	• Accompanied with floor transfer and with potential effects.		• Transfer of inspection facility due to layout change.
	Jigs and Tools	• New / Renewal / Addition?	• When new design have potential effects		• Jigs and Tools renewal (identical design)
	Molds				• Molds renewal (identical design)
MATERIAL	Basic Material	• Only supplier change / manufacturer change / substance and constitution change? • Specification change?	• When the specified materials and constitution is changed.	Except for Grade 1 and 3	• When only suppliers are changed and the company is able to explain that the changes do not affect.
			• When the manufacturer change has potential effects.		
	Indirect Material / Secondary Material		• When specifications, substances and constitution are changed.		
	Packaging Material		• Packaging specification change affecting quality.		
	Storage Area / Condition	• Material or semfinished goods?	• When storage condition varies greatly.		• When the company is able to explain that the changes do not affect.
METHOD	Manufacturing Process Addition	• Structure and appearance change? • Specification change? • Manufacturing condition change? • Critical process change?	• Addition of processes changing structure and appearance of products. • Addition of processes changing products specification. • Removal of processes changing structure and appearance of products. • Addition of processes changing products	Except for Grade 1 and 3	
	Inspection Process Addition				• Addition of inspection items and frequency.
	Manufacturing Process Removal				
	Inspection Process				

	Removal		specification. • Changes regarding to critical processes • Changer affecting specification		
	Manufacturing Process Change				
	Inspection Process Change				
	Marking Change				
Miscellaneous	Manufacturing specification change		○ Items regarding to product design and specification	Except for Grade 1 and 3	
	Design Change				
	Circuit Change				
	Parts Structure				
	Change of Change Control Documents			★(This specification)	• Without change of contents (change of document number due to change of document architecture, and correction of erratum)
	Change of Storage of Records			○	• When storage retention is extended and storage form is changed (such as digitization).

Note 1) This list is prepared for reference. Change category list shall be prepared based on experiences and data.

Note 2) The expression “identical” in this list presents “exactly the same”.

Example: identical facility: Same model number and not including later model

APPENDIX D

QUALITY ASSURANCE MANGAER AND REGISTERED INSPECTOR

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This document is the English version of JAXA QTS/ADS which was originally written and authorized in Japanese and carefully translated into English for international users. If any question arises as to the context or detailed description, it is strongly recommended to verify against the latest official Japanese version.

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APPENDIX D QUALITY ASSURANCE MANAGER AND REGISTERED INSPECTOR D.1 Scope This appendix establishes the tasks and registration procedures of the quality assurance manager and registered inspector. D.2 General Requirments This appendix defines the tasks of a quality assurance manager and a registered inspector. Company shall define specific tasks of the quality assurance manager and the registered inspector in the quality assurance program plan. D.3 Tasks of the Quality Assurance Manager The quality assurance manager shall be a director, who is ultimately responsible for quality assurance of the JAXA qualified parts, representing the company and shall have the responsibilities and authorities of following tasks: The company may assign assistant as necessary. a) To establish, implement, operate and manage the quality assurance program b) Responsibility for quality assurance of products c) To support and assure the performance of the registered inspector in the QML manufacturer d) TRB decision D.4 Tasks of the Registered Inspector The registered inspector shall be responsible for the following tasks: a) To confirm the operation of quality assurance program and promote the improvement b) To verify the maintenance of quality assurance program plan, detail specifications, and application data sheets c) To verify if the manufacturing history and inspection results of the products conform to quality assurance program and applicable specifications, and judge pass/fail of shipping criteria d) To verify the manufacturing and test procedures of test vehicles and samples, and the results for the qualification test and quality conformance inspection e) To verify trend control and confirm the current status of the analytical process f) To attend and monitor TRB and report to JAXA g) To verify implementation of the tasks involving the maintenance of qualification h) To provide comments, requests, and suggestions to JAXA and convey requirements and directions from JAXA to staff in the company i) To attend the training program for the registered inspector of JAXA qualified parts (held once a year) and educate the staff in the company j) To attend all of the processes throughout designing to services of the JAXA qualified parts			

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D.5 Qualification and Selection Criteria for Registered Inspector The QML manufacturer shall select a registered inspector based on the following criteria. a) Unless otherwise specified, a registered inspector shall be a manager or equivalent who has been assigned to an inspection and/or quality control department/technical department involved with JAXA qualified parts for at least 2 years. However, the registered inspector shall not belong to any production department. Preferable capacities and capabilities of registered inspector are as follows: 1) The person who understands QMS and has a comprehension of design, structure, material, process, test and inspection of JAXA qualified parts. 2) The person who has authority or transferred authority to develop JAXA's requests and instructions to the relevant department and to promote activities 3) The person who has capability of judging quality of the JAXA qualified parts objectively. b) When the registered inspector is replaced, the successor to be selected or the assistant is desired to have had participated in the training program for the registered inspector. c) One registered inspector shall be selected for one quality assurance program. When multiple types of parts are qualified, one registered inspector may serve concurrently. d) When a registered inspector performs his/her tasks in fabrication facilities or other sites, the QML manufacturer may designate assistants for the registered inspector as necessary. e) When a part of manufacturing, tests and inspections are outsourced to suppliers, assistants may be employees of the suppliers. In this case, tasks of each assistant shall be clearly specified in quality assurance program plan. D.6 Registration Procedures for the Quality Assurance Manager and the Registered Inspector a) A notice shall be submitted on any of the following occasions: 1) Initial registration of application for the qualification test 2) Change in the quality assurance manager, registered inspector or the registered information b) The format and preparation guidelines for the initial registration and change notice shall be in accordance with Appendix F. Changes shall be reported using cross-reference between the previous contents and the current contents.			

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APPENDIX E

CERTIFICATION PROCEDURES

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APPENDIX E CERTIFICATION PROCEDURES E.1 Scope This appendix defines procedures for certification of JAXA qualified parts in compliance with the requirements specified in paragraph 3.4 of this specification. E.2 Preparation To acquire certification, the company shall perform the following steps prior to the submission of the Application for Qualification Test: a) Prepare the detail specification in compliance with Appendix A. b) Develop a plan to acquire certification in accordance with generic specification and applicable specifications. c) Generic specifications and generic specifications for each product type are available on the JAXA Qualified EEE Parts and Materials Database website. E.3 Establishment of Quality Assurance Program To acquire certification, the company shall establish a quality assurance program in accordance with paragraph 3.3 and Appendix C of this specification. The quality assurance program shall be documented as a Quality Assurance Program Plan (hereinafter referred as “QAP Plan”). The QAP Plan shall be prepared in accordance with the guidelines specified in paragraph C.5. E.4 Designation of a Quality Assurance Manager and a Registered Inspector To acquire certification, the company shall designate a quality assurance manager and registered inspector and register them with JAXA. The tasks of the quality assurance manager and the registered inspector shall be in accordance with paragraphs D.3 and D.4. E.5 Certification Procedures E.5.1 General Requirements Certification procedures shall be in compliance with the requirements specified in generic specifications and applicable specifications. Certification is classified into the following three types. Figure E-1 depicts the qualification flow. a) Initial qualification b) Retention of qualification c) Requalification E.5.2 Initial Qualification E.5.2.1 General Requirements a) Initial qualification shall be in accordance with the procedures specified in paragraph 3.4.1.			

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	b) Procedures of initial qualification are shown in Figure E-2.		
E.5.2.2	Application for Qualification Test To acquire certification, the company shall submit Application for Qualification Test prior to manufacturing of samples for qualification test. Following documents attached to qualification test application shall be submitted to JAXA. Formats of these documents shall be as specified in Appendix F. When omission of qualification tests is applicable, qualification test application may be submitted together with certification application. a) Implementation Plan for Qualification Test b) Detail Specification (in accordance with Appendix A) c) QAP Plan (in accordance with Appendix C) and Quality Manual (if cited and can be submitted) d) Registration Notice of Quality Assurance Manager and Registered Inspector e) Application Data Sheet (preliminary) (in accordance with Appendix G) and Field Data (if available) f) TRB operation provision (at only initial qualification and if can be submitted) (in accordance with Appendix K) g) DPA manual (at only initial qualification and if can be submitted) (in accordance with Appendix C) Unless otherwise specified, qualification test application shall be submitted to JAXA no later than 90 days prior to the planned starting date of sample manufacturing for qualification tests. When the company withdraws qualification test application prior to the starting of qualification tests and after the application submittal, the company shall submit notice of qualification test termination / application withdrawal in accordance with paragraph F.3.4.		
E.5.2.3	Review of Qualification Test Application JAXA shall review the application for qualification test and supporting documents and perform audit of the quality assurance program in accordance with paragraph 3.3.6. This audit includes on-site audit of the company (including suppliers). If the application is determined acceptable, JAXA shall approve the application and notify the manufacturer of the approval. In the review of quality assurance program, JAXA shall evaluate the content and implementation status of the quality assurance program based on a comprehensive examination through system review and process review. JAXA may waive a review of any part of the entire quality assurance program that is covered by ISO 9001 certification.		
E.5.2.4	Production of Test Vehicle and Sample The company, which wishes to acquire certification, shall start manufacturing of the test vehicle or the sample for the qualification test upon receiving the approved qualification test application from JAXA.		

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E.5.2.5	Designation of Witness After receipt of the Qualification Test Application, JAXA shall designate a witness for the qualification test prior to on-site audit and shall notify the company of the affiliated post, title and name of the witness.		
E.5.2.6	Implementation of Qualification Test To acquire certification, the company shall perform the qualification test in compliance with an approved implementation plan for the qualification test. - The JAXA witness shall verify that the qualification test is performed in compliance with the implementation plan for qualification test. - If the JAXA witness will be able to review test results after the completion of the qualification test, the test may be performed without the JAXA witness.		
E.5.2.7	Changes of Qualification Test To make a change of the qualification test, the company, which wishes to acquire certification, shall submit Change Request for Qualification Test Application (paragraph F.3.3) accompanied with a description of and reasons for the changes to JAXA.		
E.5.2.8	Withdrawal of Qualification Test Application and Termination of Qualification Tests When the company, which wished to acquire certification, withdraws qualification test application or terminates qualification test, the company shall submit a Notice of Qualification Test Termination/ Application Withdrawal (paragraph F.3.4). In the event of nonconformance, erroneous test, or an excess of the allowable failure occurrences during qualification test, the manufacturer shall report the event to the JAXA witness.		
E.5.2.9	Application for Certification To acquire certification, when the qualification test is completed, the company shall submit Application for Certification accompanied with the following documents to JAXA. Formats of these documents shall be as specified in Appendix F. - Report of Qualification Test - QAP Plan - Detail specification - Application Data Sheet - Test data and records - TRB status report (only for requalification)		
E.5.2.10	Notice of Certification - JAXA shall approve an Application for Certification if the application and supporting documents meet the requirements specified in the applicable specifications. - When an Application for Certification is approved, JAXA shall notify the QML manufacturer of the approval with a Certificate. - A copy of the Application for Certification shall be returned by JAXA to the QML manufacturer with the certificate.		

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	d) JAXA lists the information on the certified manufacturing line to JAXA QML and releases the information on the Database of JAXA Qualified EEE Parts and Materials website. e) The company, which wishes to acquire certification, shall not produce the JAXA qualified parts prior to receipt of the Certificate.		
E.5.3	Retention of Qualification		
E.5.3.1	General Requirements a) The retention of qualification shall be in accordance with the procedures specified in paragraph 3.4.2. b) The QML manufacturer shall confirm the delivery status of JAXA qualified parts and change status of the quality assurance program within the certification period. c) The procedure for retention of qualification is shown in Figure E-3.		
E.5.3.2	Implementation of the Quality Conformance Inspection The QML manufacturer shall report the results of the quality conformance inspection conducted within the certification period to JAXA at the TRB status report or retention of qualification application. If no JAXA qualified parts were manufactured during the certification period, although the QML manufacturer may apply the retention of qualification without conducting the quality conformance inspection, retention of qualification shall be processed in accordance with the procedures specified in paragraph 4.3.3.2.		
E.5.3.3	Application for Qualification Retention The QML manufacturer shall submit an Application for Qualification retention accompanied with the following documents to JAXA no later than 90 days prior to the expiration date of the certification period in accordance with paragraph 3.4.2. Formats of these documents shall be in accordance with Appendix F. Submission of the Report of Quality Conformance Inspection Status is not required when already included in the TRB Status Report. a) Report of Quality Conformance Inspection Status b) QAP Plan c) TRB Status Report 1) Report of Qualification and Delivery Status 2) Report of Change Status of Quality Assurance Program (optional if the report may be substituted by revision history of QAP plan) 3) Nonconformance information		
E.5.3.4	Review of the Application for Qualification Retention a) JAXA shall review the application and supporting documents. In this review, JAXA shall verify whether the results of on-site audit conducted at the QML manufacturer's sites is properly reflected in accordance with paragraph 3.3.6. b) The review may be waived for part of the quality assurance program that refers to ISO 9001 if the following cases apply:		

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	1) Quality assurance structure (organization, quality assurance manager and registered inspector) is not changed. 2) Quality assurance program is not changed. 3) No nonconformance or imperfect procedures occur. 4) Other matters of concern are not identified.		
E.5.3.5	Notice of Approval for Qualification Retention		
	a) When the Application for Qualification retention and supporting documents are determined to meet the requirements specified in generic specification and the applicable specifications, JAXA shall approve the qualification retention and renew expiration date of certification. b) JAXA shall notify the QML manufacturer of the approval with certificate. c) A copy of the Application for Qualification Retention shall be returned by JAXA to the QML manufacturer with the certificate. d) JAXA shall update the JAXA QML.		
E.5.4	Requalification		
E.5.4.1	General Requirements		
	Requalification shall be performed to change the qualification coverage. Requalification shall also be performed to decline parts which are included in qualification coverage.		
	a) Requalification shall be conducted in accordance with paragraph 3.4.1 (Initial Qualification). For the purpose of requalification, “qualification” shall be interpreted as “requalification” and “certification” shall be interpreted as “recertification.”		
E.5.4.2	Application for Requalification Tests		
	a) The documents/ forms necessary to apply for requalification test shall apply application for qualification test (paragraph E.5.2.2). Documents and descriptions unrelated to the requalification are not required. Test items of requalification shall be identical to those of qualification. Test items of requalification may be optimized by reviewing coverage of change effects at TRB. When test items of quality conformance inspection to be conducted within effective period of certification are omitted, expiration date of certification shall not be renewed. b) Submission procedures for the application for requalification shall be the same as the initial qualification (paragraph E5.2).		
E.5.4.3	Application for Requalification		
	a) The documents/ forms necessary to apply for requalification shall apply application for certification (paragraph E.5.2.9). Documents and descriptions unrelated to the requalification are not required. b) If JAXA has already reviewed or approved data required for the requalification process, the QML manufacturer may submit an application for requalification accompanied with these data without conducting the requalification tests.		

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c) Submission procedures for the application for recertification shall be the same as the initial qualification (paragraph E.5.2). E.5.5 Declination of Certification a) To decline the certification, the QML manufacturer shall submit to JAXA a request for declination in the form of a technical notice which includes items specified in paragraph F.3.8. b) JAXA will notify the QML manufacturer of the declination approval in writing and remove the pertaining information from JAXA QML. c) The procedure for declination of certification is shown in Figure E-4. E.6 Nonconformance Report When anomaly and nonconformance of JAXA qualified parts are identified, the QML manufacturer shall dispose on the basis of flow charts, Figures E-5 or E-6.			

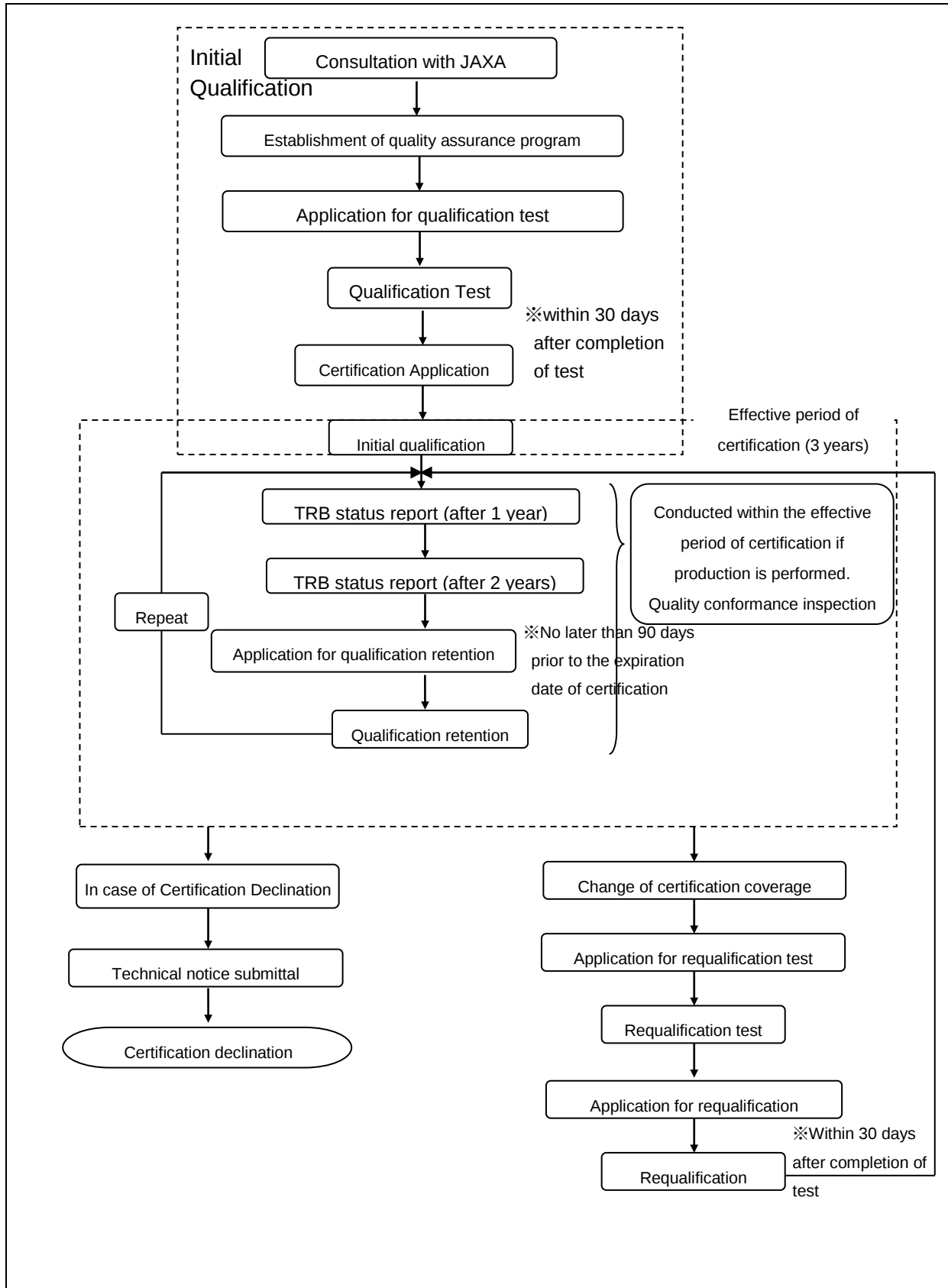


Figure E-1. Overall Qualification Flow chart

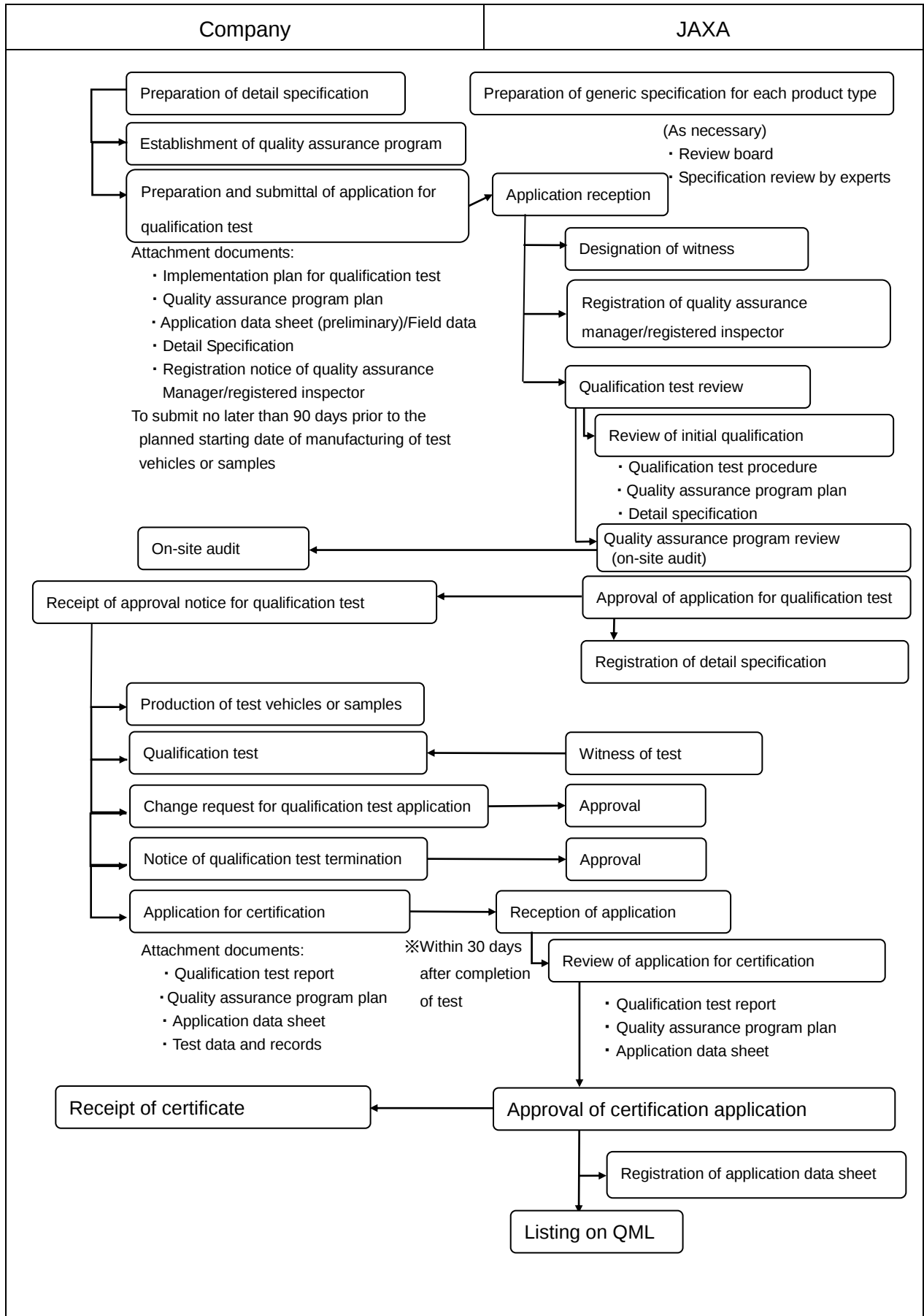
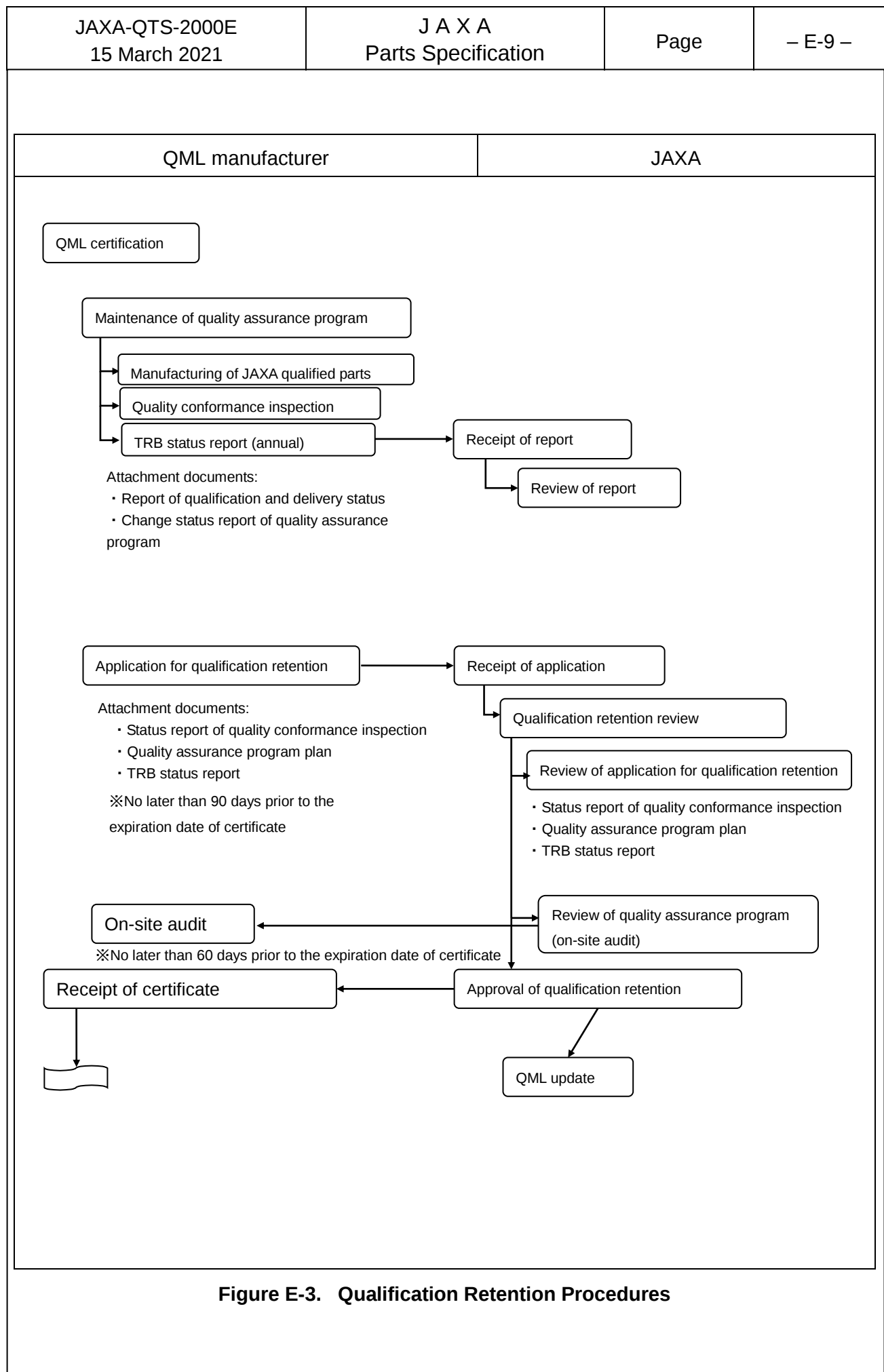
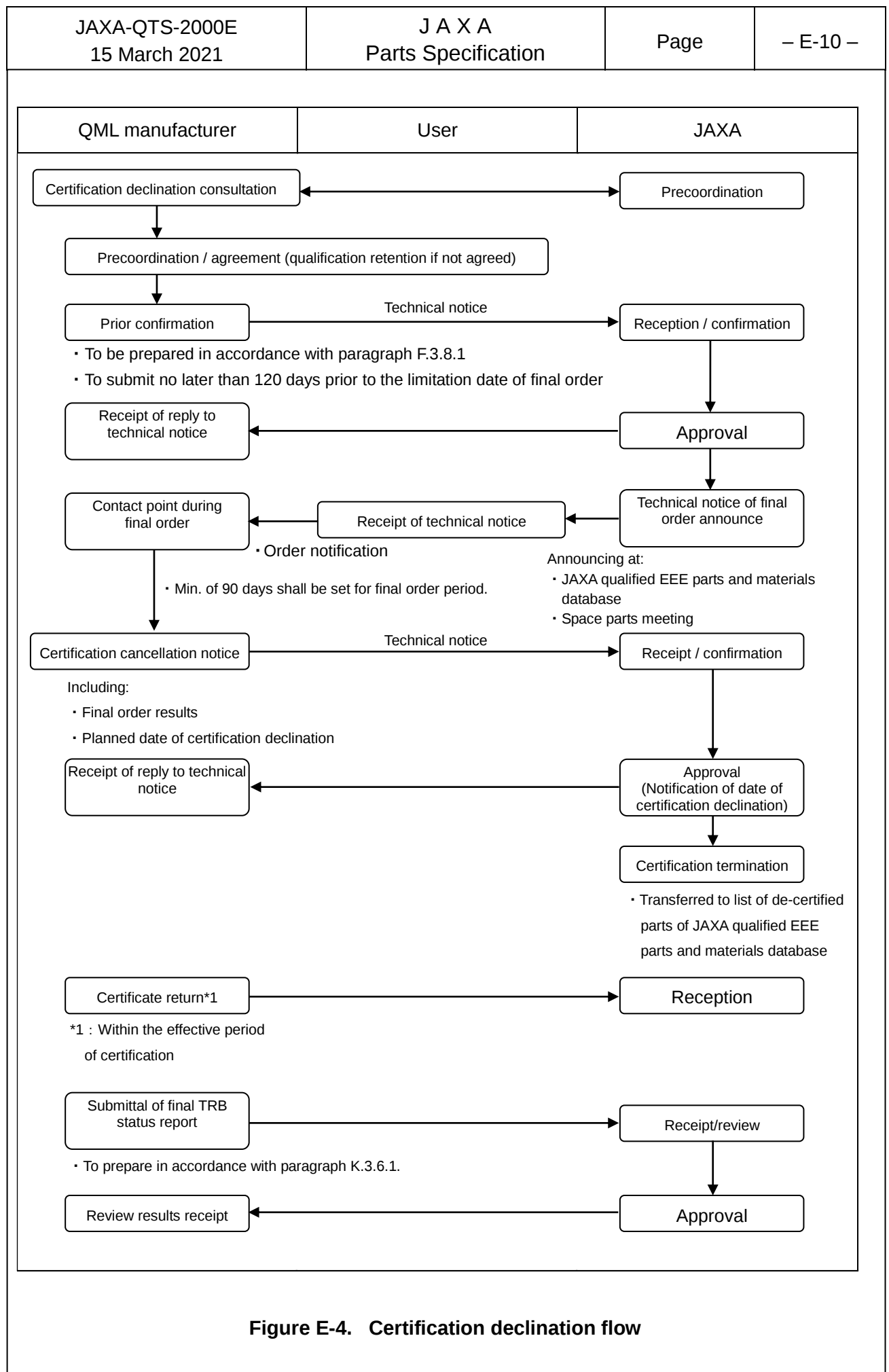
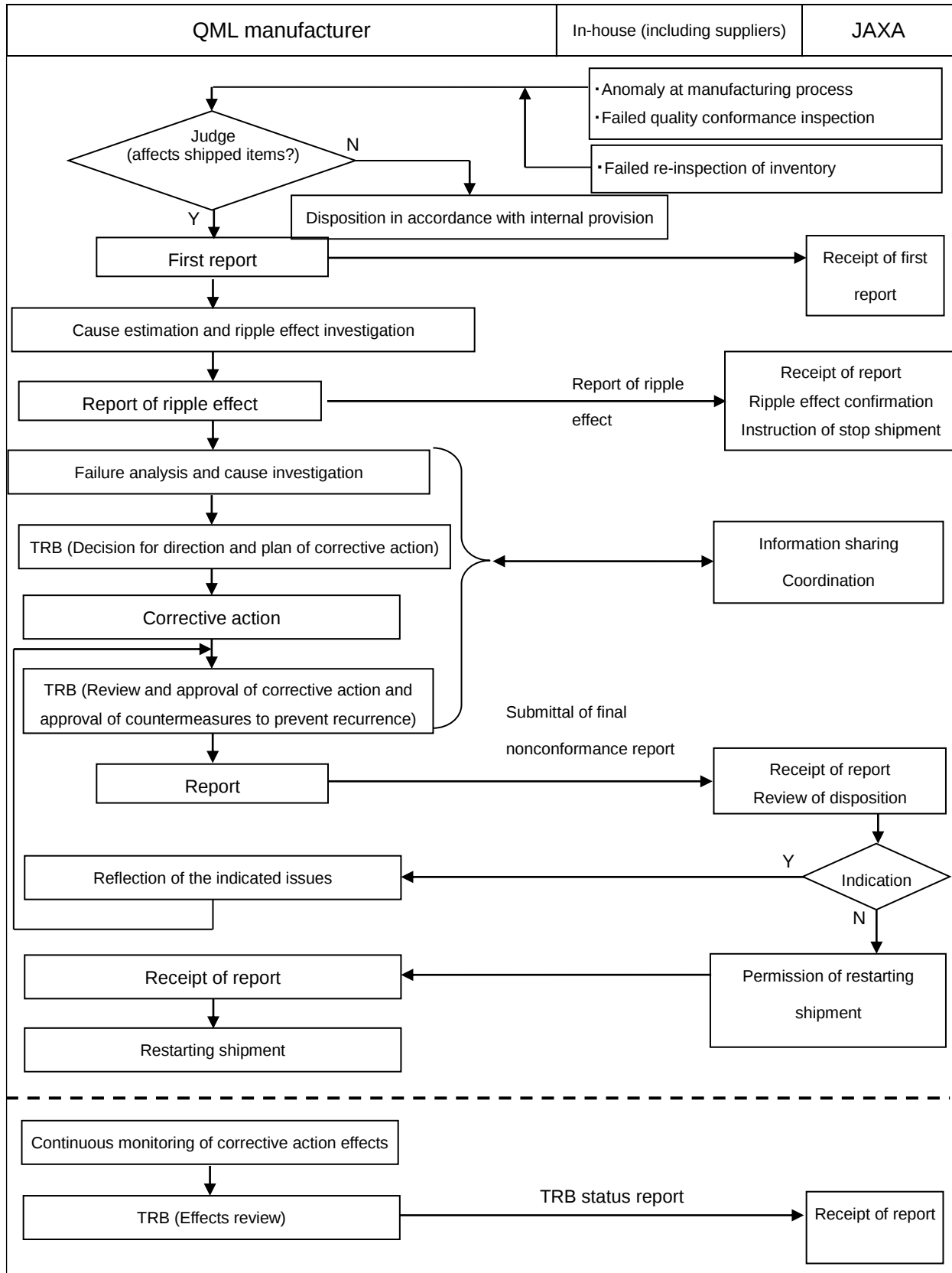


Figure E-2. Initial Qualification Procedures







**Figure E-5. Nonconformance Disposition Flow
(identified at the QML Manufacturer)**

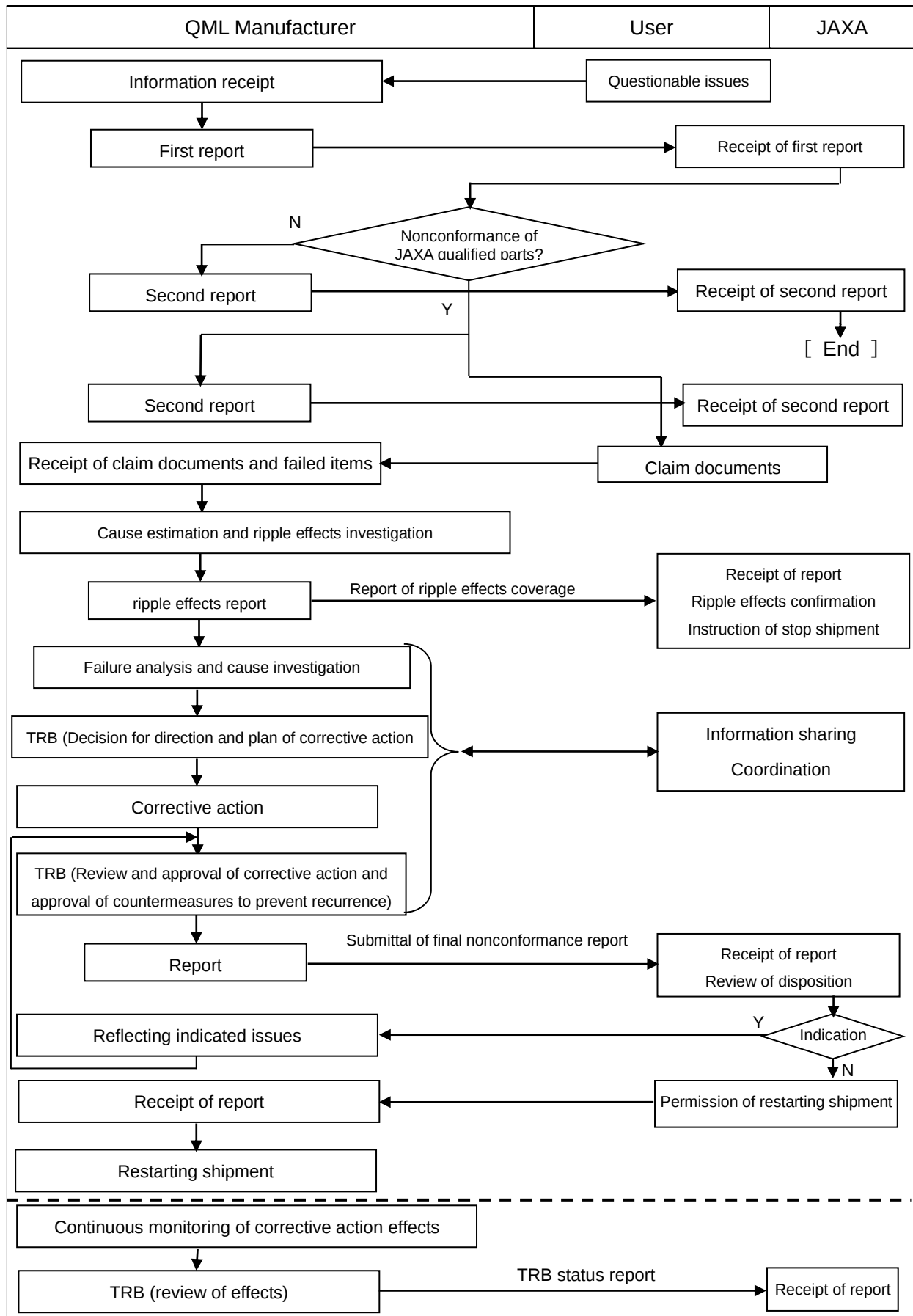


Figure E-6. Nonconformance Disposition Flow (identified at user)

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APPENDIX F			
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This document is the English version of JAXA QTS/ADS which was originally written and authorized in Japanese and carefully translated into English for international users. If any question arises as to the context or detailed description, it is strongly recommended to verify against the latest official Japanese version.

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APPENDIX F				
APPLICATION FORM AND PROCEDURES				
F.1 Scope				
This appendix provides instructions for preparation, submission and application forms which shall be submitted to JAXA by the companies which wish to acquire certification for common parts/materials as specified in paragraph 3.4 of this specification.				
F.2 Purposes and Application Forms				
Table F-1 lists documents that the company must submit to acquire certification. Either the Christian era or Japanese Calendar may be used for the date of submittal. Formats except for following documents may be arbitrarily: Formats F-1, F-10, F-12, F-13, F-14, F-24 and F-28				
Table F-1. Application Documents to be submitted				
No.	Purpose	Form and document required for application	Format No.	No. of copies required
1	Application for qualification test/ requalification test	a) Qualification Test Application	F-1	2
		1) Notice of Approval for Qualification Test Application	F-2	–
		b) Implementation Plan for Qualification Test	F-3 ⁽³⁾	2
		1) Rationale for sample selection and supplementary information	F-4 ⁽³⁾	2
		2) Order of tests and sample size	F-5 ⁽³⁾	2
		3) Test items and methods	F-6 ⁽³⁾	2
		4) Names and major specifications of test equipment	F-7 ⁽³⁾	2
		5) Test site and schedule	F-8 ⁽³⁾	2
		6) Test site and guide map	F-9 ⁽³⁾	2
		c) Quality Assurance Program Plan and Quality Manual ⁽⁴⁾	–	2
		d) Application Data Sheet (preliminary) and Field Data	–	2
		e) Detail Specification	–	2
		f) Registration Notice of Quality Assurance Manager/Registered Inspector	F-10	1
		g) TRB Operation Provision (only for initial qualification)	–	1
		h) TRB Status Report (only for requalification)	F-28 ⁽³⁾	1
		1) Status Report of Certification and Delivery	F-25 ⁽³⁾	1
		2) Status Report of Quality Conformance Inspection	F-26 ⁽³⁾	1
3) Change Status Report of Quality Assurance Program	F-27 ⁽³⁾	1		
4) Nonconformance Information	F-29 ⁽³⁾	1		
5) Available supplies parts list (if changed)	F-31 ⁽³⁾	1		
2	Change of Qualification Test Application	Change Request for Qualification Test Application	F-12	2
3	Application withdrawal or Termination of qualification tests	Notice of Qualification Test Termination / Application Withdrawal	F-13	2

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Table F-1. Documents for Qualification Test (continued)				
No.	Purpose	Form and document required for application	Format No.	No. of copies required
4	Application for certification (recertification)	a) Application for QML Certification	F-14	2
		1) Review comments and judgment	F-15 ⁽¹⁾ F-20 ⁽²⁾	–
		2) Correlation table between qualification test items and development test items	F-16 ⁽¹⁾	2
		3) Supplementary information	F-18 ⁽¹⁾ F-22 ⁽²⁾	2
		b) Report of Qualification Test (Development Test)	F-17 ⁽¹⁾ F-21 ⁽³⁾	2
		1) Results of Qualification Test (Development Test)	F-19 ⁽¹⁾ F-23 ⁽²⁾	2
		2) Test Data and Records	–	1
		c) Quality Assurance Program Plan and Quality Manual ⁽⁴⁾	–	2
		d) Detail Specification	–	2
		e) Application Data Sheet	–	2
		f) TRB Status Report (only for requalification)	F-28	1
		1) Status Report of Certification and Delivery	F-25 ⁽³⁾	1
		2) Status Report of Quality Conformance Inspection	F-26 ⁽³⁾	1
		3) Change Status Report of Quality Assurance Program	F-27 ⁽³⁾	1
		4) Nonconformance Information	F-29 ⁽³⁾	1
		g) Available supplies parts list (if changed)	F-31 ⁽³⁾	2
5	Application for qualification retention	a) Application for Qualification Retention	F-24	2
		b) Quality Assurance Program Plan and Quality Manual ⁽⁴⁾	–	2
		c) TRB Status Report	F-28	1
		1) Status Report of Certification and Delivery	F-25 ⁽³⁾	1
		2) Status Report of Quality Conformance Inspection	F-26 ⁽³⁾	1
		3) Change Status Report of Quality Assurance Program	F-27 ⁽³⁾	1
		4) Nonconformance information	F-29 ⁽³⁾	1
		5) Available supplies parts list (if changed)	F-31 ⁽³⁾	1
6	TRB Status Report	a) TRB Status Report	F-28	1
		1) Status Report of Certification and Delivery	F-25 ⁽³⁾	1
		2) Status Report of Quality Conformance Inspection	F-26 ⁽³⁾	1
		3) Change Status Report of Quality Assurance Program	F-27 ⁽³⁾	1
		4) Nonconformance Information	F-29 ⁽³⁾	1
		5) Available supplies parts list (if changed)	F-31 ⁽³⁾	1
		b) Quality Assurance Program Plan and Quality Manual ⁽⁴⁾	–	1
7	Declination of certification	Declination Notice of Certification	–	1

Notes:

(1) Forms required for an application to obtain QML certification of JAXA-developed parts.

(2) Forms required for an application to obtain QML certification of non-JAXA-developed parts.

(3) Arbitrarily format may be used.

(4) As for quality manual, when the quality manual is cited and can be submitted.

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F.3 Instructions for Preparations and Submission F.3.1 General Requirements a) Unless otherwise specified, application forms shall be prepared using word-processing software. b) Application forms shall be printed on A4 or A3 size paper, filed and indexed properly. c) If multiple copies are submitted, original and duplicate shall be identified accordingly. d) The original shall bear a corporate seal and the duplicate is a photocopy of the original. F.3.2 Application for Qualification Test a) Due date for submission of the Application for Qualification Test shall be in accordance with provision of certification application (paragraph E.5.2.2). b) Two copies (1 for original, 1 for duplicate) shall be submitted for each form. The documents listed in Table F-1 shall be submitted with the application. c) When the application is approved, JAXA will return to the company a duplicate of the application form assigning the Qualification Test Approval Number (JAXA-QTR-xxx). When the qualification test application is denied, JAXA will return to the company a duplicate of the application form. F.3.2.1 Qualification Test Application (Format F-1) This document shall be a cover page for the Qualification Test Application and shall contain the following information. a) Document number: Document number assigned by the company b) Date: Date (dd/mm/yyyy) the application is submitted c) Applicant: Unless otherwise specified, the representative's name (including the company name, address and telephone number). d) Name of parts (products): Description of the common parts/materials specified in the applicable detail specifications e) Title and document number of applicable specification: Titles and document numbers of all applicable specifications f) Production sites: Name and addresses of all factories involved in the production. g) Number and title of quality assurance program plan: Whole of quality assurance program plan for the JAXA qualified parts. Note: For requalification test, "qualification test" shall be replaced with "requalification test". Hereinafter, other relating formats shall be identified in the same way. F.3.2.2 Notice of Approval for Qualification Test Application (Format F-2) Since this document will be attached by JAXA, the company does not have to submit. F.3.2.3 Implementation Plan for Qualification Test (Format F-3) This document shall contain the following information: a) Name of parts (products): Description of the common parts/materials specified in the applicable detail specifications			

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	b) Part number: All part numbers specified in the applicable detail specifications. The individual identification and description that follows the part type may be omitted. c) Qualification coverage: Qualification coverage specified in the applicable detail specifications (If the space is insufficient, the company may use a separate sheets and provide the qualification coverage in a tabular format.) d) Production sites: Name and address of all factories involved in the production e) Specification number: Identification of all applicable specifications f) Specification title: Title of all applicable specifications associated with specification number g) Deviations from the requirements of specifications and standards, among others: "None" if there is no deviation.		
F.3.2.4	Rationale for Sample Selection and Supplementary Information (Format F-4) This document shall contain the following information: a) Purpose (and focus points / background): For requalification, purpose of requalification shall be described. b) Rationale for sample selection: Refer to sample requirements for qualification specified in the applicable specifications. c) Rationale for waiver of tests: Provide on the basis of the technical rationale if a tests is waived. "None" if no test is waived. d) Manufacturing conditions: Title of documents which define the manufacturing conditions Example: QMLP-001 Quality Assurance Program Plan (12 June, 1998) e) Others: Other supplementary information (including operational methods of quality assurance program, when the JAXA qualified parts with the existing specification is manufactured and shipped during requalification) f) Attachments: Title of attached documents, if any documents (except for documents to be submitted). "None" if no documents are attached. g) Contact information: Contact information including the registered inspector or the person in charge of the applicable common parts/materials		
F.3.2.5	Order of Tests and Sample Size (Format F-5) This document shall contain the following information regarding qualification test items specified in the applicable specifications: a) Order of tests: Order of tests specified in numbers b) Test group: As defined in the applicable specifications c) Paragraph number: As defined in the applicable specifications d) Test item: As defined in the applicable specifications e) Samples size: As defined in the applicable specifications f) Allowable number of defectives: As defined in the applicable specifications		
F.3.2.6	Test Items and Methods (Format F-6) This document shall contain the following information in associated with paragraph F.3.2.5: a) Order of tests: Order of tests specified in numbers b) Test items: As defined in the applicable specifications		

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	c) Conditions and requirements: As defined in the applicable specifications (Corresponding item number of the applicable specifications may be shown) d) Specified test method: As defined in the applicable specifications (Corresponding item number of the applicable specifications may be shown) e) Actual test method: Describe “Same as the left” if the actual test method is the same as that defined in the applicable specifications.		
F.3.2.7	Names and Major Specifications of Test Equipment (Format F-7) This document shall contain the following information utilized during qualification test: a) Name of test equipment: Name of test equipment to be utilized b) Relevant test item: Test items to be conducted utilized to the test equipment c) Major specification: Equipment manufacturer’s name, specifications, performances and accuracy at a minimum d) Calibration status: Organization that conducted the calibration and the effective period of calibration This document may be omitted when quality assurance program plan can be used.		
F.3.2.8	Test Site and Schedule of Qualification Test (Format F-8) This document shall contain the information of test site and schedule of manufacturing of samples and qualification test as follows: a) Order of tests: Order of tests specified in numbers b) Test item: Name of each test item as specified in the applicable specification c) Year and month: Schedule table indicating start and completion dates by arrow accompanied with date information of year and month d) Test site: Organizational name of internal and/or external test sites e) Planned start date of sample manufacturing: Date (dd/mm/yyyy) the manufacturing of the samples will start f) Planned test completion date: Date (dd/mm/yyyy) the test is scheduled to be complete		
F.3.2.9	Test Site and Guide Map (Format F-9) This document shall contain the following information for test site. When there are multiple test sites, following information for each test site shall be included in this document. a) Name of test site b) Address of the test site c) Telephone number of the test site d) Contact person		
F.3.2.10	Quality Assurance Program Plan and Quality Manual Quality Assurance Program Plan shall be prepared in accordance with Appendix C. When quality manual is referred in quality assurance program plan, quality manual shall be attached. When quality manual is not to be attached due to security reasons, the company shall disclose the quality manual at quality assurance program review.		

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F.3.2.11 F.3.2.12 F.3.2.13 F.3.2.14	Application Data Sheet Application Data Sheet shall be prepared in accordance with Appendix G. Field Data Field data shall be prepared for a product manufactured on the same production lines and in an identical or similar design, production process and quality assurance system as the products to be certified. The field data shall include the following information at a minimum and shall be documented in any appropriate format. a) Various test results b) Actual field failure rate c) Nonconformance information of shipped products d) Data such as improvement history Detail Specifications Detail specifications shall be prepared in accordance with Appendix A. The document number of detail specifications are assigned by JAXA in accordance with paragraph A.2.2.2. However, the company shall establish the detail specifications and shall assign the document number when detail specifications are attached to qualification test application. Notice of Quality Assurance Manager/Registered Inspector (Format F-10) Notice of Quality Assurance Manager/Registered Inspector shall be submitted to register or change the quality assurance manager and/or registered inspector. The notice shall contain the following information: a) Document number: Document number assigned by the manufacturer b) Date: Date (dd/mm/yyyy) the notice is submit c) Applicant: Name of representative of the company or quality assurance manager d) Name: Name of the quality assurance manager or registered inspector e) Department: Affiliation of the quality assurance manager or registered inspector, including the organization or factory name f) Job title: Job title of the quality assurance manager or registered inspector g) Telephone number: The telephone number of the quality assurance manager or registered inspector h) Fax number: The fax number of the quality assurance manager or registered inspector i) E-mail address: The e-mail address of the quality assurance manager or registered inspector j) Parts (products) assigned: JAXA qualified parts assigned to the quality assurance manager or registered inspector (general assignment may be acceptable) k) Career in the company: Career of the quality assurance manager or registered inspector in the company l) Rationale for change: Rationale to change the quality assurance manager or registered inspector m) Date of change: Date to change the quality assurance manager or registered inspector		

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n) Predecessor: Name of the previous quality assurance manager or registered inspector One of the irrelevant job titles in parentheses (quality assurance manager or registered inspector) shall be struck out. Whenever changes are made in the affiliation, job title or contact information, the manufacturer shall submit a technical notice documenting the changes to JAXA. F.3.2.15 TRB Operation Provision TRB operation provision shall be prepared in accordance with Appendix K and attached to qualification test application. F.3.2.16 TRB Status Report TRB status report, of which reporting period shall be from the previous TRB status report to requalification test application, shall be prepared in accordance with Appendix K and shall be submitted. When the submission due date of TRB status report, which is to be submitted annually after the date of certification, is within requalification period, the company does not have to submit the TRB status report, since the TRB status report is already submitted at requalification application. F.3.3 Change Request for Qualification Test Application (Format F-12) If significant change(s) of test schedule or test methods are necessary following approval of the Qualification Test Application, the company shall submit two copies of this document (1 original and 1 duplicate). a) Document number: Document number assigned by the manufacturer b) Date: Date (dd/mm/yyyy) this document is submitted c) Applicant: Unless otherwise specified, the representative's name with the company name, address and telephone number d) Name of parts (products): Description of the common parts/materials specified in the detail specification e) Production site: Name and address of the whole factories involved in manufacturing. f) Document number and title of quality assurance program plan: Whole of quality assurance program plan for the concerned parts. g) Approval number of qualification test application: Approval number (JAXA-QTR-XXX). h) Changes and rationale for change: Changes and rationale to change the test (Separate sheets may be used for the details, if necessary). If this request is approved, JAXA will return the duplicate of this document to the company. F.3.4 Notice of Qualification Test Termination / Application Withdrawal (Format F-13) Upon withdrawing the application or termination of the qualification test, the company shall submit to JAXA two copies of the Notice of Qualification Test Termination/ Application Withdrawal (1 for original, 1 for duplicate). This document shall contain the following information: a) Document number: Document number assigned by the company			

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b) Date: Date (dd/mm/yyyy) this document is submitted c) Applicant: Unless otherwise specified, the representative's name with the company name, address and telephone number d) Name of parts (products): Description of the common parts/materials specified in the detail specification e) Production site: Name of all companies involved in the manufacturing shall be shown. f) Document number and title of quality assurance program plan: Whole of quality assurance program plan for the concerned parts. g) Approval number of Qualification Test Application (if already approved): Approval number shall be shown, only if the qualification test application is already approved (JAXA-QTR-XXX). h) Date of approval: Date (dd/mm/yyyy) the application for qualification test was approved.(if already approved) i) Reason for Termination / Application Withdrawal: Reason to cancel or terminate the test. (Separate sheets may be used for the details, if required). j) Test report (if the test is terminated): Report of test results conducted until the termination of the tests (Separate sheets may be used for the details, if required). If this notice is accepted, JAXA will return the duplicate of this document to the company. When qualification test application is cancelled, two copies of qualification test application (1 original and 1 duplicate) shall also be returned to the company. F.3.5 Certification Application The company shall submit two copies of the documents given in Table F-1 (1 original and 1 duplicate) to JAXA. When the certification application is approved, JAXA shall send Certificate to the company accompanied with the duplicate of the application. F.3.5.1 Application for Certification (Format F-14) This document shall contain the following information: a) Document number: Document number assigned by the manufacturer b) Date: Date (dd/mm/yyyy) the application is submitted c) Applicant: Unless otherwise specified, the representative's name with the company name, address and telephone number d) Name of parts (products): Description of the common parts/materials specified in the detail specification e) Title and document number of applicable specification: Titles and document numbers of the applicable specifications f) Production site: Names and addresses of all facilities involving the production g) Title and document number of quality assurance program plan: All quality assurance program plan for parts concerned Note: For requalification, "qualification" shall be replaced with "requalification". Hereinafter, "requalification" shall be used for other related forms.			

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F.3.5.2	Review Comments and Judgment (Formats F-15, F-20) Since this document will be attached by JAXA, the company does not have to submit this document.		
F.3.5.3	Correlation Table between Qualification Test Items and Development Test Items (Format F-16) This document represents that development test meets requirements of qualification test and shall contain the following information: a) Qualification test items: Group, order and items of the tests, paragraph number for requirement and test method b) Development test items: Group, order of tests and paragraph number of test method c) Review comments and judgment on qualification test results: Left blank.		
F.3.5.4	Supplementary Information (Formats F-18, F-22) This document shall contain the following information: a) Supplementary explanations to development test (applicable only to Format F-18): This document shall supplement the information that the products are JAXA-developed parts. b) Manufacturing conditions: Title of documents which define the manufacturing conditions of test samples. Example: QMLP-001 Quality Assurance Program Plan (12 June, 1998) c) Failure rate level (applicable only to Format F-22): For established reliability parts or if applicable within the company. d) Others: Other supplementary information pertaining to the application e) Attachment: Titles of attached documents (except for documents to be submitted) ("None" if no documents are attached). f) Contact information (pertaining to this application): Contact information including the quality assurance manager or registered inspector of the applicable common parts/materials		
F.3.5.5	Report of Qualification Test (Development Test) (Formats F-17, F-21) This document shall be a cover page for the Results of Qualification Test (Development Test) and shall contain the following information. If whole of the qualification test are omitted, the company does not have to prepare this document. a) Name of parts (products): Description of the common parts/materials specified in the applicable specifications b) Part number: Part numbers specified in the applicable specifications. The individual identification and description that follows the part type may be omitted c) Production sites: Name and address of all factories involved in the production. d) Contact information (pertaining to the applicable product): Contact information including address and department name of engineering, assurance and sales departments e) Title and document number of applicable specification and standard: Titles and document number of the applicable specifications and standards of the common parts/materials f) Qualification coverage: Qualification coverage specified in the applicable specification which reflects the qualification test results		

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	g) Approval number of the Qualification Test Application (Implementation Plan for the Development Test) h) Test site i) Test period j) Witness of qualification test (Development officer): Left blank. F.3.5.6 Results of Qualification Test (Development Test) (Formats F-19, F-23) This document integrates results of qualification test and shall contain the following information: a) Order of tests: The order of tests in numbers b) Test item: Test items specified in the applicable specifications (Corresponding item number of applicable specifications may be shown) c) Conditions and requirements: Conditions and requirements specified in the applicable specifications (Corresponding item number of applicable specifications may be shown) d) Test results: Summary of test results. Use a separate sheet(s), if necessary e) Judgment of the witness of qualification test (development test supervisor): Left blank F.3.5.7 Test Data and Records This document consists of organized data and records from the qualification test prepared to verify the test results specified in paragraph F.3.5.6. The company shall also submit records to show that test conditions satisfied requirements of applicable specifications. F.3.5.8 Application Data Sheet The Application Data Sheet shall be prepared in accordance with Appendix G. F.3.5.9 Detail Specification Latest detail specification, which was established by the company, shall be attached. F.3.5.10 Quality Assurance Program Plan and Quality Manual Latest quality assurance program plan shall be attached. When the plan is not changed, attachment may be omitted. When quality manual is referred in quality assurance program plan, the quality manual shall be attached. If quality manual cannot be attached due to security reasons, the company shall disclose the quality manual at quality assurance program review. F.3.5.11 TRB Status Report TRB status report, of which reporting period is from qualification test application to certification application, shall be prepared and submitted in accordance with Appendix K.		

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F.3.6 Application for Certification Retention a) This application shall be submitted by the due date specified in paragraph 3.4.2 of this specification. b) Two copies of documents mentioned in Table F-1 shall be submitted (1 for original, 1 for duplicate). c) If the application is approved, JAXA shall send Certificate to the company accompanied with the duplicate of the application. F.3.6.1 Application for Certification Retention (Format F-24) This document shall be a cover page for the Application for Certification Retention and shall contain the following information. a) Document number: Document number assigned by the QML manufacturer b) Date: Date (dd/mm/yyyy) the application is submitted c) Applicant: Unless otherwise specified, the representative's name with the company name, address and telephone number d) Name of parts (products): Name of the JAXA qualified parts specified in the detail specifications e) Title and document number of the applicable specifications: Title and document number of the applicable specifications f) Production site: Name and address of all factories involved in the production g) Title and document number of quality assurance program plan: Whole of quality assurance program plan for the JAXA qualified parts h) Effective period of current certification: Expiration date specified in the current certificate. i) Current certification number (date) j) Qualification retention number: Left blank k) Date of qualification retention: Left blank l) Approval seal of JAXA president: Left blank F.3.6.2 Report of Quality Conformance Inspection Status (Format F-26) This document shall be a cover page containing results of the quality conformance inspection conducted within the effective period of certification or quality conformance inspection at restarting production and contain the following information. This document shall include following information. This document shall include results of quality conformance inspection at manufacturing and results of initial failure prevention (screening). Test reports prepared by the company may be used as this document. a) Name of parts (products): Description of the JAXA qualified parts specified in the detail specifications b) Part number: Part numbers specified in the detail specifications. The individual identification and description that follows the part type may be omitted. c) Document number of detail specification d) Manufacturing conditions: Title and document number of documents which define the manufacturing conditions of test samples (Quality Assurance Program Plan) Example: QMLP-001 Quality Assurance Program Plan (12 June, 1998)			

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	e) Name of quality assurance manager f) Name of registered inspector g) Inspection items h) Criteria of pass/fail i) Sample size (allowable number of defectives) j) Inspection results: Number of defectives, the maximum, minimum and average values of measurements shall be reported. Non-numerical test results shall be briefly described. k) Inspection period l) Judgment on inspection m) Lot number (production date)		
F.3.6.3	Quality Assurance Program Plan The Quality Assurance Program Plan shall be attached if the plan has been changed.		
F.3.6.4	Report of Qualification and Delivery Status (Format F-25) This document shall provide production status of the JAXA qualified parts and shall contain the following information. When items a), b), n), o) and p) are shown, the formats controlled by the company may be used. a) Name of parts (products): Name of parts (products) specified in the detail specifications b) Part number: Part numbers specified in the detail specifications. The individual identification and description that follows the part type may be omitted. c) QML manufacturer: Name of the QML manufacturer d) Detail specification number: Document number and established date of the detail specification e) Qualification coverage: Qualification coverage defined in the applicable specifications f) Production sites: Name and address of all factories involved in the production g) Manufacturing conditions: Title and document number of document(s) which define the manufacturing conditions (Quality Assurance Program Plan) shall be reported. All conditions of all shipped products applied during the production period shall be described. Traceability between delivered products and the applied manufacturing conditions is not required. Example: QMLP-001 Quality Assurance Program Plan (12 June, 1998) h) Current certification number i) Effective period of current certification: Expiration date specified in the current Notice of Approval for Certification Retention j) Name of quality assurance manager k) Name of registered inspector l) Name of parts: Name of parts, if the parts are delivered m) Part number: Part numbers specified in the detail specifications. The individual identification and description that follows the part type may be omitted. n) Quantity of delivered products		

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o) Customer: Name of the company to which products are delivered (primary delivery only) p) Shipment date: Date of shipment q) Note: If any remarks. F.3.6.5 Change Status Report of Quality Assurance Program (Format F-27) This document shall provide control and maintenance status of the quality assurance program for the TRB status report or application for certification retention and shall contain the following information. The documents, which represents change of quality assurance program, such as revision history of the Quality Assurance Program Plan may be used in place of this report. When changes are not sufficiently communicated via a revision history alone, a copy of updated pages in the Quality Assurance Program Plan shall be attached. a) Name of parts (products): Name of parts (products) specified in detail specification b) Part number: Part numbers specified in the detail specifications. The individual identification and description that follows the part type may be omitted c) Name of the company d) Title and document number of detail specification e) Production site(s): Name and address of the production site(s) f) Document number and established date of Quality Assurance Program Plan g) Reporting period h) Name, department and seal of quality assurance manager i) Description of change(s): The following information on change within report target period shall be provided. 1) Document number 2) Revision or change date 3) Updated contents and reason F.3.7 TRB Status Report (Format F-28) This document is used to report TRB status annually after acquiring certification. This document shall be a cover sheet for a TRB activity report submitted with related documents to JAXA annually from the certification date and shall contain the following information. a) Subject of report: Name, detail specification number, and certification number of subjected common parts/materials. b) Reporting period Example: 5 March, 2019 to 4 March, 2020 c) Report item: Check the box of applicable item(s). Add attached document number, if any. F.3.8 Certification Declination F.3.8.1 Advance Notice The QML manufacturer shall provide the following information no later than 120 days prior to the last date of final order in the form of technical notice and notify JAXA of certification declination.			

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	a) Products for declination 1) Name of the JAXA qualified parts 2) Detail specification number 3) Current certification number and date 4) Name of the QML manufacturer b) Reason for declination c) Last date of the final order d) Alternative products e) Contact information f) Quality assurance system for already shipped products after certification declination		
F.3.8.2	Notice of Certification Declination		
	After the last date of final order, the QML manufacturer shall provide following information in the form of technical notice and submit to JAXA.		
	a) Results of final order b) Planned declination date of certification		
	After the final shipment, TRB final report shall be submitted to JAXA as soon as possible.		
F.3.8.3	Declination of a Part of Certification		
	When the QML manufacturer declines a part of certification coverage, the certification shall be in accordance with paragraph 3.4.6 and requalification shall be in accordance with paragraph 3.4.3.		
	Effective period of certification is not changed even though the requalification application is approved.		
F.3.9	Nonconformance information (Format F-29)		
	This document shall contain the following information.		
	a) Date: Date of nonconformance occurrence of JAXA qualified parts or similar parts b) Part number: Part number of nonconforming parts c) Brief description of nonconformance d) Title and number of related document(s): Title and document identification of a technical notice or nonconformance report submitted to JAXA.		
F.3.10	Certificate (Format F-30)		
	Since this document will be prepared by JAXA when initial qualification, qualification retention or requalification is completed, the company does not have to submit.		
F.3.11	Available supplies parts list (Format F-31)		
	This document is prepared for JAXA to recognize JAXA qualified parts, which can be supplied by the QML manufacturer at the time of initial qualification or TRB status report. This document shall contain following information. When the QML manufacturer controls the available supplies parts list separately, the list may be used. When any parts are removed from the available supplies parts list, the parts shall be indicated by strike-through.		
	a) Document number: Designated by the QML manufacturer		

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b) Date: Submittal date of list c) Name of parts (products): Name of parts (products) specified in detail specification d) Name of the QML manufacturer e) Production sites: Name of manufacturer f) Document number and title of detail specification g) Effective period of certification h) Part number: Parts number specified in detail specification i) Drawing number / identification number: If individual product cannot be identified only by part number j) Specification outline: If specification is not identified by part number F.3.12 Postponement Request of Qualification Retention Review When qualification retention review is postponed, the QML manufacturer shall notify JAXA of following items in the form of technical notice. a) Concerned JAXA qualified parts 1) Name of JAXA qualified parts 2) Document number of detail specification 3) Document number and date of quality assurance program plan 4) Current certification number and effective period of current certification 5) The QML manufacturer b) Reason for postponement of qualification retention review c) Postponement period of qualification retention review F.3.13 Technical Notice (Format F-32) This format is an example used for submittal of technical notice to JAXA.			

QUALIFICATION TEST APPLICATION

Document No.

Date:

(President's name)

President

Japan Aerospace Exploration Agency

Applicant

Address:

Company:

Representative:

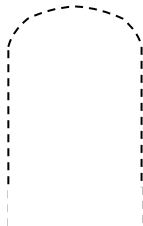
Telephone number:

seal

seal

Per paragraph 3.4.1.1 of JAXA QTS-2000, I hereby request approval to conduct qualification tests as specified in the Implementation Plan for Qualification Test.

Name of parts (products)		Title and document number of applicable specification	
Production sites		Document number and title of quality assurance program plan	


(Tally impression of original and duplicate)

Review comments and judgment

The application is hereby approved / disapproved ⁽¹⁾.

Approval number	Date of approval (dd/mm/yyyy)	JAXA president's seal for approval

(1): Unnecessary word shall be erased with double lines.

IMPLEMENTATION PLAN FOR QUALIFICATION TESTS

Name of parts (products)	Part number	Qualification coverage	Production site(s)

1. Applicable specifications and standards

1.1 Titles and document numbers

Specification number	Specification title

1.2 Deviations from the requirements

2. Purpose (and focus points / background)

3. Rationale for sample selection and supplementary information

3.1 Rationale for sample selection

3.2 Rationale for waiver of test(s)

3.3 Manufacturing conditions

3.4 Others

3.5 Attachment(s)

Contact information

Company	Department	Name	Telephone number

Test order	Test group	Qualification test		Sample size	Allowable number of defectives
		Paragraph number	Test item		

5. Test items and methods of qualification test

Test order	Test item	Conditions and requirements	Specified test method	Actual test method

6. Names and major specifications of test equipment

Test equipment	Relevant test item	Major specification	Calibration status

Format F-7

[illegible]

Format F-8

8. Test site and guide map

(Provide a detailed description of the test site and guide map.)

- (1) Name of test site
- (2) Address
- (3) Telephone number
- (4) Contact information

**NOTICE OF
QUALITY ASSURANCE MANAGER / REGISTERED INSPECTOR**

Document No.

Date:

(Director's name)
Director
Parts Program Group,
Safety and Mission Assurance Department⁽¹⁾
Japan Aerospace Exploration Agency

Applicant

Address:

Company:

Representative:

seal

Telephone number:

In compliance with paragraphs 3.3.3 and 3.3.4 of JAXA-QTS-2000, I hereby notify JAXA that the following person is the (quality assurance manager/ registered inspector) for our company and is responsible for the quality assurance of products subject to certification.

1. Name
2. Department
3. Job title
4. Telephone number
5. Fax number
6. E-mail address
7. Parts (products) assigned
8. Career in the company
9. Rationale for change (if applicable)
10. Date of change (if applicable)
11. Predecessor (if applicable)

Note: Designate either Quality Assurance Manager or Registered Inspector by striking out the irrelevant title.

Note ⁽¹⁾: The name of the department/group at the time of submission of this notice shall be stated.

CHANGE REQUEST FOR QUALIFICATION TEST APPLICATION

Document No.

Date:

(President's name)

President

Japan Aerospace Exploration Agency

Applicant

Address:

Company:

seal

Representative:

seal

Telephone number:

In compliance with paragraph 3.4 of JAXA-QTS-2000, I hereby request a change to the Qualification Test Application (document number) submitted on (dd/mm/yyyy) for the following reason.

1. Name of parts (products)
2. Production site
3. Document number and title of quality assurance program plan
4. Approval number of qualification test application
JAXA-QTR- (Approved date: dd/mm/yyyy)
5. Rationale and reason for change (may be attached separately)

NOTICE OF QUALIFICATION TEST TERMINATION / APPLICATION WITHDRAWAL

Document No.

Date:

(President's name)

President

Japan Aerospace Exploration Agency

Applicant

Address:

Company:

Representative:

Telephone number:

seal

seal

In compliance with paragraph 3.4 of JAXA-QTS-2000, I hereby notify
(Termination / Application Withdrawal) ⁽¹⁾ of the qualification test due to the
following reason.

1. Name of part (products)
2. Production sites
3. Document number and title of quality assurance program plan
4. Approval Number of Qualification Test Application (if already approved)
JAXA-QTR- (Date of Approval: dd/mm/yyyy)
5. Reason for Application Withdrawal or termination (may be separately attached)
6. Test reports (if terminated) (may be separately attached)

(1): Unnecessary word shall be erased with double line.

APPLICATION FOR CERTIFICATION

Document No.

Date:

(President's name)

President

Japan Aerospace Exploration Agency

Applicant

Address:

Company:

seal

Representative:

seal

Telephone number:

In compliance with paragraph 3.4 of JAXA-QTS-2000, I hereby request QML certification of the following product (s).

By submitting this application, I agree to be bound by the obligation stated in paragraph 1.4 of JAXA-QTS-2000.

Name of parts (products)		Title and document no. of applicable specification	
Production site		Title and document no. of quality assurance program plan	

Review comments and judgment:

Review comments by chief witness	Example: As a result of a review of items such as development tests, the quality assurance program, the quality assurance program plan and organization, at a minimum, the application is considered to satisfy all requirements. Chief witness:
-------------------------------------	---

Judgment	Example: Application No. _____ (issued on dd/mm/yyyy) is judged appropriate. Judged by:
----------	--

The application is approved / disapproved ⁽¹⁾.

Certification number	Approval date (dd/mm/yyyy)	President's seal for approval

(1): Unnecessary word shall be erased with double line.

**CORRELATION TABLE BETWEEN
QUALIFICATION TEST ITEMS AND
DEVELOPMENT TEST ITEMS**

Qualification test item					Development test item		
Group	Test order	Test item	Requirement paragraph	Test method paragraph	Group	Test order	Test method paragraph
A	1						
	2						
	3						
	4						

Review
comments and
judgment on
qualification test

Example:

All the qualification tests have been performed as development tests and they have been confirmed that all the requirements were fulfilled.

By:

REPORT OF DEVELOPMENT TEST

1. Summary of development test

Name of Products (Product Group)	Part number	Production site(s)	Contact information
Title and document number of applicable specification and standard	Qualification coverage	Approval number of the Application for Qualification Test	
Test site		Development officer	
Test period			

1. Supplementary information

1.1 Supplementary explanations to development tests

This section provides supplementary information indicating that the part is a JAXA-developed part.

Example:

The qualification test for this application is substituted by the development tests performed under a contract “Development of XXXX” implemented in xxxx (year).

The Qualification Test Application is substituted by the Implementation Plan for Development Test, Approval No. xxxxxx.

1.2 Manufacturing conditions

1.3 Others

1.4 Attachment(s)

Contact information

Company	Department	Name	Telephone number

2. Results of development test

Test order	Test item	Conditions and requirements	Test results	Judgment of development test supervisor

Review comments and judgment:

Review comments by witness on qualification test results	
Overall review comments by the witness	This application is considered appropriate. Chief witness: Assistant witness:

Judgment	Example: Application No. _____ (dd/mm/yyyy) is judged appropriate. Judged by:
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The application is approved / disapproved ⁽¹⁾.

Certification number	Approval date (dd/mm/yyyy)	President's seal for approval
Certification number of the last certification	Date of the last certification (dd/mm/yyyy)	

(1) Unnecessary word shall be erased with double lines.

REPORT OF QUALIFICATION TEST

1. Summary of qualification test

Name of parts (products)	Part number	Production site(s)	Contact information

Title and document number of applicable specification and standard	Qualification coverage	Approval number on the Qualification Test Application

Test site		Witness

Test period		

1. Supplementary information

1.1 Manufacturing conditions

1.2 Failure rate level

1.3 Others

1.4 Attachment(s)

Contact information

Company	Department	Name	Telephone number

2. Results of qualification test

Test order	Test item	Conditions and requirements	Test results	Judgment by witness

APPLICATION FOR QUALIFICATION RETENTION

Document No.

Date:

(President's name)

President

Japan Aerospace Exploration Agency

Applicant

Address:

Company:

seal

Representative:

seal

Telephone number:

In compliance with paragraph 3.4 of JAXA-QTS-2000, I hereby request qualification retention of the following product(s) with supporting documents.

By submitting this application, I agree to be bound by the obligation stated in paragraph 1.4 of JAXA-QTS-2000.

Name of Parts (Products)		Title and document no. of applicable specification	
Production Site		Title and document no. of quality assurance program plan	
Effective period of current certification		Current certification no. (date)	JAXA-QTR- (. .)

This application is approved / disapproved ⁽¹⁾.

Number of qualification retention	Date of qualification retention (dd/mm/yyyy)	Approval seal of JAXA president

(1) Unnecessary word shall be erase with double lines.

REPORT OF QUALIFICATION AND DELIVERY STATUS

Name of parts (Products)		Part number		QML manufacturer	
Detail specification number (date of issue)		Qualification coverage		Production site(s)	
Manufacturing conditions (for all products shipped within certification period)					
Current certification no. (dd/mm/yyyy)				Name of quality assurance manager	
Effective period of current certification				Name of registered inspector	
Part	Part number	Quantity of delivered products	Customer	Shipment date	Remarks

Name of parts (Products)			Detail specification number				
Part number			Manufacturing conditions				
Lot number (production date)			Inspection period				
Name of quality assurance manager			Name of registered inspector				
Inspection item	Criteria for pass/fail	Sample size (allowable no. of defectives)	Inspection results				Judgment
			Quantity of defectives	Max.	Min.	Avg.	

CHANGE STATUS REPORT OF QUALITY ASSURANCE PROGRAM

Name of parts (products)	Part number	Company
Title and document number of detail specification		Production site(s)
Document number and established date of Quality Assurance Program Plan		
Reporting period		
Name and department of quality assurance manager		
Description of change(s)		
Document number	Last update / change date	Updated contents and reasons

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TRB STATUS REPORT

(Director's name)

Director

Parts Program Group,

Safety and Mission Assurance Department⁽¹⁾

Japan Aerospace Exploration Agency

Document No.

Date:

Reporter

Company:

Department

Registered inspector:

Telephone number:

E-mail address

seal

In compliance with paragraph K.3.6.1 of JAXA-QTS-2000, I hereby report status of TRB activity.

1. Subject of report

Product:
 Detail specification number:
 Certification number:
2. Period covered
3. Report item

Report item	Yes	No	Document no.
1) TRB meeting minutes			
2) Report of Qualification and Delivery Status (Format F-25)			
3) Report of Quality Conformance Inspection Status (Format F-26)			
4) Change Status Report of Quality Assurance Program			
5) Nonconformance, failure analysis results of parts returned from customers and corrective actions (Format F-29)			
6) Available supplies parts list (Format F-31)			
7) Critical changes, additions, improvements or trend control in design and structure (incl. materials), production process, test and inspection			
8) Addition of new product(s) and/or package(s) within qualification coverage			
9) Changes to qualification coverage and recertification planning			
10) New certification plan			
11) Others:			

Note ⁽¹⁾: The name of the department/group at the time of submission of this notice shall be stated.

JAXA Judgement

Approved by	Reviewed by

Format F-28

Nonconformance Information

Date	Part number	Description	Title and number of related document(s)

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Document number

Date:

Company

Representative

(President's name)

President

Japan Aerospace Exploration Agency

Certificate

On the basis of certification provision for JAXA qualified parts (No. 15-42),
following company is certified as the QML manufacturer.

The QML manufacturer

Production site

Name:

Address:

Applicable specification

General specification

JAXA-QTS-xxx (Established date:)

Detail specification

JAXA-QTS-xx/xx (Established date:)

Quality assurance program plan

manufacturing in accordance with quality assurance

program plan

(Manufacturing condition)

(Document number: (Rev.) (revised date:))

Certification number:

Certification Date

Expiration date of certification

Format F-30

Available Supplies Parts List

Document number:

Date:

Name of parts (products)	QML manufacturer	Production site
Number and title of detail specification		Effective period of certification
Name of quality assurance manager		
Available supplies parts ⁽¹⁾		
Part number	Drawing number / Identification number ⁽²⁾	Specification outline ⁽³⁾

Notes ⁽¹⁾ Available supplies parts list may be attached separately.

⁽²⁾ When individual products cannot be identified only with part number.

⁽³⁾ When product specification cannot be specified by part number.

Format F-31

Remarks⁽¹⁾ Organization name shall be shown at submittal of technical notice.
Format F-32

APPENDIX G

GUIDELINE FOR PREPARATION OF APPLICATION DATA SHEET

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This document is the English version of JAXA QTS/ADS which was originally written and authorized in Japanese and carefully translated into English for international users. If any question arises as to the context or detailed description, it is strongly recommended to verify against the latest official Japanese version.

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APPENDIX G GUIDELINE FOR PREPARATION OF APPLICATION DATA SHEET G.1 Scope This appendix provides instructions to prepare the Application Data Sheet as required in paragraph 3.4 in this specification. G.2 General Requirements The Application Data Sheet is established to provide users with helpful information such as usage notes. For this purpose, this appendix provides the minimum guideline to prepare the Application Data Sheet. Prepared application data sheet shall be released on JAXA qualified EEE parts and materials database. G.2.1 Management a) Application data sheet shall be maintained. Application data sheet shall be revised in the following cases: 1) When the text of change application data sheet is equal to or more than 10 pages, or when 10th change application data sheet is issued. 2) When correction of application data sheet is equal to or more than 50% of whole. 3) When applicable documents were cancelled or transferred to alternative documents. b) Application data sheet and change application data sheet shall be prepared and established by the QML manufacturer or the company which wishes to acquire certification. After reviewing the application data sheet, the QML manufacturer or the company which wishes to acquire certification shall request JAXA to register the data sheet. c) Application data sheet shall be issued by JAXA and released on JAXA qualified EEE parts and materials database. d) When application data sheet is revised, previous version of the application data sheet (including change application data sheet) shall be cancelled on the date of establishment of the revised version. If previous version of the application data sheet is not cancelled on the date of establishment of the revised version, cancellation date shall be shown on cover page. If application data sheet is cancelled without revision, cancellation date shall be shown on change application data sheet. e) JAXA shall cancel application data sheet or suspend issuance in the following cases: 1) When application is difficult due to obsolescence of requirements for technology or management. 2) When alternative application data sheet is established. 3) When the application data sheet is considered to achieve its intended objectives. 4) Other when JAXA accepts cancellation.			

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G.3 General Rules for Preparation a) Terms defined in JIS shall be used. b) Unless otherwise specified, an Application Data Sheet shall be prepared for each part to be certified, or for each detail specification. c) In addition to data about the JAXA qualified parts, data about similar products may be included in the data sheet. In this case, the data about similar products shall be clearly identified. d) If applicable specification are revised and application data sheets are changed, the application data sheets shall be revised. The revised items shall be provided in a revision history. e) Error corrections or minor changes may be notified via change application data sheet. The format of the change application data sheet is shown in Format example G-2. f) Application data sheet and change application data sheet shall be prepared and established by the QML manufacturer. The QML manufacturer shall request JAXA to register the application data sheet. G.4 Guidelines for Preparation The Application Data Sheet shall include the following items as a minimum: a) Cover page b) Revision history (Reasons for change shall be included) c) General d) Summary of parts e) Usage f) Performance characteristics in normal operation g) Performance characteristics in various operating environments h) Environmental limits i) Reliability data j) Storage conditions k) Handling instructions l) Others G.4.1 Cover Page Cover page shall include the following items: a) Part description: Part description shall be described identifying the products from their part group. b) Part number or part type: Part numbers or types shall be described as specified in the applicable specifications. c) Applicable specification: Document numbers of the generic specifications for each product type and detail specifications shall be described. d) QML Manufacturer: Name of the QML manufacturer shall be described. e) Year and month: Year and month when the Application Data Sheet was prepared shall be described.			

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G.4.2 Revision History The revision history shall be as specified in paragraph G.3, item d). G.4.3 General This section shall be prepared as follows: G.4.3.1 Purpose The purpose of the document shall be stated as shown in the example below. Example: This Application Data Sheet provides detailed information necessary for part users to select, design or use JAXA qualified parts. Users are not discharged from the responsibility. G.4.3.2 Applicable Documents This section shall provide a list of the document number and the title of applicable specifications that define requirements for the JAXA qualified parts and other applicable documents such as MIL specifications. G.4.3.3 Reference Documents This section shall provide a list of the document number and the title of reference documents such as technical documents and catalogues that are used to prepare application data sheet. G.4.4 Summary of Parts This section shall provide a summary of the JAXA qualified parts such as features, functions, applications and quality levels. G.4.4.1 External View and Dimensions The case outlines, dimensions and markings (inspection lot identification code, serial number, trademark and other identifications) shall be shown by photographs and/or figures. G.4.4.2 Mass Product mass (typical value) shall be provided. G.4.4.3 Element Construction The outline of element construction shall be provided in figures and/or photographs with information such as names of major parts, materials used and finish. G.4.5 Usage This section shall provide recommended usage and special instructions for circuit and mounting designs. Handling instructions for processes such as storage and assembly shall be provided in a separate section. G.4.5.1 Absolute Maximum Ratings The ratings or absolute maximum ratings specified in the applicable specifications shall be provided.			

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G.4.5.2	Remcommended Operating Conditions The recommended operating conditions specified in the applicable specification shall be provided.		
G.4.5.3	Special Instructions on Cirucuit Design The recommended circuits, interfaces, timing, preventive circuits against root cause of nonconformance specific to the JAXA qualified parts, and prohibited usages shall be specified.		
G.4.5.4	Recommended Mounting Method This section shall provide recommended mounting methods for heat dissipation and shielding which should particularly be taken into consideration, and prohibited mounting methods for the JAXA qualified parts.		
G.4.6	Performance Characteristics in Normal Operation This section shall provide performance characteristics assured in the applicable specifications.		
G.4.6.1	Electrical Characteristics Measured values or distributions, which are concerned with electrical characteristics specified in the applicable specifications, shall be provided.		
G.4.6.2	Mechanical and Thermal Characteristics Measured values or distributions mentioned below and specified in the applicable specifications regarding to mechanical and thermal characteristics shall be provided. a) Temperature cycling b) Thermal shock c) Resistance to soldering heat d) Moisture resistance e) Vibration f) Shock g) Constant acceleration h) Terminal strength i) Others		
G.4.7	Performance Characteristics in Various Operating Environments The electrical characteristics in various operating environments specified below shall be provided. a) Temperature characteristics b) Input-output characteristics c) Drifts at various environmental tests d) Drifts at life tests e) Other necessary characteristics		

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G.4.8	Enviornmental Limits		
	Evaluation data of various environmental tests conducted as part of the development tests or other tests shall be provided in addition to the environmental limits defined in the applicable specifications. The main environmental parameters shall include temperature, vibration, mechanical shock, constant acceleration, ESD sensitive (if necessary) and radiation hardness (if necessary). Test conditions, sample size and test results shall be provided for each test. The existing data about products with similar structure may be used if available.		
G.4.9	Reliability Data		
	The following information shall be provided in this section. If the JAXA qualified part data relating to the following issues is not available, the data about equivalent commercial products or products of similar structure may be used. In this case, the data shall be identified.		
G.4.9.1	Faiure Rate		
	This section shall provide failure rate or failure rate curve which is predicted by field data, acceleration test data, etc., clarifying operating conditions, confidence level and criteria for pass/fail, at a minimum.		
G.4.9.2	Failure Mode		
	This section shall provide predictable failure modes such as open circuit, short circuit and performance deterioration and their occurrence rate.		
G.4.10	Storage Conditions		
	This section shall provide recommended storage conditions including temperature, humidity and antistatic package.		
G.4.11	Handling Instructions		
	This section shall provide special instructions on terminal bending, thermal stress due to soldering heat and electrostatic discharge protection, etc.		
G.4.12	Others		
	Address and inquiry information about the QML manufacturer shall be provided in this section.		

Example: Format G-1 (Cover page)⁽¹⁾

JAXA-ADS-2050/Axxx

COMMON PARTS/MATERIALS, SPACE USE,
APPLICATION DATA SHEET FOR

Part Description	Resistors, Fixed, High Reliability, Space Use
Part Number and Type	NASDA RNS90C NASDA RNS90P
Applicable Specification	JAXA-QTS-2050 JAXA-QTS-2050/Axxx

(Month and Year)

Prepared and Established by ABCD Corporation

Issued by Japan Aerospace Exploration Agency

Note: ⁽¹⁾ This cover page is an example.

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Example: Format G-1 (revision history) ⁽¹⁾

JAXA-ADS-2050/Axxx	J A X A Application Data Sheet	Page	– x –
Revision History			
Rev.	Date	Revised Contents	

Note: ⁽¹⁾ This record is an example.

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Example: Format G-2 (Change Application Data Sheet)⁽¹⁾

JAXA-ADS-2050/Axxx Notice 1	J A X A Application Data Sheet	Day Month Year
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CHANGE NOTICE FOR APPLICATION DATA SHEET

XXXXXXXXXXXXXXXXXXXXXXXXXXXXX,
HIGH RELIABILITY, SPACE USE,
APPLICATION DATA SHEET FOR

Page	Paragraph	Line	Change description		Rationale for change
			Before	After	

Note: ⁽¹⁾ This change notice is an example.

APPENDIX H

SUPPLEMENTARY REQUIREMENTS FOR TESTS AND INSPECTIONS

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This document is the English version of JAXA QTS/ADS which was originally written and authorized in Japanese and carefully translated into English for international users. If any question arises as to the context or detailed description, it is strongly recommended to verify against the latest official Japanese version.

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APPENDIX H SUPPLEMENTARY REQUIREMENTS FOR TESTS AND INSPECTIONS H.1 Scope This appendix defines the supplementary requirements for tests and inspections specified in paragraph 4.3 of this specification. H.2 General Requirments JAXA qualified parts to be qualified and supplied in compliance with the applicable specifications shall meet the supplementary requirements for the test and inspection specified in the following paragraphs: H.3 Requiremnts H.3.1 Failure Counts, Failure Rate and Pass/Fail Criteria When a sample is rejected in one or more tests or inspections, it shall be considered as a single failure. For failure rate tests, the failure period begins at the last time when the sample was verified as normal. Unless otherwise specified in the applicable specifications, if number of test and judgement items for one sample is equal to or more than one and if the sample does not pass all tests, the sample shall fail. H.3.2 Sampling Plan The sampling plan for in-process inspection, qualification test and quality conformance inspection shall be in accordance with the method specified in the applicable specifications. H.3.2.1 Lot Tolerance Percent Defective The lot tolerance percent defective (LTPD) method is a sampling plan to reject 90% of defective lots. This plan is characterized with sample quantity n, acceptance quantity c and rejection quantity $r = c+1$. Table H-1 is applicable for the lot size of 100 or more. If the required sample size exceeds the lot size, 100% inspection shall be conducted. Table H-2 is applicable when the lot size is smaller than 10 times the sample size and no greater than 100. Table H-2 is applicable for sample sizes smaller than Table H-1. The sampling plan in Table H-2 is to judge with the acceptance quantity $c = 0$ using the minimum sample size.			

Table H-2. Minimum Sample Size for LTPD Values

Maximum percent defective (LTPD)	20	15	10	7	5	3	2	1.5	1	0.7	0.5	0.3	0.2	0.15	0.1
Lot size	Minimum sample size (Acceptance number, c = 0)														
10 or less	7	9	9	All											
11 to 20	9	11	14	18	18	All									
21 to 40	10	12	17	23	27	36	All								
41 to 60	10	13	19	26	32	48	54	All							
61 to 80	10	13	20	28	35	54	69	72	All						
81 to 100	10	14	20	28	37	54	69	90	90	All					

Note: If the minimum sample size is more than the lot size, 100 percent inspection shall be conducted.

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H.3.2.2	Inspection Lot If lots for delivery consist of multiple production lots, each production lot shall be treated as a separate lot. H.3.2.3 In-Process Inspection If JAXA confirms that in-process inspection data are equivalent to quality conformance inspection data, results of in-process inspection may be substituted for the results of qualification quality conformance inspection. When results of in-process inspection are substituted for results of quality conformance inspection, detail specification shall specify that test conditions, pass/fail criteria or number of samples, etc. exceed or are equivalent to those of quality conformance inspection. H.3.3 Disposition of Inspection Lots Lots for delivery shall be limited to those that have passed the inspection for delivery of the JAXA qualified parts. For the failed lots, taking action against failure shall be conducted in accordance with paragraph 3.6. Disposition of the failed lots shall be as specified in generic specifications for each product type.		

APPENDIX K

TRB GUIDELINES

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APPENDIX K

TRB GUIDELINES

K.1 Objective

This appendix provides the guidelines for the TRB that is established and operated by the QML manufacturer or the company which wishes to acquire certification in accordance with paragraph 3.3.5 of this specification.

K.2 General Guidelines

The TRB is established to operate the QML system effectively. The TRB shall be a multi-functional team of various experts and is responsible for the supervision of establishment, implementation, maintenance and revisions (changes) of the quality assurance program. The TRB shall also determine a direction of corrective actions, and review and judge the validity of the corrective actions upon completion.

The QML manufacturer shall specify the following items regarding to TRB and shall document TRB operation provision:

- a) Authority (paragraph K.3.1)
- b) Responsibility (paragraph K.3.2)
- c) Organization and structure (paragraph K.3.3)
- d) Tasks (paragraph K.3.4)
- e) Review and judgment (paragraph K.3.5)
- f) Status report (paragraph K.3.6)

K.3 Detailed Guidelines

K.3.1 Authority

After the quality assurance program has been approved by JAXA, the TRB shall have the authority to review and judge as specified in paragraph K.3.5 without prior approval of JAXA. When the TRB exercises the authority, the following conditions shall be met:

- a) The authority exercised by the TRB shall not exceed the qualification coverage.
- b) The functions, performance, reliability and quality of products shall be ensured as qualified.
- c) The authority exercised by the TRB shall not exceed the scope of authority.

K.3.2 Responsibility

The TRB shall be responsible for the following items:

- a) Planning product quality of JAXA qualified parts
- b) Maintenance of the quality assurance program and approval of change control
- c) Assessment of the reliability data analyses
- d) Planning, assessment and approval of the failure analyses
- e) Planning, assessment and approval of the corrective actions
- f) Planning, assessment and approval of changes to the tests and inspections specified in the generic specifications for each product type and detail specifications
- g) Approval of establishment, revisions and cancellation of and changes to the detail specifications

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	h) Approval of establishment, revisions and cancellation of and changes to the Application Data Sheet i) Documentation of the TRB organization, structure and operating procedures j) Implementing TRB tasks (paragraph K.3.4) k) Review and judgment (paragraph K.3.5) l) Status report (paragraph K.3.6)		
K.3.3	Organization and Structure a) The QML manufacturer shall clearly define the TRB members and conditions for TRB establishment. The members of the TRB shall be representatives, i.e. responsible officers such as a chief of a department or section who has influence over the quality of the JAXA qualified parts including design, engineering, production engineering, manufacturing, test (or inspection), quality assurance, production control and others. The quality assurance manager and registered inspector shall be included in the TRB. The TRB may include internal and external experts depending on review topics. In addition, JAXA officials may join the TRB as observers at the TRB's request. b) The QML manufacturer shall assign the quality assurance manager as the decision authority (chairperson) of the TRB. When several decision authorities are designated for different review items, the scope of authority and responsibility for each person shall be clearly defined. c) The relationship between the TRB and the internal organization shall be defined in organization chart of the Quality Assurance Program Plan. d) When the QML manufacturer already has a standing committee equivalent to the TRB provided in QMS, the committee may be designated as the TRB. In this case, the name and structure of the committee shall be included in the Quality Assurance Program Plan. The items reviewed by the committee shall be clearly defined.		
K.3.4	Tasks a) Maintenance of the technology based on the quality assurance program and the quality and reliability of JAXA qualified parts manufactured in accordance with the program b) Assessment and monitoring of the quality and reliability of the JAXA qualified parts c) Maintenance of the qualification coverage defined in the quality assurance program d) Maintenance and control of the design, materials, manufacturing process flow chart and FMAT/FMEA of JAXA qualified parts e) Approval of control plan for manufacturing process flow charts, failure modes, FMAT and each individual process of JAXA qualified parts f) Assessment of education and training plans defined in the quality assurance program g) Retention of TRB review records and report of the records to JAXA h) Assessment and approval of the failure analysis results and emergency reports of failed parts i) Assessment and monitoring of the effectiveness of corrective actions		

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	j) Confirmation on revision status of standards applied in applicable specifications and judgement on application propriety of the latest version		
K.3.5	Review and Judgment		
K.3.5.1	General		
	The QML manufacturer shall have the authority and responsibility to review the following items, as a minimum to maintain the quality of the JAXA qualified parts. Records of the TRB reviews and decisions shall be organized and retained in a manner that any record can be readily available to JAXA upon request.		
	a) Establishment, implementation assessment and change control of the quality assurance program (paragraph K.3.5.1.1) b) Establishment, maintenance and revisions of the Quality Assurance Program Plan (paragraph K.3.5.1.2) c) Establishment, revisions and cancellation of, and changes to the detail specifications (paragraph K.3.5.1.3) d) Establishment, revisions, and cancellation of, and changes to the Application Data Sheet (paragraph K.3.5.1.4) e) Conformance with the qualification coverage (paragraph K.3.5.1.5)		
K.3.5.1.1	Estblishment, Implementation Assessment, and Change Control of Quality Assruance Program		
	The TRB by the QML manufacturer shall review a minimum of the following items of the JAXA qualified parts, determine changes and dispositions and assess their validity. a) Reliability and quality control b) Design reviews c) Compliance with specification and standards d) Establishment and maintenance of criteria for critical processes including changes e) Criteria for technical skills certification f) Selection, control and renewal of the manufacturing, testing and inspection equipment including the changes on the production or test sites g) In-house and external quality audits and the corrective actions h) Education and training plans i) Establishment and optimization of manufacturing, test and inspection conditions j) Change control of the quality assurance program k) Failure analysis and corrective action plans for nonconformance l) Omission of test(s) at requalification		
K.3.5.1.2	Establishment, Maintenance and Revisions of Quality Assurance Program Plan		
	When the QML manufacturer establishes or revises the quality assurance program plan, the QML manufacturer shall assess and maintain the validity of the items a) to l) in paragraph K.3.5.1.1 as a minimum.		

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K.3.5.1.3	Establishment, Revisions and Cancellation of and Changes to Detail Specifications The QML manufacturer shall review the validity of the establishment, revisions and cancellation of and changes to the detail specifications. Effects of revision or cancellation of applicable documents shall be included in the review of validity.		
K.3.5.1.4	Establishment, Revisions and Cancellation of and Changes to Application Data Sheet The QML manufacturer shall review the validity of the establishment, revisions and cancellation of and changes to the Application Data Sheet.		
K.3.5.1.5	Conformance with Qualification Coverage The QML manufacturer shall judge compliance of new products or proposed changes to the design, structure or materials with the qualification coverage specified in the applicable specifications.		
K.3.5.2	Preparation for Review The QML manufacturer shall define requirements on preparing materials required for TRB reviews. The materials shall include the followings as a minimum: a) Document numbers of the generic specification for each product type and the detail specifications b) Part number c) Document number of the Quality Assurance Program Plan d) Scope of review (title of documents which constitute the quality assurance program, tests and inspections) e) Materials supporting review items to be accepted (e.g., assessment items and the results, manifest theories, determination of similar items conducted in the past) f) Area to be affected (functions, quality and reliability of JAXA qualified parts) g) Effective date h) Conformance with the qualification coverage (When revision and cancellation of applicable documents are related, validity of the applicable documents before / after revision and cancellation shall be included)		
K.3.5.3	Implementation of Review a) The QML manufacturer shall conduct TRB reviews at the following occasions as a minimum: 1) At the time of establishing and changing the quality assurance program (including the Quality Assurance Program Plan) 2) At the time of planning the measures and evaluating the corrective actions based on nonconformance investigation results 3) At the time of management review (based on the implementation status of the quality assurance program, results of internal audit and customer complaints, at a minimum) 4) Before the restart of production in the case of exemption of the submission of TRB status report (to check whether any changes were made)		

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	In addition to the above occasions, the QML manufacturer shall conduct TRB review periodically (once a year as a minimum) in order to check whether there are any changes made to the quality assurance program. b) The review shall be conducted in accordance with the TRB operational provisions that specify methods, procedures and checklists. The checklist shall include an item, “impact on customers” specifically performance, quality, price and delivery date, etc. c) Operational provision by the QML manufacturer shall provide that the reviews are conducted on the basis of the materials prepared in accordance with paragraph K.3.5.2. d) At the review, the followings shall be taken into the consideration by the QML manufacturer: 1) Information and results of process improvement 2) Implementation and analysis results of the qualification test and quality conformance inspection 3) Trend and analysis on yields during the manufacturing process and failure modes 4) Nonconformance information and failure analysis results of the JAXA qualified parts and similar products in the past 5) Past production records of the JAXA qualified parts or similar products 6) Information on complaints from JAXA and other customers e) Special caution shall be exercised by the QML manufacturer on the following items during a review: 1) Validity of rationale to accept review items 1.1) Have the changes been reviewed thoroughly? (Has it been objectively confirmed that the equivalent level of performance, quality and reliability are maintained after the change(s)?) 1.2) Has the root cause of the nonconformance been identified? 1.3) Has the action against nonconforming products been properly taken? Has the preventive measure been properly implemented? 1.4) Have the review results been deployed throughout the company? 2) Conformance with the generic specification for each product type and detail specification 3) Conformance with the qualification coverage		
K.3.5.4	Judgment a) The judge shall approve or disapprove requested changes based on results of a review conducted in compliance with paragraph K.3.5.3. b) Judgment shall be made objectively and reasonably. Specifically judgment shall be made quantitatively and qualitatively based on the various evidences including evaluation test data, control methods of manufacturing conditions and established theories.		

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K.3.5.5 Action after Review a) Meeting minutes of TRB by the QML manufacturer shall include the following at a minimum. Change items and contents of the TRB shall be capable of being comprehended by meeting minutes of the TRB. 1) Date of TRB meeting 2) Details of review 3) Results of review (List of items resolved and changed by TRB and judgement on change category shall be included) 4) Action items 5) Relevant detail specification number 6) Relevant part number b) The QML manufacturer shall retain review materials and minutes of meeting as quality records. The records shall be retained for 15 years from the shipping date of the JAXA qualified parts for which the review results were applied, and shall be available to JAXA upon request. c) If the TRB decides to change the qualification coverage, the QML manufacturer shall apply for requalification to JAXA in accordance with paragraph 3.4.3. d) If the TRB decides to modify the detail specifications and/or Application Data Sheet, the QML manufacturer shall take the necessary action in accordance with Section 6. e) Decision authority shall input TRB judgement results into management review and shall promote PDCA of activity. K.3.6 Status Reports K.3.6.1 Status Reports The QML manufacturer shall submit a TRB Status Report to JAXA around the date which is one year from the certified date and every year after that. When the QML manufacture has multiple certificates of JAXA qualified parts, the QML manufacturer may report all at once. However, the QML manufacturer shall report within one year from the previous reporting date. JAXA makes an entry of review result in the column of JAXA review result of format F-28 and shall return TRB status report to the QML manufacturer. This review shall compose retention of qualification review as specified in paragraph 3.4.2. When the QML manufacturer already notified JAXA of omission of preparation and submittal of TRB status report in accordance with paragraph K.3.6.2, JAXA may omit the review. This report shall include all changes. This report shall contain the following information as a minimum. Supplement (such as review materials) shall be attached as necessary. a) TRB meeting minutes b) Report of Qualification and Delivery Status (paragraph F.3.6.4) c) Status Report of Quality Conformance Inspection (paragraph F.3.6.2) d) Change Status Report of Quality Assurance Program (paragraph F.3.6.5) e) Failure analysis results and corrective actions of nonconforming products and customer returns			

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f) Major changes, additions, improvements and trend control in design and structure (including materials), manufacturing process, tests and inspections g) Addition of a new product(s) and/or package(s) within the qualification coverage h) Changes to qualification coverage and requalification plan i) Newly proposed certification plan Reports may be in any form such as a copy of TRB meeting minutes and the summary of major action items. Status Report of Quality Conformance Inspection is not required if already submitted within the valid certification period. K.3.6.2 Exemption of TRB Status Report Preparation and submission of TRB status report can be exempted up to status reporting of JAXA qualified parts, which are not manufactured or shipped, if there was no production, shipment of the JAXA qualified parts within reporting period, and if the quality assurance program was not changed. In this case, the QML manufacturer shall notify JAXA in the form of a technical notice. TRB status report shall not be omitted at retention of qualification. When the production of JAXA qualified parts has restarted, TRB shall be held in accordance with paragraph K.3.5.3, item a) 4). When the production has restarted, the TRB status report shall be submitted by the date from one year from the previous due date.			

APPENDIX Z

PROCEDURE AFTER REVISION OF JAXA-QTS-2000

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APPENDIX Z PROCEDURE AFTER REVISION OF JAXA-QTS-2000 The QML manufacturer shall reflect the items specified in JAXA-QTS-2000E into the quality assurance program plan, within six months from the established date of JAXA-QTS-2000E, which shall then be reviewed by JAXA at the time of TRB status report. If the reflection into quality assurance program plan cannot be completed within above specified period, the QML manufacturer shall coordinate with JAXA.			