GUIDELINES FOR INCOMING INSPECTION OF EEE COMPONENTS

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DCR No.	CHANGE DESCRIPTION

TABLE OF CONTENTS

1 PURPOSE

This guideline document defines the minimum requirements applicable to the performance of Incoming Inspection on electrical, electronic and electro-mechanical components suitable for space application.

2 SCOPE

Incoming Inspection is applicable to all EEE components. It shall be performed by the Customer or other appropriate authority upon receipt of EEE components from a manufacturer or third party supplier.

3 APPLICABLE DOCUMENTS

The following documents form part of this specification. The relevant issue shall be that in effect on the date of placing the Purchase Order.

- The applicable procurement specification(s) (Generic, Detail, etc.).
- ESCC Basic Specification No. 20500, External Visual Inspection.
- ESCC Basic Specification No. 20600, Preservation, Packaging and Despatch of ESCC Components.
- ESCC Basic Specification No. 21300, Terms, Definitions, Abbreviations, Symbols and Units.
- ESCC Basic Specification No. 21500, Calibration System Requirements.
- ESCC Basic Specification No. 25500, Methodology for the Detection of Pure Tin in the External Surface Finish of Case and Leads of EEE Components.
- IEC 60410, International Standard, Sampling Plans and Procedures for Inspection by Attributes.

4 TERMS, DEFINITIONS, ABBREVIATIONS, SYMBOLS AND UNITS

The terms, definitions, abbreviations, symbols and units as specified in ESCC Basic Specification No. 21300 shall apply.

5 INTRODUCTION

Incoming Inspection comprises a series of inspections, performed by the Customer or other appropriate authority, at the Customer's or other appropriate authority's facility upon receipt of a delivery of EEE components.

Incoming Inspection is performed in order to verify that the received EEE components are in accordance with the requirements of the Customer's Purchase Order.

6 GENERAL

The minimum requirements applicable to Incoming Inspection are defined in Chart 1.

CHART 1 – MINIMUM INCOMING INSPECTION REQUIREMENTS

Inspection	Requirement
Packing Check	See Para. 6.3.1
Quantity Verification	See Para. 6.3.2
Component Type Verification	See Para. 6.3.3
Marking Verification	See Para. 6.3.4
Check of Lead Finish (if not gold)	See Para. 6.3.5
Certificate of Conformance Review & Documentation Pack Completeness Check	See Para. 6.3.6
Traceability Verification	See Para. 6.3.7

Incoming Inspection may include additional inspections and/or tests when required by the appropriate authority; see Para. 6.3.8.

Unless otherwise specified, all inspections required to be performed during Incoming Inspection shall be performed by the Customer's or other appropriate authority's authorised inspectors.

6.1 INCOMING INSPECTION FACILITIES

The following minimum requirements shall apply to the Incoming Inspection facilities:

- Inspection and test equipment used during the Incoming Inspection shall be appropriate and suitable to the required inspections.
- The facility shall have a quality assurance system which is certified in accordance with a recognised system and ensures:
  - the inspections and tests are controlled, including allocation of report numbers, report logging and status updates.
  - inspection and test equipment used during the Incoming Inspection is calibrated in accordance with ESCC Basic Specification No. 21500 or an equivalent system, and the calibration period for each equipment is defined and is valid.
  - traceability of each component subjected to the Incoming Inspection is maintained.
- The facility shall maintain environmental conditions, protection against electrostatic discharge, cleanliness and handling controls appropriate to the components, the inspection and test equipment, and to the inspections and tests performed.
- The facility shall have suitable methods and materials to ensure that, when necessary and/or as applicable, inspected components are re-packed and stored appropriately in accordance with ESCC Basic Specification No. 20600 or equivalent.

6.2 INSPECTION AND REPORTING

Immediately on conclusion of each inspection, the Inspector shall be responsible for recording the results.

For any rejects identified during any inspection, the Inspector shall immediately initiate a non-conformance action to facilitate resolution. All details of the defect(s) or failure(s) shall be recorded in a Non-conformance Report (NCR) or similar document and the Customer and/or other appropriate authority shall be notified for disposition. At the same time, the Inspector shall ensure that the rejects are quarantined, and that the remainder of the inspection lot is placed on hold in a suitable quarantine location at the inspection facility pending resolution by the Customer or other appropriate authority, and definition of a final disposition and/or corrective actions.

The Inspector is responsible for the acceptance/rejection of the delivery lot and would be expected to provide a disposition on the release of the delivery lot into the Customer's or other appropriate authority's storage area.

6.2.1 Incoming Inspection Report

On completion of Incoming Inspection, a report shall be compiled from the results of each inspection performed, using a suitable format.

In the case of a delivery that is constituted of several manufacturing lots or date codes as identified by the manufacturer or supplier, a separate incoming inspection report shall be complied for each lot/date code.

The incoming inspection report for each received lot/date code shall include as a minimum:

- A unique Incoming Inspection report reference number.
- The component type number/part number
- The manufacturer's and/or supplier's names.
- The date of the Incoming Inspection.
- The component procurement specifications numbers and issues (as applicable).
- The Customer's Purchase Order Number, reference and quantity.
- Traceability information including date code, lot identification and serial numbers (when applicable).
- The particulars of each inspection and/or test, including:
  - the inspection/test method, conditions and applicable specification.
  - results attributes and variables data (where applicable) including the quantity inspected and the quantity accepted.
- Full details of any rejects identified during the Incoming Inspection including the reason for rejection, and reference to the NCR (or similar document).

6.3 INSPECTIONS

Unless otherwise specified, as a minimum, Incoming Inspection shall include the inspections listed in Chart 1.

Incoming Inspection may also offer the opportunity to perform other inspections as described in Para. 6.3.8.

The accept/reject criteria for the various inspections should be documented by the Customer or other appropriate authority, before any inspection is performed.

6.3.1 Packing Check

All packing shall be examined for evidence of damage (e.g. visual damage, shock detector control). Components may be re-packed in accordance with ESCC Basic Specification No. 20600 or equivalent, when considered necessary.

Components which require special packing and handling conditions (e.g. moisture sensitive components, highly ESD sensitive components, etc.), as identified in the Purchase Order or procurement specification, shall have the packing verified during Incoming Inspection. The same level of protection shall be maintained during all stages of Incoming Inspection, storage and delivery.

6.3.2 Quantity Verification

The delivered quantity of components shall be verified against the manufacturer's or supplier's delivery note and the Customer's Purchase Order.

6.3.3 Component Type Verification

The physical configuration and aspect of all delivered components shall be verified against the Customer's Purchase Order and the procurement specification.

6.3.4 Marking Verification

The marking on all delivered components or their respective primary packages (ref. ESCC Basic Specification No. 20600) shall be checked against the Customer's Purchase Order and the procurement specification.

6.3.5 Check of Lead Finish

For component with leads or terminals that are not gold plated, the lead/terminal finish of the delivered lot(s) shall be checked in accordance with ESCC Basic Specification No. 25500.

6.3.6 Documentation Pack Review

The completeness of the delivered documentation pack shall be checked against the Customer's Purchase Order. As a minimum, a review of the delivered Certificate of Conformance and cover sheet(s) (if applicable) shall be performed.

The documentation review may also include one or more of the following:

(a) Verification that the list of equipment used, list of test references, failure listings, etc. are available, when required.

(b) Confirmation that the delivery lot is from the same lot inspected at Precap Inspection.

(c) Verification that all specified test summaries are available and are correct, and that the delivery lot meets all specified lot acceptance criteria, i.e. the manufacturer/supplier has performed all tests and inspections required in the applicable procurement specifications and that they are in accordance with the required test methods and conditions (including, where applicable, Lot Acceptance Testing or Lot Validation Testing results).

(d) Verification that all specified 'read and record' data is available and the recorded parametric data meets the limits specified.

(e) Verification that the failed component list is available and that all failures have been removed from the delivery lot.

(f) Verification that any requests for waiver (RFW) or other concession requests (if any) are approved.

(g) Verification that all information required in the Purchase Order are delivered (e.g. diffusion lot number for radiation sensitive parts).

(h) For export controlled items, the relevant in-house authority shall be notified of the delivery.

6.3.7 Traceability Verification

Traceability of all components in the delivery lot shall be verified from the results of the Marking Verification and the Documentation Pack Review (i.e. verification of the consistency of the data documentation pack with respect to the marking of the components including serial numbers, date code and lot identification, as applicable).

6.3.8 Additional Inspections

Additional tests and/or inspections performed during Incoming Inspection may include one or more of the following as required by the Customer or other appropriate authority:

(a) External visual inspection: in accordance with ESCC Basic Specification No. 20500 and the applicable ESCC ancillary specifications or equivalent MIL test methods, usually on a sample basis e.g. General Inspection Level II, AQL 0.65% per IEC 60410.

(b) Dimension check: in accordance with the procurement specification on a sample basis (minimum 1 component).

(c) Electrical measurements: in accordance with the procurement specification at room temperature usually on a sample basis e.g. 20 components (or 100% if lot < 20).

(d) Other specific tests or inspections: additional tests based on the type of component, criticality and heritage with the manufacturer (e.g. solderability, seal).