AEROSPACE STANDARD

AS9116™	REV. A

Issued 2014-10
Revised 2024-05

Superseding AS9116

Technically equivalent writings published in all IAQG sectors.

Aerospace Series - Notice of Change (NOC)

RATIONALE

This standard was created to define the process requirements and data expectations for the submission of proposed changes in design and manufacturing information that requires approval of the Design Approval Holder (DAH), when the DAH is different from the entity providing the design information requiring approval. This standard provides for the organizational requirements, definitions, and data submission, including suggested data descriptions and format (paper or electronic submission).

This revision to the standard provides updated information and improves the writing clarity to facilitate uniform submittal of change notifications and/or approval when contractually invoked at any level, including sub-tier organizations, or as guidance within the aviation, space, and defense industries.

FOREWORD

To assure customer satisfaction, aviation, space, and defense industry organizations must provide and continually improve safe and reliable products and services that meet or exceed customer and applicable statutory and regulatory authority requirements. The globalization of the industry and the resulting diversity of regional and national requirements and expectations have complicated this objective. Organizations have the challenge of purchasing products and services from external providers throughout the world and at all levels within the supply chain. External providers have the challenge of delivering products and services to multiple customers with varying quality expectations and requirements.

Industry established the International Aerospace Quality Group (IAQG), with representatives from aviation, space and defense companies in the Americas, Asia/Pacific, and Europe, to implement initiatives that make significant improvement in quality and reductions in cost throughout the value stream. This international standard has been prepared by the IAQG.

This standard identifies requirements for design change management and/or manufacturing process change to a previously approved product design (baseline configuration) of the product. This includes requirements for Notice of Change (NOC) data definition and documentation for the aviation, space, and defense industries. The establishment of common requirements for use at all levels of the supply-chain is intended to improve quality, safety, and decrease costs by the elimination or reduction of organization-unique requirements and the resultant variation inherent in these multiple expectations. This standard can be invoked as a stand-alone requirement or used in conjunction with IAQG 9100-series standards (i.e., 9100, 9110, 9120).

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1. SCOPE

1.1 General

The aviation, space, and defense industries rely on the development and manufacture of complex products comprised of multiple systems, subsystems, and components each designed by individual designers (design activities) at various levels within the supply chain. Each design or manufacturing activity controls various aspects of the configuration and specifications related to the product. When a change to design or process is requested or required, the change is typically required to be evaluated against the impacts to the entire system.

Proposed changes to design data/information that the design activity identifies to be minor and have no effect on the product requirements or specifications, have the potential to be implemented and approved, where authorized to do so, but requires notification. Changes that affect customer mandated requirements or specifications shall be approved prior to implementation. In many cases, the design activity is not conducted by the DAH or design authority. The design activity may be several layers below the design approval. Irrespective of where the design activity is conducted in the supply chain, notification is required. The typical change notification flow is presented in Figure 1.

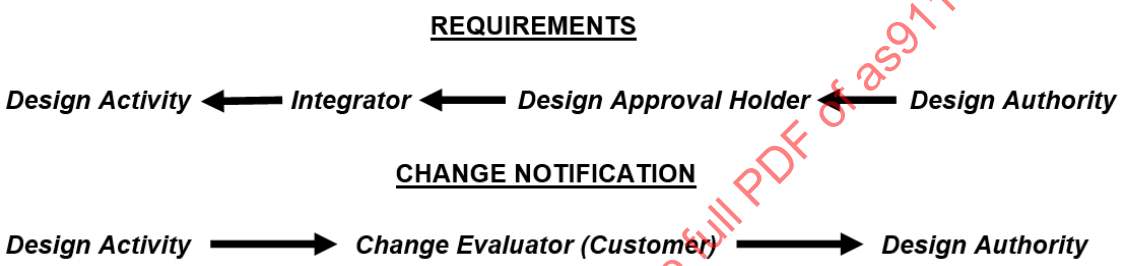

Figure 1 - Requirements for change notification flow

Submitting NOC data either electronically or conventionally on paper is subject to the terms and conditions of the customer's contract. This also includes, where applicable, data access under the regulations of export control.

The process of exchanging, coordinating, and approving NOC data varies with the multiple relationships and agreements among all organizations concerned. An objective of this standard is to provide the definition of a data set that can be integrated into any form of communication (e.g., electronic data interchange, submission of conventional paper forms). A sample form can be found in the Supply Chain Management Handbook (SCMH).

If all or part of this standard is contractually invoked, design organizations and design holders (i.e., the organization responsible for the product end item design) that have responsibility for change management of products used on other higher-level designs shall use the information and processes defined in this standard for submitting change notifications.

1.2 Application

This standard defines the common NOC requirements for aviation, space, and defense organizations. The requirements that a design organization are to use when submitting a NOC to the customer for either change authorization or notification are included herein. A NOC informs the customer of physical or functional (e.g., design, material, software, maintenance) changes or any associated process changes to an established baseline configuration.

Retention of the NOC establishes a means of configuration control and captures the evolution of the part. This requirement is of utmost importance in commercial/civil aviation products where changes to type certificated products are mandated by regulations; however, these same concepts are also required in defense and space applications per contractual requirements.

Where there are changes to items which the organization does not have design input or is not permitted to make any changes to the design [e.g., build to print, Technical Standard Order (TSO) articles] then change requests are to be formally submitted to the customer and approved via the customer's change request process.

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This standard is not applicable to commercial parts [off-the-shelf items not specifically designed for aviation, space, or defense products; aka Commercial off-the-Shelf (COTS)] for which changes in product definition is not affected or known. COTS items that are modified or altered are subject to the requirements herein. When this standard is applied to an organization that distributes product, then this standard is also a requirement to the organization from which the product is procured by the distribution organization.

1.3 Informative

In this standard, the following terms are used:

- "Shall" indicates a requirement;
- "Should" indicates a recommendation;
- "May" indicates a permission; and
- "Can" indicates a possibility or capability.

The words "example" or "e.g." indicate suggestions given for guidance. Information marked "NOTE" is for guidance in understanding or clarifying the associated requirement.

2. APPLICABLE DOCUMENTS

The following publications form a part of this document to the extent specified herein. For dated references, only the edition cited applies. For undated references, the latest edition (including any amendments) applies. When a conflict in requirements between this document and referenced standards exists, the requirements of this document shall take precedence. Nothing in this document, however, supersedes applicable laws and regulations, unless a specific exemption has been obtained.

9100*	Quality Management Systems - Requirements for Aviation, Space, and Defense Organizations
9102*	Aerospace First Article Inspection Requirement
9110*	Quality Management Systems - Requirements for Aviation Maintenance Organizations
9120*	Quality Management Systems - Requirements for Aviation, Space, and Defense Distributors

IAQG Supply Chain Management Handbook (SCMH) (refer to IAQG website - https://iaqg.org/tools/scmh/)

* As developed under the auspice of the IAQG and published by various standards bodies [e.g., AeroSpace and Defense Industries Association of Europe - Standardization (ASD-STAN), SAE International, European Committee for Standardization (CEN), Japanese Standards Association (JSA)/Society of Japanese Aerospace Companies (SJAC), Brazilian Association for Technical Norms (ABNT)].

ANSI/ASME Y14.24	Types and Applications of Engineering Drawings [document available from American National Standards Institute (ANSI); www.ansi.org]
SAE EIA - 649	Configuration Management Standard [document available from SAE International Publications; www.sae.org]
ISO 9000:2015	Quality management systems - Fundamentals and vocabulary
RTCA/DO-254 (EUROCAE ED-80)	Design Assurance Guide for Airborne Electronic Hardware [document available from Radio Technical Commission for Aeronautics Inc.; www.rtca.org]

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3. TERMS AND DEFINITIONS

Definitions for general terms can be found in ISO 9000 and the IAQG Dictionary, which is located on the IAQG website. An acronym log for this standard is presented in Appendix A. For the purpose of this standard, the following shall apply:

3.1 BASELINE CONFIGURATION

Functional, Allocated, and Product baseline definitions that are established by agreeing to the definition of the attributes for a product at a point in time; identifies a known configuration to which changes are addressed. This definition is sometimes determined jointly by the customer and the design activity and may require consultation with the DAH and/or design authority, if different than the customer.

3.2 CHANGE EVALUATOR

The person(s) authorized on behalf of the DAH to assess the potential impact of the change(s), evaluates changes for the potential impact on the fit, form, or functionality of the part, system, or assembly and failure to meet the customer requirements. The change evaluator could also be the customer or the producer of the end item.

3.3 CRITICAL ITEMS

Those items (e.g., functions, parts, software, characteristics, processes) having significant effect on the provision and use of the products and services—including safety, performance, form, fit, function, producibility, service life, etc.—that require specific actions to ensure they are adequately managed. Examples of critical items include safety critical items, fracture critical items, mission critical items, and key characteristics.

3.4 DESIGN ACTIVITY

An organization(s) that transforms customer supplied information and/or design specifications into product attributes to establish the configuration of the product.

3.5 DESIGN APPROVAL HOLDER (DAH)

An organization with formal approval for the design, validation, and service support of a product.

NOTE: In civil aviation, this is the organization responsible for the design of product or for changes thereto that is the holder of a design approval granted by a regulatory authority [i.e., Type Certificate (TC); Supplemental Type Certificate (STC); Parts Manufacturer Approval (PMA); Technical Standard Order (TSO); European Part Approval (EPA); or equivalent].

3.6 END ITEM

The item that is ultimately delivered to the end user (e.g., aircraft, vehicle, propulsion system).

3.7 KEY CHARACTERISTIC

An attribute or feature whose variation has a significant effect on product fit, form, function, performance, service life, or producibility that requires specific actions for the purpose of controlling variation (see 3.3).

3.8 PRODUCT

The definition of ISO 9000 applies. Product examples include a vehicle, engine, equipment, component, deliverable software, or parts and materials thereof. End item (see 3.6).

NOTE: Product may include software that is embedded or field loadable in the end item.

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3.9 SOURCE CONTROL DRAWING (SCD)

An engineering description, qualification requirements, and acceptance criteria for items procurable from a specialized segment of industry, that provides the performance, installation, interchangeability, or other characteristics required for critical applications. A SCD also provides visibility of approved sources and the vendor's item identification that is qualified and approved for use in the critical application(s).

NOTE: Adapted from ANSI/ASME Y14.24.

3.10 SPECIAL PROCESS

A process where the resulting output cannot be verified by subsequent monitoring or measurement and as a consequence, deficiencies become apparent only after the product is in use or has been delivered.

4. CONFIGURATION CHANGE REQUIREMENTS

4.1 Changes to Baseline Configuration

A baseline configuration is an agreed configuration definition from which compliance was shown (e.g., certification baseline). Baseline configuration is captured by design data and is typically retained by the design activity. The baseline configuration shall clearly define the design characteristics and performance requirements of the product, including acceptance conditions of the products to the lowest level of detail necessary to produce the product and ensure compliance with all applicable requirements of the customer.

All changes to previously customer accepted baseline configurations shall be evaluated and approved. Any changes in the configuration shall be submitted to the customer and DAH, if different from the customer. Figure 2 depicts the process when customer delegated change evaluation is not obtained, and Figure 3 is for organizations with customer delegated change evaluation approval.

The product baseline configuration from which changes will be evaluated may include the following elements according to its status/revision/version:

a. SCD.

b. Product specifications and drawings, including electronic data sets and supersession.

c. Bill of Materials (BOM), including definition of spare or substitute parts which may be used in repair, but have different definition than those of baseline configuration parts.

d. Process specifications in accordance with contractual requirements.

e. Manufacturing methods, as shown on engineering drawings or supporting process specifications.

f. Product usage/function/systems application, which may include:

- Effect of product failure on system application.
- Identification of key components, processes, and/or characteristics, as applicable.

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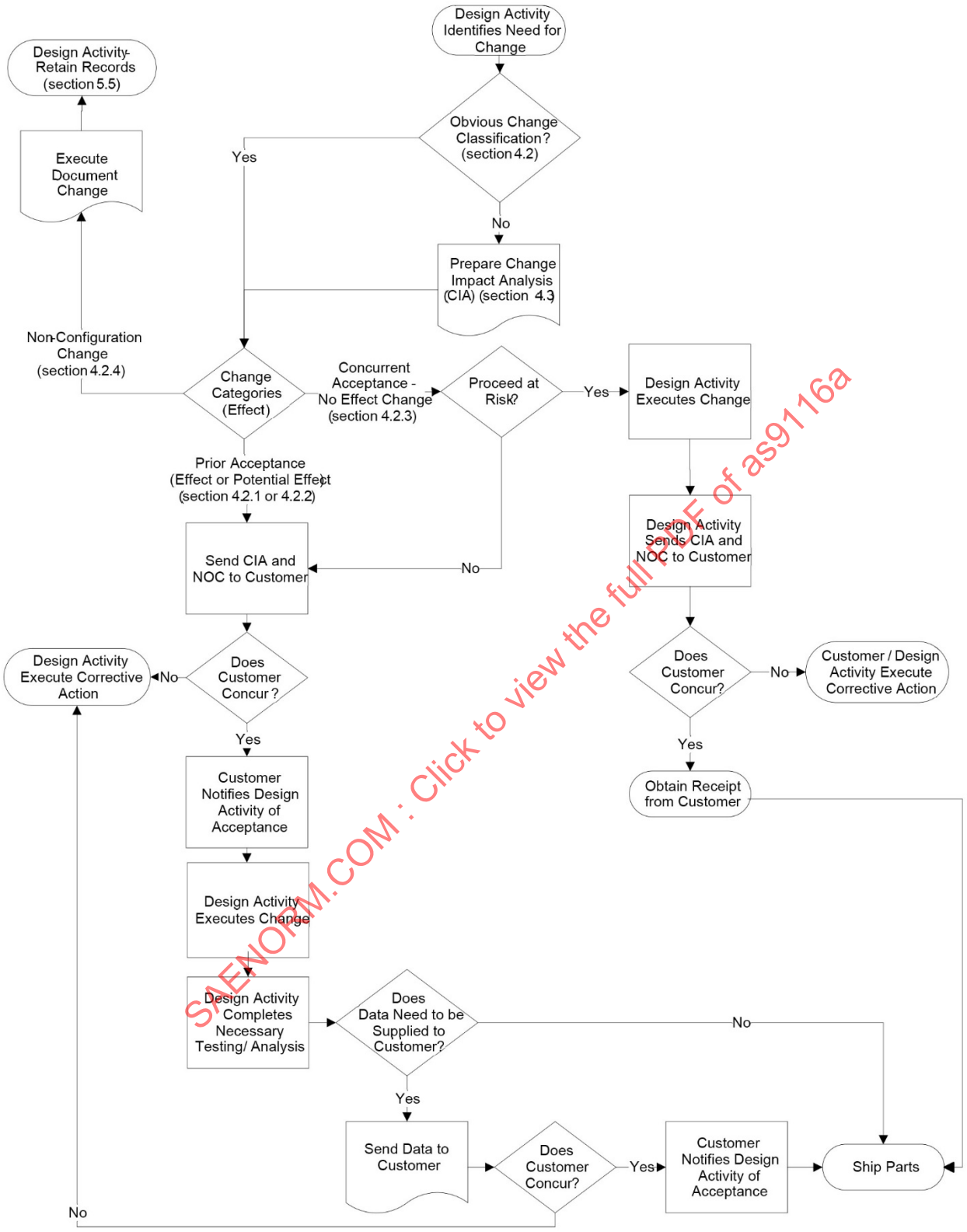

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Figure 2 - Flow chart for Notice of Change (NOC) submittal
(Design Activity is NOT authorized to analyze changes on behalf of customer)
NOTE: Design activity does NOT meet criteria of Section 5

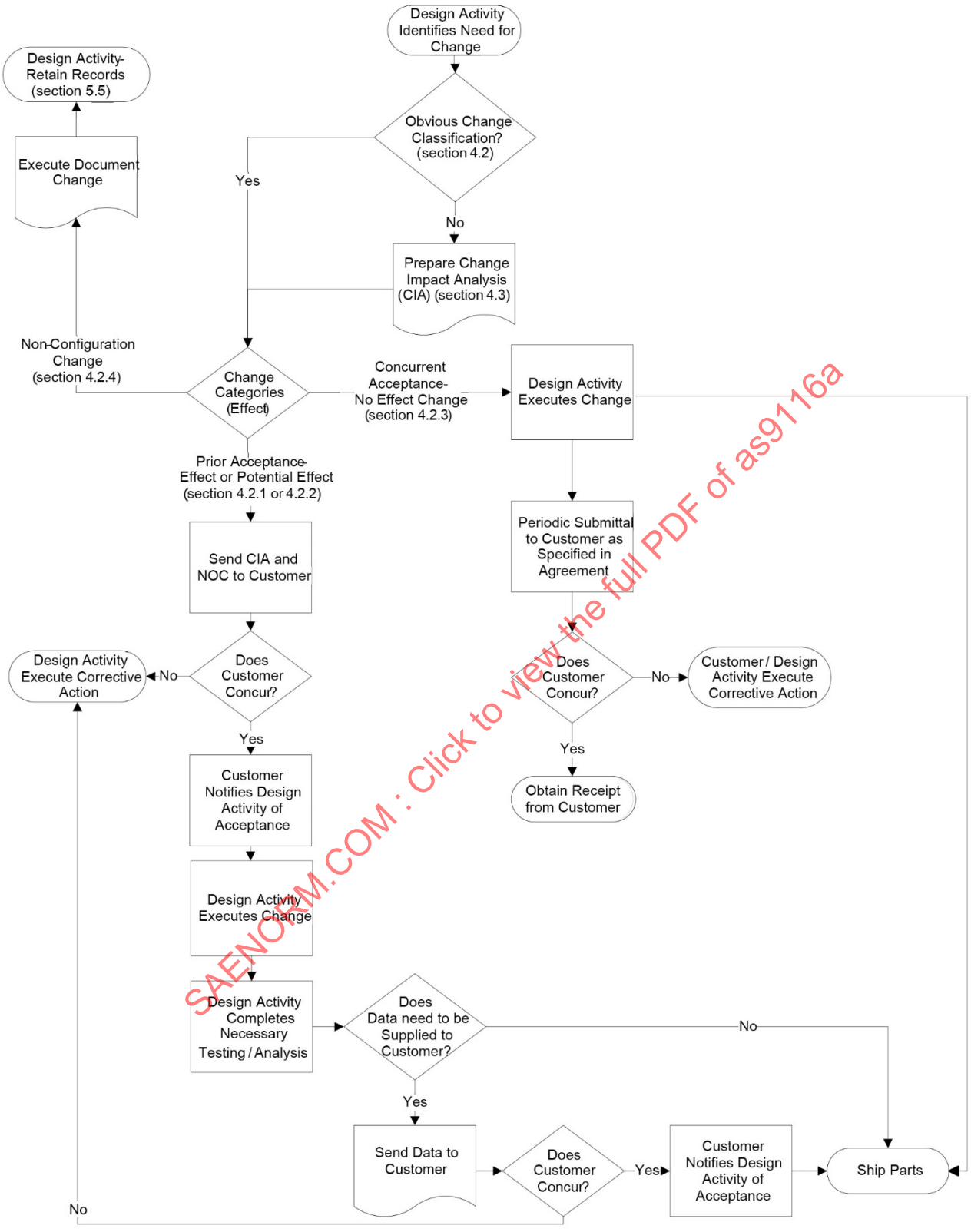

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Figure 3 - Flow chart for Notice of Change (NOC) submittal
(Design Activity is authorized to analyze changes on behalf of customer)
NOTE: Design activity meets criteria of Section 5

4.2 Change Types

Change types are controlled by the customer contract terms and conditions, and/or DAH. The following apply, unless modified or changed by the customer and/or DAH.

4.2.1 Approval Prior to Implementation

Changes in design or design information that shall require prior acceptance from the customer, unless otherwise stated in the contract:

a. Any change that affects product airworthiness or safety.

b. Any change to product function.

c. Any change affecting a SCD or top-level drawing.

d. Any change to product performance tolerances specified by customer or product definition.

e. Weight, balance, or moment of inertia change outside of specification requirements.

f. Change affecting interchangeability, compatibility, maintainability, or repairability at customer serviceable level.

g. Electromagnetic characteristics or signature change.

h. Change in product technical data, including Qualification Test Plan (QTP) or Acceptance Test Plan (ATP); see 4.2.1.q.

i. Any change in installed software/firmware that changes the software identity or functionality.

j. Change affecting environmental interactions (e.g., use of hazardous/prohibited materials).

k. Change affecting traceability of a required traceable item.

l. Any change to a “frozen” design or process.

m. Change to customer identified “critical items” or “key characteristics.”

n. Change that negatively impacts contractual prices, schedules, or deliveries to the customer.

o. Change that positively or negatively impact Failure Modes and Effects Analysis (FMEA) or Failure Review and Corrective Action System (FRACAS) information originally approved.

p. Any change of electronic or specific component.

q. Any change to tooling or gages used for product acceptance.

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4.2.2 Customer Acceptance Prior to Implementation

Depending on product definition or customer requirements, these types of changes to design, product manufacturing, or product maintenance information may also require prior acceptance from the customer. The customer agreement shall determine prior acceptance requirements.

a. Change to the BOM.

b. Any change of a special process (type or actual process).

c. Change in special process sources.

d. Change in sources of supply of sub-components, including obsolescence.

e. Change in manufacturing methods, including changes to specified tolerances.

f. Change in location of manufacture for the end item.

g. Change to manuals or instructional material which has been provided to the customer.

h. Revision to a repair/modification drawing that changes the baseline configuration, which had been previously approved by the DAH/design activity.

i. Any change driving the need for a First Article Inspection (FAI) or partial FAI (as defined in 9102).

4.2.3 Concurrent with Notification

Changes other than those described in 4.2.1, and potentially 4.2.2, may be implemented and delivered prior to customer acceptance, if the authority to proceed is granted in accordance with Section 5 requirements. Any change to design information that does not require prior customer acceptance is considered eligible for implementation and requires a NOC form to be created. Submittal of the NOC form to the customer concurrently for any change is necessary, when required by the customer and/or DAH.

If authority for change implementation is not granted from the customer, then changes other than those defined in 4.2.1, and potentially 4.2.2, may be implemented at the risk of the design and manufacturing activities, but shall not be delivered to the customer pending acceptance.

4.2.4 Non-Configuration

Changes to design information that are clerical in nature or are to correct errors in previously approved design information, and do not affect items listed in 4.2.1, 4.2.2, and 4.2.3, do not have to be reported or documented via the NOC process defined in this standard. However, these types of changes shall be recorded and documented within the design activity's configuration management system and records retained per 5.5. In addition, the customer and/or DAH may negotiate with the design activity a schedule for notification of non-configuration changes for information purposes.

Non-configuration changes may include:

a. Drawing corrections; bringing documented information in line with manufacturing practices.

b. Drawing corrections; elimination of clerical/typing/drafting drawing errors.

c. Alteration of non-functional features, if no formal qualification testing is required, providing that any change does not increase the envelope or weight of the unit or affect unit performance.

d. Addition of dash number to catalogue component drawings; does not affect existing configurations.

e. Supplier order office name and address changes/additions for industry standard catalogue components and detail parts.

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f. Revision of notes to incorporate latest revision of industry standards and supplier company specifications where there is no impact on configuration or product characteristics or change to contractual requirements.

g. Addition, selection, or amendment of data/information on drawings not delivered to the customer where there is no impact on configuration or product characteristics or change to contractual requirements.

h. Changes to the format of drawings not delivered to the customer [e.g., transfer from paper to Computer-Aided Design (CAD) format].

i. Corrections to component part markings that do not affect traceability.

j. Update of the method of component part marking, but not the contents.

k. Changes that do not require update to design technical data delivered to the customer.

4.3 Change Impact Analysis

In order to assist in proper evaluation of changes, there is an industry-developed tool for the evaluation of change and configuration change effects. This tool is available at https://scmh.iaqg.org/design-develop/#1613168639802-160461ef-d42c and is intended to assist the design activity in the evaluation of the category of change per 4.2 with respect to the impact on:

a. Airworthiness (safety).

b. Form.

c. Fit.

d. Function.

e. Mass properties.

f. Environment.

g. Reliability.

h. Drawing, engineering data (e.g., three-dimensional models), or specification changes.

i. Traceability.

j. In-service effects.

k. Producibility or inspectability.

l. Test.

m. Contractual price.

The description of the associated questions and supporting Change Impact Analysis (CIA) is provided in Appendix B; for the most current information, consult the IAQG website. The requirements as to what constitutes a change are subject to customer purchase and contract agreements in effect at the time of the product change request.

NOTE: The DAH or customer reserves the right to use an alternative tool or not to use the tool, based on its applicability to their products.

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5. REQUIREMENTS FOR CHANGE ANALYSIS ON BEHALF OF THE DESIGN APPROVAL HOLDER

The design activity shall submit a CIA and a NOC to the customer, prior to implementing any change described in 4.2.1, 4.2.2, and 4.2.3. However, the design activity shall meet the criteria requirements of 5.1 and 5.2 in order to be authorized to analyze changes described in 4.2.3 on behalf of the customer (see Figure 3).

5.1 Quality Management System Requirements

The design activity shall have a quality management system that contains the following, at a minimum:

a. A design control system that complies with the applicable requirements detailed in the 9100 standard (refer to 9100, clause 8.3).

b. A configuration management system that complies with the requirements of SAE EIA - 649 or the 9100 standard (refer to 9100, clause 8.1.2).

c. Control of sub-tier supplier changes in accordance with the 9100 standard (refer to clause 8.4).

d. Control of nonconforming product in accordance with the 9100 standard (refer to clause 8.7).

e. A corrective action process in accordance with the 9100 standard (refer to clause 10.2).

f. Control of documented information in accordance with the 9100 standard (refer to clause 7.5.3) and customer requirements.

5.2 Customer Agreements

5.2.1 In order to be eligible for submitting design information changes or change requests concurrently, the organization/design activity shall have the following agreements with the customer and/or DAH, at a minimum:

a. Baseline definition of each product (see 4.1).

b. A process for authorization of personnel with the competency to verify design analysis determinations in terms of change effects.

c. Customer review/acceptance cycle and frequency of submittal of NOCs.

d. A documented approval, including any limitations, from the customer allowing use of the authorization provisions of this standard (see 5.3).

5.2.2 The organization/design activity shall be subject to approval and reviews by the customer or DAH for assurance that the requirements of 5.1 are satisfied and for verification of change classifications. This includes access to and review of design data, procedures, and documented information of the design activity by the customer and/or DAH. The method of review and approval is at the discretion of the customer and/or design authority.

5.3 Approval of Design Activity to Perform Change Impact Assessments

The approval to perform design change impact assessments, on behalf of the customer and/or DAH, is intended for organizations that design the product. The customer and/or DAH has the responsibility to ensure design changes to its products comply with applicable customer and regulatory requirements. This requires that the customer and/or DAH maintain the appropriate level of definition, approval, and oversight of the design change impact assessments performed by the organization/design activity. The customer and/or DAH shall have the authority for definition and interpretation of all requirements associated with these design change impact assessments.

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5.3.1 Prerequisites for Change Impact Assessments

Organization/design activity shall meet the following prerequisites before requesting any level of design change impact assessments approvals:

a. Have a quality management system that complies with the requirements delineated within 5.1.

b. Have sufficient design competency for the products for which they are requesting design change impact assessment approval. The design is typically acknowledged by the customer and/or DAH through a contractual requirement for design to customer requirements, statement of work, or other specifications and supporting engineering definition.

c. Have existing Engineering competencies of sufficient breadth and capability, as recognized by the customer and/or DAH, to implement and support the design change impact assessment system.

d. Have documented processes to support the design change impact assessment system in accordance with 5.3.3.

e. Documented processes for the submittal of change impact assessment shall be submitted to the customer and/or DAH for approval, prior to implementation.

NOTE: The documented processes of the organization/design activity should be initially submitted for review/approval by the DAH with the authorization request letter defined within 5.3.2.

5.3.2 Requesting and Maintaining Design Change Impact Assessment Approval

a. Organization/design activities that meet the prerequisites of 5.1 and 5.2, shall request design change impact assessment approval by submitting an authorization request to the customer and/or DAH to define the scope of the proposed design change impact assessment.

b. The authorization request shall identify the type of product being supplied on which the organization/design activity has design capability and requests design change impact assessment approval.

c. The authorization request shall identify the applicable organization/design activity design change impact assessment documented information in accordance with the requirements of this standard.

d. The authorization request is reviewed by the customer and/or DAH to determine if it is within the scope for design change impact assessment approval. If the scope is acceptable, the customer/DAH notifies the organization/design activity in writing authorizing the organization/design activities' design change impact assessment approval, at which point the organization/design activity may begin performing design change impact assessments on behalf of the customer and/or DAH, and within requirements of this standard. A record of the approval of the organization/design activities' design change impact assessment approval request and customer and/or DAH's authorization shall be retained by the organization/design activity.

e. The organization/design activity shall submit a new design change impact assessment approval request for changes in scope (e.g., providing a new type of product, additional approval for existing product).

f. Deviations from the requirements of this standard may be requested by the organization/design activity through correspondence with the customer and/or DAH. Deviations shall be approved by the customer and/or DAH, prior to implementation. Records of any approved deviations shall be retained by the organization/design activity.

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5.3.3 Design Change Impact Assessment Processes

The organization/design activity shall maintain documented processes that clearly define the requirements of the overall design change impact assessment system, including the following:

a. Design change impact assessment system description.

b. Design change impact assessment system scope of approval identified in 5.3.2.a.

c. Design change impact assessment system organizational responsibilities and reporting relationships.

d. Design change impact assessment system forms.

e. Design change impact assessment system personnel listing and any limits on their authority to conduct design change impact assessment on behalf of the customer and/or DAH.

f. Design change impact assessment system personnel competencies, including education, experience, product and process knowledge, training, and recurrent training requirements.

g. Design change impact assessment system retained documented information.

5.3.3.1 The organization/design activities design change impact assessment processes shall clearly define how design change impact assessment authority is flowed down to sub-tier supplier/design activities and the requirements of this document are flowed down.

5.3.3.2 The organization/design activity documented information shall include a listing of any sub-tier organization/design activity that have been delegated design change impact assessment authority and their design change impact assessment processes, if applicable.

5.4 Requirements for Submission of Notice of Change

5.4.1 Information related to the NOC (e.g., content, format, size) shall be in accordance with the information defined in Appendix C, “List of Notice Of Change (NOC) Information.” Information may be in either in electronic or paper form. Mandatory items (in bold; marked with an *) shall be recorded and transmitted to every customer. Optional information (without marking) shall appear when requested by the customer, but may also be formatted based on the originator’s needs.

NOTE 1: For any data field recorded and transmitted, whether mandatory or optional, not applicable (N/A) shall be entered as a minimum requirement prior to final approval/signature, if there is no data to be entered.

NOTE 2: Different customers may require different optional data fields tailored to meet contractual requirements. It is therefore recommended that the Information Technology (IT) system (electronic data storage) is capable of processing all sets of information (i.e., mandatory, optional). The system should recognize data fields not effectively used as being inactive, and be capable of adding new requirements or changing existing requirements.

5.4.2 The persons responsible for entering and approving/acknowledging NOC data shall process the activities in accordance with the terms and conditions of the customer contract.

5.4.3 Attached files shall be in a protected format (e.g., pdf, tif, jpg). Formats that can be easily changed (e.g., doc, xls, ppt) should be avoided, as much as possible, but may be used if necessary. In such cases, appropriate precautions should be taken to prevent inadvertent changes to the document.

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5.4.4 When the NOC is not required in electronic format and/or when it is required as a printout, it shall be in a linear format similar to the example shown in Appendix D, “Sample Notice of Change (NOC) Form.” However, the size and order of the fields may be changed to suit the individual application provided that:

a. The box numbers and contents allocation specified in this standard are maintained.

b. All mandatory data fields are printed out on the paper form.

c. The form is not changed to the extent that would make it unrecognizable.

d. It is in line with contractual/regulatory requirements.

5.4.5 Forms may be pre-printed, computer generated, or accessed via a net-based system (intranet/internet); providing in all cases, the printing of lines and characters are clear and legible. The information entered on the forms shall be machine/computer printed or handwritten as long as the document remains legible.

NOTE: The use of abbreviations should be kept at a minimum.

5.4.6 When required, continuation/additional sheets and attachments shall include the same NOC reference number as the original document.

The information in the data fields shall be in English or the language specified by the customer, DAH, and/or authority.

5.5 Retained Documented Information

Change information, including NOC data and approvals or acknowledgements shall be retained in accordance with the customer’s design data requirements.

NOTE: Typically, design information is required to be retained for 25 years or the service life of the product plus 7 years, whichever is longer. Data should be maintained in either paper or electronic format.

6. NOTES

6.1 Revision Indicator

A change bar (I) located in the left margin is for the convenience of the user in locating areas where technical revisions, not editorial changes, have been made to the previous issue of this document. An (R) symbol to the left of the document title indicates a complete revision of the document, including technical revisions. Change bars and (R) are not used in original publications, nor in documents that contain editorial changes only.

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PREPARED BY THE G-14 AMERICAS AEROSPACE QUALITY STANDARDS COMMITTEE (AAQSC)

APPENDIX A - ACRONYM LOG

ABNT	Brazilian Association for Technical Norms
ANSI	American National Standards Institute
ASD-STAN	AeroSpace and Defense Industries Association of Europe - Standardization
ATP	Acceptance Test Plan
BOM	Bill of Materials
CAD	Computer-Aided Design
CEN	European Committee for Standardization
CIA	Change Impact Analysis
COTS	Commercial off-the-Shelf
CPU	Central Processing Unit
DAH	Design Approval Holder
EASA	European Union Aviation Safety Agency
EIA	Electronic Industries Alliance
EPA	European Part Approval
ETSO	European Technical Standard Order
FAI	First Article Inspection
FMEA	Failure Modes and Effects Analysis
FRACAS	Failure Review and Corrective Action System
IAQG	International Aerospace Quality Group
ISO	International Organization for Standardization
IT	Information Technology
JSA	Japanese Standards Association
N/A	Not Applicable
NOC	Notice of Change
PMA	Parts Manufacturer Approval
QTP	Qualification Test Plan
RF	Radio Frequency

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SCD	Source Control Drawing
SCMH	Supply Chain Management Handbook
SJAC	Society of Japanese Aerospace Companies
STC	Supplemental Type Certificate
TC	Type Certificate
TSO	Technical Standard Order

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APPENDIX B - NOTIFICATION OF CHANGE (NOC) - CHANGE IMPACT ANALYSIS (CIA) LOGIC TREE

Question Number	Impact of Change	Question	Yes	No	Don't Know
1	Airworthiness	Is the change in response to a safety or airworthiness concern?	Prior Acceptance	Non-Configuration Change	Prior Acceptance
2	Airworthiness	Will the change impact positively or negatively Failure, Modes, and Effects Analysis (FMEA) or Failure Review and Corrective Action System (FRACAS) information originally approved?	Prior Acceptance	Non-Configuration Change	Prior Acceptance
3	Form	Does the change affect the external configuration of the assembly (including visual impact when it is a requirement) or any external interface between the assembly and surrounding systems?	Prior Acceptance	Non-Configuration Change	Prior Acceptance
4	Form	Does the change include changes to materials that could impact interface characteristics between the assembly and surrounding systems?	Prior Acceptance	Non-Configuration Change	Prior Acceptance
5	Fit	Will the change impact interchangeability, compatibility, maintainability, or repairability of the assembly within the surrounding system?	Prior Acceptance	Non-Configuration Change	Prior Acceptance
6	Fit	Will the change impact interchangeability, compatibility, maintainability, or repairability of the components within an assembly, but not of the assembly within the surrounding system?	Prior Acceptance	Non-Configuration Change	Prior Acceptance
7	Fit	Does the change introduce a new replaceable component part number within the assembly, including alterations, as an alternative or deletion of an alternative in the Bill of Materials (BOM) for the assembly (e.g., to address obsolescence)?	May be Prior Acceptance	Non-Configuration Change	May be Prior Acceptance
8	Fit	Will the change only affect interchangeability, compatibility, maintainability, or repairability of parts within a component?	May be Prior Acceptance	Non-Configuration Change	May be Prior Acceptance
9	Mass Properties	Will the change have an impact on weight, balance, or moment of inertia of the assembly?	Open Question 10	Non-Configuration Change; Go to Question 12	Open Question 10
10	Mass Properties	Will the change be within the stated tolerance levels?	Concurrent Notification	Prior Acceptance	Prior Acceptance
11	Function	Does the change affect the functionality of the assembly?	Open Question 12	Non-Configuration Change; Go to Question 13	Open Question 12
12	Function	Does the change affect the functionality, but is within tolerances specified by the customer or previously declared by the supplier?	Concurrent Notification	Prior Acceptance	Prior Acceptance
13	Function	Will the change alter the specified electromagnetic characteristics of the assembly?	Prior Acceptance; Open Questions 14 thru 19	Non-Configuration Change; Go to Question 20	Prior Acceptance; Open Questions 14 thru 19

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Question Number	Impact of Change	Question	Yes	No	Don't Know
14	Function	Did the change affect the reset or restart of the assembly?	Prior Acceptance; Open Outcome A	Prior Acceptance	Prior Acceptance
15	Function	Did data bus speeds/label update rates, analogue sampling rates, or Central Processing Unit (CPU) operating frequencies change?	Prior Acceptance	Prior Acceptance	Prior Acceptance
16	Function	Did the change affect the Radio Frequency (RF) response of the component? This includes changes in chassis openings, input circuitry filtering or lightning protection, circuit card trace changes, component tolerances, or internal component bonding?	Prior Acceptance; Open Outcome B	Prior Acceptance	Prior Acceptance
17	Function	Did any of the input or output tolerances (e.g., voltage, current, ripple, signal, thermal) change at any phase of operation?	Prior Acceptance; Open Outcome C	Prior Acceptance	Prior Acceptance
18	Function	Was any complex electronic hardware added or changed (see RTCA/DO-254 for the definition of complex electronic hardware)?	Prior Acceptance; Open Outcome D	Prior Acceptance	Prior Acceptance
19	Function	Did the change affect the bonding, conductivity/grounding aspects (e.g., instances, materials, coatings, installation, shield terminations, chassis changes) of the component?	Prior Acceptance; Open Outcome C	Prior Acceptance	Prior Acceptance
20	Function	Does the change include revision to any embedded software in the assembly?	Prior Acceptance	Non-Configuration Change	Prior Acceptance
21	Environment	Does the change impact environmental interactions (e.g., do material changes affect susceptibility to environmental damage or introduce hazardous materials into the environment)?	Prior Acceptance	Non-Configuration Change	Prior Acceptance
22	Reliability	Is the change aimed at correction of a reliability, durability, maintainability, or serviceability problem exposed during qualification/certification testing or in-service?	Prior Acceptance	Non-Configuration Change	Prior Acceptance
23	Reliability	Does the change introduce new up-rated electronic component part(s)?	Concurrent Notification	Non-Configuration Change	Concurrent Notification
24	Drawing	Does the change result in allocation of a new assembly part number, which would result in a change to the associated customer Source Control Drawing (SCD) number?	Prior Acceptance	Non-Configuration Change	Prior Acceptance
25	Drawing	Does the change add, delete, or amend reference data/information on assembly or component drawings delivered to the customer?	Concurrent Notification	Non-Configuration Change	Concurrent Notification
26	Drawing	Does the change alter the format of assembly or component drawings [e.g., reproducing a paper drawing on Computer-Aided Design (CAD)] delivered to the customer?	Concurrent Notification	Non-Configuration Change	Concurrent Notification
27	Drawing	Does the change correct typographical errors on assembly or component drawings delivered to the customer?	Concurrent Notification	Non-Configuration Change	Concurrent Notification

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Question Number	Impact of Change	Question	Yes	No	Don't Know
28	Drawing	Does the change correct text referenced on the drawing border of assembly or component drawings delivered to the customer?	Concurrent Notification	Non-Configuration Change	Concurrent Notification
29	Drawing	Does the change update call-outs on drawings delivered to the customer, where obsolete processes or specifications have been superseded?	Concurrent Notification	Non-Configuration Change	Concurrent Notification
30	Traceability	Does the change include any corrections to part marking on assemblies or components that will impact product traceability?	Prior Acceptance	Non-Configuration Change	Prior Acceptance
31	Traceability	Does the change update the method of assembly or component part marking, but not the content?	Concurrent Notification	Non-Configuration Change	Concurrent Notification
32	Traceability	Does the change update the assembly or component part marking to show supplementary information (e.g., addition of 2D matrix markings)?	Concurrent Notification	Non-Configuration Change	Concurrent Notification
33	Traceability	Will the change require tracking of the change by the customer?	Prior Acceptance	Non-Configuration Change	Prior Acceptance
34	In-Service Effects	Will the change require retrospective in-service action to embody the change into equipment already delivered?	Prior Acceptance	Non-Configuration Change	Prior Acceptance
35	In-Service Effects	Will the change require customer discontinuation of use of existing stock (e.g., scrapping or reworking of pre-alteration components)?	Prior Acceptance	Non-Configuration Change	Prior Acceptance
36	In-Service Effects	Does the change impact or invalidate delivered, operation, maintenance, overhaul, or other technical publications?	Prior Acceptance	Non-Configuration Change	Prior Acceptance
37	Manufacturability	Does the change impact a key characteristic (e.g., source, process, feature, surface finish, surface treatment) associated with the design of the assembly or component?	May be Prior Acceptance	Non-Configuration Change	May be Prior Acceptance
38	Manufacturability	Does the change impact a non-key characteristic associated with the design of the assembly or component (e.g., source, process, or feature that is not declared sensitive)?	Concurrent Notification	Non-Configuration Change	Concurrent Notification
39	Manufacturability	Will the change adversely affect manufacturability (e.g., tightening of a tolerance range, removal of a manufacturing method or process)?	May be Prior Acceptance	Non-Configuration Change	May be Prior Acceptance
40	Manufacturability	Does the change relax a tolerance range to improve manufacturability?	Concurrent Notification	Non-Configuration Change	Concurrent Notification
41	Manufacturability	Does the change add an alternative manufacturing method?	Concurrent Notification	Non-Configuration Change	Concurrent Notification
42	Manufacturability	Does the change affect the manufacturing routing declared in the design definition without changing the control process?	Concurrent Notification	Non-Configuration Change	Concurrent Notification
43	Manufacturability	Does the change include changes to supplier or sub-tier manufacturing facilities, including storage, packaging, etc., that imply the need for re-qualification of the manufacturing process for an assembly or component?	May be Prior Acceptance	Non-Configuration Change	May be Prior Acceptance

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Question Number	Impact of Change	Question	Yes	No	Don't Know
44	Test	Does the change affect the acceptance and/or qualification test content (e.g., the specification of the various tests)?	Prior Acceptance	Non-Configuration Change	Prior Acceptance
45	Test	Does the change affect the acceptance test schedule (e.g., the sequence in which tests are performed)?	Concurrent Notification	Non-Configuration Change	Concurrent Notification
46	Cost	Will the change affect unit price, fee costs, incentives, schedules, or deliveries of assemblies or components to the customer?	Open Question 47	Non-Configuration Change	Open Question 47
47	Cost	Will the change be beneficial overall to the customer?	Concurrent Notification	Prior Acceptance	Prior Acceptance

Change Impact Analysis (CIA) logic tree results outcome table - electromagnetic effects

Outcome A	Provide an explanation of the safety aspects; whether the electronic device returns to normal operation as it would have prior to the change.
Outcome B	Test or analyze to verify that susceptibility or emissions have not changed.
Outcome C	Test or analyze to verify that lightning protection, susceptibility, or emissions have not changed.
Outcome D	Provide an analysis in accordance with RTCA/DO-254.

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APPENDIX C - LIST OF NOTICE OF CHANGE (NOC) INFORMATION

Fields shown in bold with an asterisk (*) are mandatory; all other fields are optional.

No.	Data Field Title	Description	Data	Data Type	Data Size (in digits)	Comments
DOCUMENT IDENTIFICATION (Header)						
--	Corporate Logo	Corporate logo of the originator	Logo	Alpha-numeric; jpg; gif	N/A	Logo should appear in upper left corner of form.
--	**Form Title***	NOTICE OF CHANGE (NOC) (see 9116 for instructions)	Form title	Alpha-numeric	50 maximum	Title to appear at top of form.
1	**Originator NOC Ref. No.***	Unique NOC reference number assigned by the originator in accordance with customer instructions	Numerals/letters	Alpha-numeric	4 minimum 20 maximum	
1a	**Revision/Issue***	Document issue or level of document revision	Numerals/letters	Alpha-numeric	1 minimum 10 maximum	Assigned by the originator. Initial issue to be "-".
2	Customer NOC Ref. No.	Unique NOC cross reference number assigned by the customer	Numerals/letters	Alpha-numeric	4 minimum 20 maximum	Identify, if different from item No. 1.
2a	Revision/Issue	Document issue or revision level	Numerals/letters	Alpha-numeric	1 minimum 10 maximum	Assigned by the customer, if needed. Initial issue to be "-".
3	**Page of Pages***	Sheet number and total number of sheets (paper form only)	No. of pages	Numeric	4 minimum 6 maximum	Pagination for printouts.
TYPE OF CHANGE						
4	**Type of Change***	Requires Customer Acceptance (prior to implementation of this change)	Numerals/letters	Alpha-numeric	1 minimum 3 maximum	Check box; requires customer acceptance (see 4.2.1 and 4.2.2).
		Requires Customer Acceptance (changes have been implemented; need customer acceptance prior to delivery)	Numerals/letters	Alpha-numeric	1 minimum 3 maximum	Check box; requires customer acceptance (see 4.2.2 and 4.2.3).
		Notification Only (changes have been implemented concurrent with this notification; acknowledgement of receipt is requested)	Numerals/letters	Alpha-numeric	1 minimum 3 maximum	Check box; notification only (see 4.2.3).
5	Priority – Customer Response	▪ Emergency ▪ Urgent ▪ Routine	Numerals/letters	Alpha-numeric	1 minimum 3 maximum	Check box.
6	Part Status	▪ Pre-Qualified (Development) ▪ Post-Qualified (Production) ▪ Other (please specify)	Numerals/letters	Alpha-numeric	1 minimum 3 maximum	Check box.

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No.	Data Field Title	Description	Data	Data Type	Data Size (in digits)	Comments
ORIGINATORS INFORMATION						
7	**Date of Submittal***	Enter the date the NOC was submitted to the customer	Numerals/letters	Date	8 minimum 10 maximum	YYYY/MM/DD format.
8	**Requested Response Date***	Identify the date that a response is requested from the customer to avoid delay in delivery	Numerals/letters	Date	8 minimum 10 maximum	YYYY/MM/DD format.
9	**Originator's Company***	Identification of the NOC originator	Prime supplier name	Alpha-numeric	50 maximum	
10	**Originator's CAGE Code***	CAGE code or vendor code assigned by the customer	Prime supplier CAGE code	Alpha-numeric	50 maximum	CAGE code number or vendor code assigned by the customer.
11	**Originator's Address***	Address that should be used for correspondence, if electronic means is not viable	Mailing address	Alpha-numeric	50 maximum	Electronic correspondence is preferred.
12	**Originator/Contact***	Name of point of contact	Name	Alpha-numeric	100 maximum	May be combined with 12a, 12b, and 12c (paper form only).
12a	**Function or Department***	Contacts title	Numerals/letters	Alpha-numeric	50 maximum	
12b	**Direct Telephone No.***	Phone number of the point of contact	Numerals	Alpha-numeric	25 maximum	
12c	**E-mail***	E-mail address of the point of contact	E-mail address	Alpha-numeric	30 maximum	
13	Originator's Procurement Agent	Name of originator's Procurement Agent	Name	Alpha-numeric	100 maximum	May be combined with 13a, 13b, and 13c (paper form only).
13a	Function or Department	Procurement Agent	Numerals/letters	Alpha-numeric	50 maximum	
13b	Direct Telephone No.	Phone number of the originator's Procurement Agent	Numerals	Alpha-numeric	25 maximum	
13c	E-mail	E-mail address of the originator's Procurement Agent	E-mail address	Alpha-numeric	30 maximum	
CUSTOMER'S INFORMATION						
14	**Customer's Company***	Identification of recipient of NOC	Prime customer's name	Alpha-numeric	50 maximum	
15	**Customer's Address***	Address that should be used for correspondence, if electronic means is not viable	Mailing address	Alpha-numeric	50 maximum	Electronic correspondence is preferred.
16	**Customer/Contact***	Name of customer point of contact	Name	Alpha-numeric	100 maximum	May be combined with 16a, 16b, and 16c (paper form only).

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No.	Data Field Title	Description	Data	Data Type	Data Size (in digits)	Comments
16a	**Function or Department***	Customer contact's title	Numerals/letters	Alpha-numeric	50 maximum	
16b	**Direct Telephone No.***	Phone number of the customer's point of contact	Numerals	Alpha-numeric	25 maximum	
16c	**E-mail***	E-mail address of the customer's point of contact	E-mail address	Alpha-numeric	30 maximum	
17	Customer/Procurement Agent	Customer's Procurement Agent contact information	Name	Alpha-numeric	100 maximum	May be combined with 17a, 17b, and 17c (paper form only).
17a	Function or Department	Procurement Agent	Numerals/letters	Alpha-numeric	50 maximum	
17b	Direct Telephone No.	Phone number of the customer's Procurement Agent	Numerals	Alpha-numeric	25 maximum	
17c	E-mail	E-mail address of the customer's Procurement Agent	E-mail address	Alpha-numeric	30 maximum	
IDENTIFICATION OF PRODUCT/ARTICLE AFFECTED						
18	Program	Name/title of program/project/model affected by the NOC	Numerals/letters	Alpha-numeric	50 maximum	Regulatory requirements for safety and airworthiness shall be addressed.
19	**Customer Part No.***	Lowest level customer part number affected by the NOC	Part number assigned by customer	Alpha-numeric	1 minimum 25 maximum	If known by originator.
20	**Customer Source Control Drawing (SCD) No.***	SCD number/specification document or equivalent affected by the NOC	SCD number assigned by customer	Alpha-numeric	1 minimum 25 maximum	If known by originator.
21	**Supplier Part No.***	Lowest (and highest, if applicable) level supplier part number affected by the NOC	Part number assigned by the supplier	Alpha-numeric	1 minimum 25 maximum	Lowest level part number supplied to the customer.
22	**Supplier Drawing No. and Revision.***	Drawing number of the supplier's lowest level part number affected by the NOC	Drawing number assigned by the supplier	Alpha-numeric	1 minimum 25 maximum	Identify, if different from item No. 21.
23	**Part Name***	Part name/description	Nomenclature	Alpha-numeric	2 minimum 50 maximum	

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