COTS Items - Condition and Appearance Acceptability

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PURPOSE & SCOPE

This document is intended to define the minimum condition and appearance criteria for production-level deliverable Commercial Off-The-Shelf (COTS) products, ensuring their suitability for intended use. This Standard is limited to Vendor Item Control Drawings and Procurement Control Drawings as described in P-626, Manage Control Documentation.

Acquisition of Commercial off-the-shelf items per Federal Acquisition Regulation (FAR) 12.103, include Mil-Spec, Commercial, Industrial/Residential products and hardware are outside of L3 Communication System's design authority and are exempt from the workmanship requirements as invoked by WS-000, Workmanship Standards Introduction with the exception of WS-025 COTS Items – Condition and Appearance Acceptability, which will be used to provide acceptance criteria for these parts.

A COTS item that has been modified/altered from its original catalog configuration by the vendor or CSW to meet specific requirements becomes a Modified Off-The-Shelf (MOTS) item. MOTS items will meet WS-000. The non-modified portion is to be exempt from WS-000. It is the responsibility of CSW to manage the modified change.

The product design authority for the COTS item shall take precedence over WS-025 requirements. If the supplier states the nonconforming material is acceptable per their standards, they will provide objective evidence the nonconforming material is acceptable. Objective evidence includes, but is not limited to, drawing requirements, specifications, workmanship standards, processes or procedures, certificate of conformance, quality bulletin, or other official documents provided by their Quality Management. Reference P-514, Supplied Material Nonconformance and SLC-1022, Nonconformance Dispute Report.

NOTE: Although a one-off anomaly on COTS hardware may be acceptable per the supplier's (design authority) requirements, such anomalies that may impact reliability should be rejected.

COTS CATEGORIES AND DEFINITIONS

COTS Categories: There are manufacturing and workmanship differences between categories of COTS items. For the purpose of this document, three categories are identified as Mil-Spec, Commercial and Industrial/Residential products. This standard describes the condition and appearance criteria for each category, unless otherwise stated by the Original Equipment Manufacturer (OEM).

- Category 1 - Mil-Spec material as defined by its Mil-Specification
- Category 2 - Commercial material as defined by the OEM
- Category 3 - Industrial/Residential material as defined by the OEM

Note: For all COTS categories, the assumption is that the item's workmanship represents the OEM's standards. As such, the presence of burrs, sharp edges and other workmanship characteristics may be evident. Particularly with Category 3 - Industrial/Residential COTS items, (i.e. metal channel, conduit boxes and fittings, pipe threads, sheet metal items, etc.). Reference COTS exemption, WS-000, Workmanship Standards Introduction.

Definitions

COTS item: any item of supply (including construction material) that is a commercial item sold in substantial quantities in the commercial marketplace and offered to the Government, under a contract or subcontract at any tier, without modification, in the same form in which it is sold in the commercial marketplace, as defined in FAR 2.101 – Definitions.

Substrate: The underlying layer which, if exposed, could result in corrosion or degradation.

Missing: any items, parts, components, etc. from OEM's drawing/design, which were not delivered.

Unseated: any items, screws, nuts, washers, parts, etc. that may exhibit allowable movement per the OEM's drawing/design.

Loose: any items, parts, components, etc. not tight per OEM's drawing/design.

Free/unattached: any items, screws, nuts, washers, parts, etc. that's become detached, separated or fails to meet OEM's drawing/design intent.

RESPONSIBILITY

It is the responsibility of all personnel involved with production and service provision (assembly, inspection, and test) to ensure that all COTS products meet the minimum condition and appearance criteria

Notes: The condition and appearance criteria, within this document, is not intended to define design intent, nor intended to authorize repair/modification or design change from the (OEM) specifications or drawings.

Workmanship Standards IPC-A-610, IPC/WHMA-620, J-STD-001 will apply only when invoked by the associated L3 drawing.

CONDITION/APPEARANCE CRITERIA

<u>Dents and Dings</u>

Acceptable Conditions for Categories 1 and 2: Immeasurable and/or barely detectable material surface anomalies that do not indicate severe impact or affect form, fit, or function. This includes abrasion and minor scuffing on plastic type components (i.e. transit cases, containers, etc.) providing the material does not become FOD.

Rejectable Conditions for Categories 1 and 2: Sharp indentation and displacement of material indicating significant impact and potential jeopardy to structural integrity or product function.

Note: Damage resulting in material or weld cracking is never acceptable and will be reviewed for appropriate action.

Acceptable Conditions for Category 3: Coatings and finishes for structural materials and industrial/Residential hardware, including materials for "make from" items (i.e. grounding rods, racking material, metal channel, brackets, etc.) designed to contact other surfaces, may have bare metal exposed. Paint aberrations (i.e. runs, fisheyes,

overspray, etc.) that do not affect the intended end item application are acceptable.

Rejectable Conditions for Category 3: Severe gouges or other damage to protective coatings that extend through to the substrate in excess of normal handling and bulk storage. Areas of exposed substrate subject to rust and corrosion that exceed 1% of the total surface.

Foreign Object Debris/Damage

Practice FOD awareness/prevention per P-025 Foreign Object Debris/Damage/Elimination Control.

Acceptable Conditions for Categories 1,2 & 3: Small particles of lint, hair, dust, etc. (debris) not a risk to the form, fit, function or potential damage to the part.

Rejectable Conditions for categories 1,2 & 3: Screws, nuts, misc. hardware, etc. that has become unsecured from the OEM intended purpose and are detected visually or by apparent audible internal rattle shall be investigated/rejected. Particles of plastics, wood, glass, rubber, etc. (debris) having the potential to affect fit, form or function of the item, or has the potential to cause damage.

Finishes for Components and Assemblies

Acceptable conditions Categories 1 and 2: Minor scuffs and scratches, paint aberrations (i.e. minor runs, fisheyes, overspray, etc.) that do not affect adhesion, substrate coverage or intended end item application.

Rejectable Conditions Categories 1 and 2: Gouges, scratches or other damage to protective finishes that exceed .125 inch in length and/or extend through to the substrate.

Acceptable Conditions for Category 3: Hardware has no discernable deformation that poses risk to fit, performance or function.

Rejectable Conditions for Category 3: Damage which becomes a fit, structural or performance issue.

INCOMPLETE OPERATIONS

Acceptable Conditions for Categories 1, 2 & 3: Manufactured, machined, assembled, etc., per OEM requirements
Rejectable Conditions for Categories 1, 2 & 3:

Missing: screws, nuts, washers, parts, and components etc. which are required per the OEM drawings/design.

Unseated: screws, cable connectors, CCA's, components, parts, etc. which should be seated per the OEM drawings/design.

Loose: screws, nuts, rivets, connectors, jam nuts, etc. that are not secured per the OEM tightness requirements.

Note: Hardware such as screws, nuts, jam nuts, etc. should only be checked in a positive direction .i.e. clockwise. For connectors, in addition to checking the jam nut for tightness, the connector should be checked with fingers to ensure it is properly secured and should not exhibit movement .i.e. wobbly, loose fitting.

Note: Torque tools, wrenches or screwdrivers should not be used without "torque specification" instruction from Original Equipment Manufacturer (OEM). Some suppliers specify, "Hand Tight" for hardware and torque tools are not required.

INCORRECT OR INCONSISTENT CONFIGURATION

Differences in Components or Assembly Characteristics

Acceptable Conditions for Categories 1, 2 & 3: Minor inconsistencies that do not affect form, fit or function are acceptable. Inconsistencies in color should be within ± 5ΔE, as measured by spectrophotometer. Inconsistencies in COTS products from different suppliers is expected and is not to be rejected.

Rejectable Conditions for Categories 1, 2 & 3: Inconsistencies to form, fit and function. Examples include hardware stack, mounting hole patterns, and protective finishes.

Note: Consistent hardware stack – Hardware components in a stack may vary from location to location on an assembly depending on the manufacturer's design intent. COTS products should not be rejected for variation within a single assembly. However, two or more assemblies from the same supplier that have inconsistencies from unit to unit (same location on each unit) should be rejected. This does not include differences in accessory items that are not listed on the vendor-packing list (i.e. screws and attaching hardware on drawer slides, laptop accessories, etc.).

IDENTIFICATION AND MARKING

Identification of COTS items will be in accordance with L3 Document No. 1000154383, *Specification of Part marking Requirements*.

PRESERVATION, PACKAGING AND PREPARATION FOR DELIVERY CONDITIONS

Inconsistency in packaging materials due to supplier and industry standards is acceptable. Packaging will be evaluated for any damage or degradation that would result in insufficient protection. COTS materials not meeting this criteria, .i.e. damaged packaging, will be re-packaged in accordance with P-154, Product Handling, Packaging, Storage & Shelf Life Controls and Electrostatic Discharge (ESD) protection as defined in P-323, ESD Control.

Evaluation of packaging materials is conducted using P-154.

Note: Corrosion of COTS materials resulting from improper preservation, packaging, or storage conditions should be reviewed with the OEM before returning it to the supplier.

Note: Minor discoloration or oxidation of COTS materials that does not exhibit material degradation will be evaluated for appropriate disposition.

Note: Some COTS material are supplied with preservation materials on them (i.e. Grease, oil, etc.). These materials are acceptable and will not be cleaned.

Note: COTS vendors routinely use temporary packaging restraint materials (i.e. Tape, ties, etc.) for the protection of components in-transit. These materials are acceptable and will remain with the COTS item until point of use.

Note: Applying tape over labels or stenciled areas may be cause for rejection.

PRODUCT CONTROL ANALYSIS

Supplier Quality will review Quality Notifications associated to supplier's nonconforming materials and evaluate for trends and corrective action. These activities will be performed per P-514, Supplied Material Nonconformance.

RECORDS

Records are maintained in accordance with applicable procedures (P-046, Receiving Inspection and P-047, Inspection).

END OF DOCUMENT

DOCUMENT INFORMATION

Responsible Organization: Operations

Function/Sub-function: Supplier Quality

Governing Document(s): Y-001 Quality Management System

Subordinate Document(s): N/A

Related Document(s): P-025, Foreign Object Debris/Damage/Elimination Control
P-046, Receiving Inspection
P-047, Inspection
P-154, Product Handling, Packaging, Storage and Shelf Life Controls
P-514, Supplied Material Nonconformance
P-626, Manage Control Documentation
W-498, Tightness Verification at Receiving Inspection

Related Training: N/A

Approval Requirements: Manager, Supplier Quality

Review Requirements: Manager, Quality Engineering
Chief Engineer Quality Assurance

Revision History Summary

Revision #	Description of Change	Date
00 - 02	Initial release through revision 02.	Various
02	Added "If the supplier states the nonconforming material is acceptable per their standards, they will provide objective evidence the nonconforming material is acceptable. Objective evidence includes, but is not limited to, drawing requirements, specifications, workmanship standards, processes or procedures, certificate of conformance, quality bulletin, or other official documents provided by their Quality Management. Reference P-514, Supplied Material Nonconformance and SLC-1022, Nonconformance Dispute Report." to the Purpose and Scope. Changed "and" to "or" in definition for Free/unattached.	4/18/2019
03	Added "production level" to the first sentence in the Purpose and Scope.	5/22/2020
NA	Updated point of contact. No revision upgrade necessary	5/22/2020
04	Added third paragraph in the Purpose and Scope regarding MOTS items. Added note following the last paragraph in the Purpose and Scope, "Although a one-off anomaly on COTS hardware may be acceptable per the supplier's (design authority) requirements, such anomalies that may impact reliability should be rejected". Rearranged sections placing Acceptable Conditions first followed by Rejectable Conditions throughout. Created section for Foreign Object Debris/Damage. Removed references to P-516, P-833 and P-386 from Product Control Analysis section and list of related documents.	6/29/2020