

Marking, Engraving and Labeling

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PURPOSE & SCOPE

This Workmanship Standard details the workmanship acceptance criteria to be applied to all deliverable products. The Workmanship Standard includes a wide variety of cable and harness assemblies, system assemblies and similar hardware, structured for L3 Communication Systems-West (CSW) products.

It is the responsibility of all personnel involved with build, inspection, and test to ensure that all assembled product meets the minimum acceptance criteria during all phases of product realization.

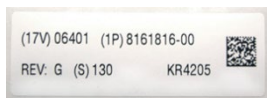
WORKMANSHIP STANDARDS

1. UNIQUE IDENTIFICATION NUMBER (UID)

Note: Labels shown in this section are for acceptability criteria only and are not shown for format. See 1000154383 for label format criteria.

1.1. Target

- Combined PIN and UID label/markings on same label.



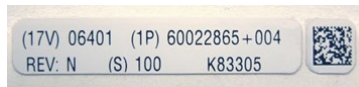
1.2. Acceptable

- Combined UID information and 2D Matrix Symbol may be placed under ID plate label.



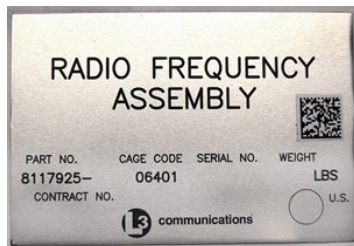
1.3. Acceptable

- UID Matrix Symbol is separate from PIN label. This condition is considered exception: Where space is restricted.



1.4. Defect

- UID label placed on nameplate.



1.5. Acceptable (Tag Marker)

- UID Matrix Symbol is completely visible.



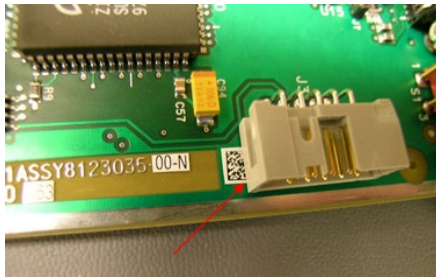
1.6. Defect

- Label not located per documentation.
- UID Matrix Symbol not completely visible.
- UID Matrix Symbol does not meet the quality level required.
- UID Matrix Symbol is not machine readable.
- Other markings don't meet marking requirements of IPC-A-610.



1.7. Defect

- UID Matrix Symbol partially covered with connector.



2. NAME PLATES (ENGRAVED)

Note: Government Property Only

Note: Labels shown in this section are for acceptability criteria only and are not shown for format. See 1000154383 for label format criteria.

2.1. Target

- A. The characters engraved on the name plate are complete, consistent in depth and width, and are aligned with the existing characters.
- Characters are legible.
- No over-lapping of photo-etched characters.



2.2. Acceptable (Government Property Only)

- A. The depth and width of the engraved characters are not consistent; however, the characters are still legible.
- B. The engraved characters are misaligned with the existing photo-etched characters, on the nameplate, all characters are legible.
- C. UID placed on name plate.

Note: Hand stamped, epoxy type, ink characters may be used for dash or revision marking or for deviation/waiver marking in place of engraving. Ink must be a contrasting color to the nameplate.



2.3. Acceptable (Government Furnished Property Only)

- A. Brady adhesive label may be used on a nameplate for a marking change.



2.4. Defect

- A. Depth and width of the engraved characters are inconsistent and not legible.
B. The engraved characters are over-lapping the photo-etched characters.
C. Distorted or incomplete characters are not legible.
D. Different character height on the same row of text.



2.5. Defect: New Build Product

- A. Adhesive label has been used on a name plate.



3. NAME PLATES (POLYESTER)

Note: Labels shown in this section are for acceptability criteria only and are not shown for format. See 1000154383 for label format criteria.

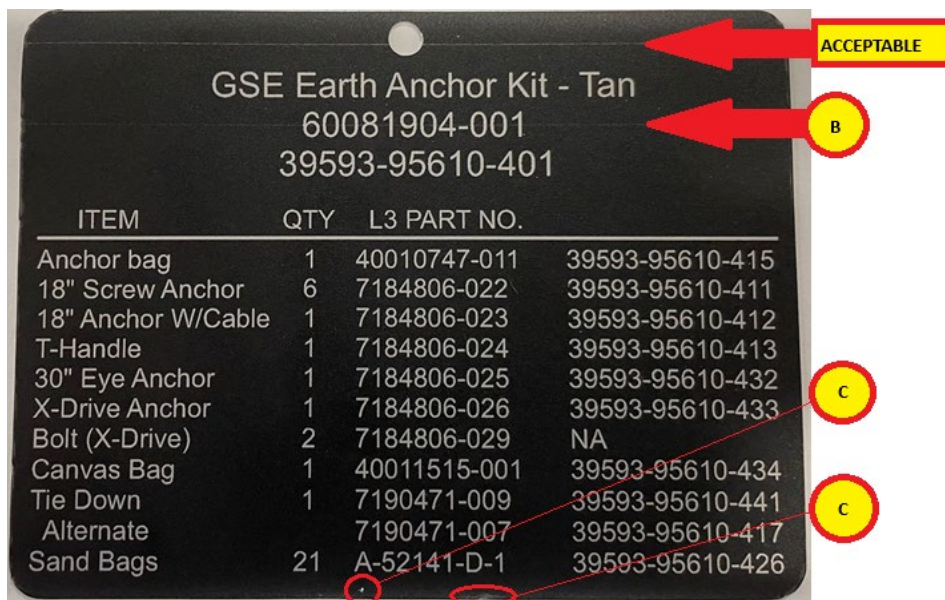
3.1. Target

- Characters are legible.



3.2. Defect

- A. Illegible. Any defect that meaningfully reduces legibility. Includes distorted, missing or incomplete characters, fading, staining, deterioration, degradation, or wearing.
- B. Line(s) running through any characters on ID plate.
- C. Specks, discoloration, blistering, delamination on ID Plate.

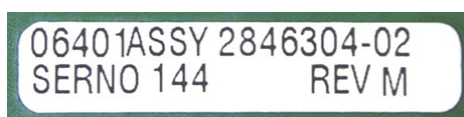


4. LABELING

Note: Labels shown in this section are for acceptability criteria only and are not shown for format. See 1000154383 for label format criteria.

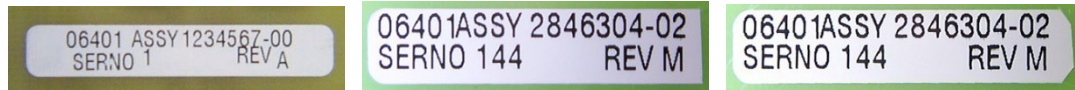
4.1. Target

- Adhesion is complete, shows no signs of damage or peeling.
- Characters are aligned and legible
- Label is installed to a smooth, clean surface.
- Label size has not been altered.



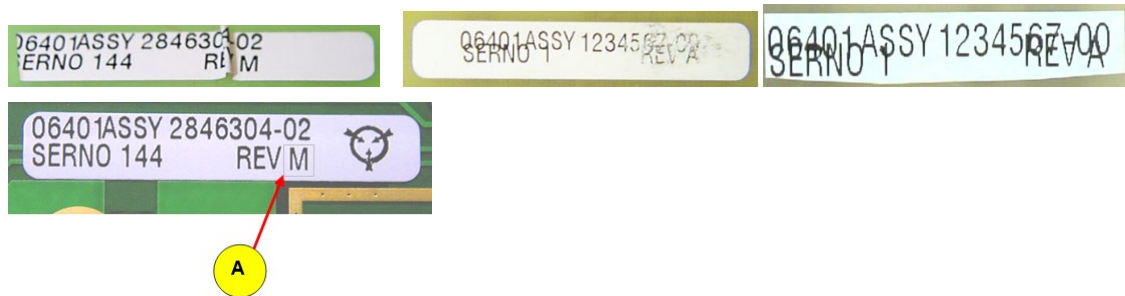
4.2. Acceptable

- Adhesion is complete, shows no signs of damage.
- Character is slightly smeared but still legible.
- Characters are misaligned without overlapping.
- All characters are legible.
- Label is trimmed (cut) corners are squared, chamfered, or rounded.



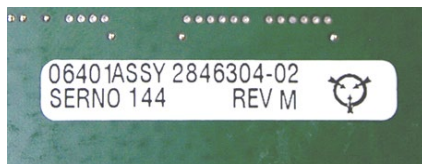
4.3. Defect

- Label is wrinkled characters are not legible.
 - Label has been trimmed characters are incomplete (not legible).
 - Characters are smudged and are not legible.
 - Characters overlap.
- A. Label has been installed on top of another label.



4.4. Target

- Label is installed directly on the printed wiring board.
- Label is not installed over any circuitry, feed through vias or pads.
- Label has not been trimmed to fit.
- Label material, backing and adhesive are non electrically conductive.



4.5. Acceptable

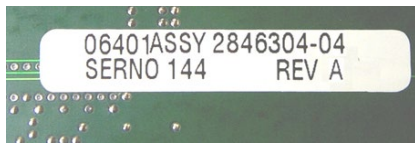
- Label is applied over metal etched part number. Characters are completely covered.



- Label is applied over existing solder resist covered circuitry.



- Label is installed over exposed feed through pads.

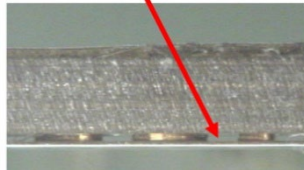
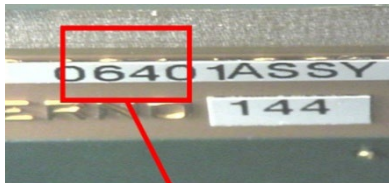


- Label is installed on a plane and or exposed traces.



4.6. Acceptable

- Labels installed over solder resist covered circuitry or over metal etched characters may exhibit a slight gap at the edges of the label.

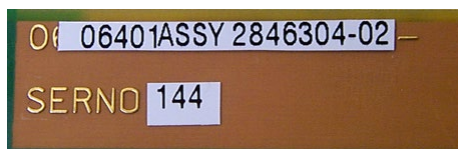


- Label is installed on a connector or other large component. Existing component nomenclature markings are not obscured.



4.7. Defect

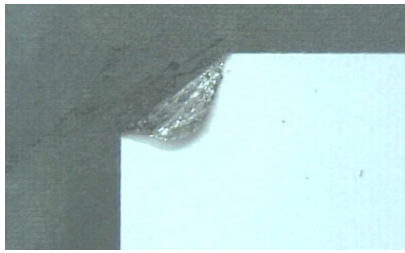
- Label does not completely cover existing metalized part number.



- Label is installed over solderable surface (i.e., land or pad that may have a component installed at a later time).



- Label material, backing or adhesive are electrically conductive (metalized).



- Label has been installed over (on top of) conformal coating.



4.8. Acceptable

- Labels may be used for reference designations on assemblies, providing the permanency and legibility criteria have been met.
- Markings which serve as aids to assembly and inspection need not be visible after the components are mounted.



4.9. Defect

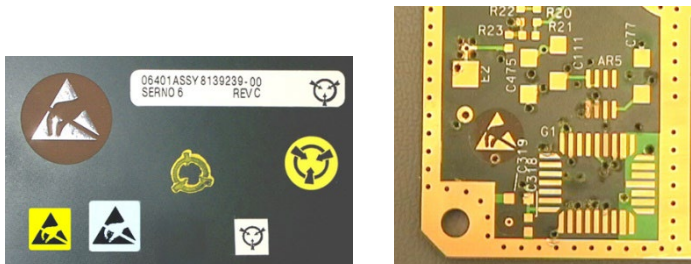
- Reference designation labels placed on assembly front, decorative panels (exposed surface), engraved name plates or on top of existing labels (not shown).

5. ESD SYMBOLS

Note: Labels shown in this section are for acceptability criteria only and are not shown for format. See 1000154383 for label format criteria.

5.1. Acceptable

- The ESD symbol must be discernable without magnification.



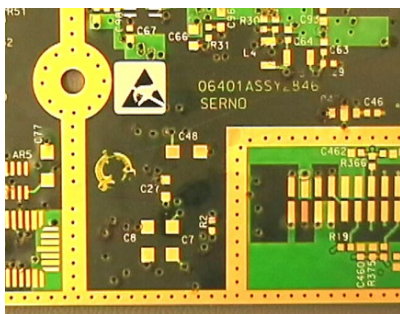
5.2. Acceptable ESD Symbol Contrasting Color Requirements

- The ESD symbol shall contrast with its background as much as possible. Black on a white or yellow background is preferred.
- Yellow ink stamp on a dark background (e.g., solder resist or bare PWB material).
- Gold or tin/lead plated metal with a background of the natural PWB material.
- Black symbol on a silver (metallic) background.



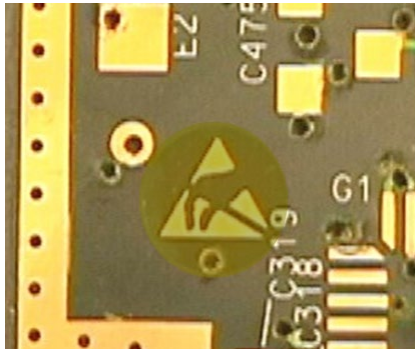
5.3. Acceptable

- If contrast conditions are not met, or if symbol is not discernable, an additional ESD symbol marking (e.g., ink stamp or label) is allowed on the same side of a circuit card assembly. An ESD symbol label may be placed over an existing etched or ink stamped ESD symbol marking.
- Etched metal symbol covered with solder resist (specific to PWBs).



5.4. Defect

- Missing ESD symbol when required.
- ESD symbol not discernable.
- ESD symbol does not meet the contrasting color requirements.
- Marking is present on a land or pad interfering with solder requirements.



6. MARKER SLEEVES

- TUBULAR (SEE IPC/WHMA-A-620 AND IS-003)
- WRAP AROUND (SEE IPC/WHMA-A-620)
- FLAG (SEE IPC/WHMA-A-620)

RECORDS

There are no records associated with this document.

END OF DOCUMENT

DOCUMENT INFORMATION

Responsible Organization:	Operations
Function/Sub-function:	Workmanship Standards
Governing Document(s):	Y-001, L3 Technologies CSW Quality Manual
Subordinate Document(s):	N/A
Related Document(s):	IPC/WHMA-A-620, Requirements and Acceptance for Cable and Wire Harness Assemblies IS-002, Alternate Piece Marking Method IS-003, Workmanship Acceptability of Electronic Assemblies IS-008, Part Number/Suffix Configuration IS-010, Unique Identification Number (UID) P-047, Inspection P-374, Item Unique Identification (IUID) WS-000, Workmanship Standards Introduction WS-002, IPC-A-610 Acceptance of Electronic Assemblies W-092, Hardware Identification Methods Using Base Lock Rubber Letters and Numbers W-442, Unique Identification (UID) Piece Marking Label Printing and Verification 1000154383, Specification of Part Marking Requirements
Related Training:	N/A

Approval Requirements: Director, Operations Management
Manager, Engineering Management

Review Requirements: Associate Manager, Quality Management
Manager, Manufacturing Engineering
Sr. Manager, Supply Chain Management
Associate Manager, Mechanical Engineering

Revision History Summary

Revision #	Description of Change	Date
0-17	Initial Release through Revision 17	Various
18	Updated Purpose and Scope: removed “cable and harness” and added “system assemblies” in both paragraphs. Deleted sections 4.1, 4.2, 4.10 and Appendix. Updated sections 4.3-4.9. Renumbered all sections accordingly. Added P-374 and WS-000 to list of related documents. Updated review and approval requirements.	9/13/2018
NA	Update Logo and proprietary	
19	Removed sections 4.6, 4.7, 4.8, as they directly reflect the same content in IPC-620. Leaving the reference for sections 4.6, 4.7, 4.8, to IPC-620 due to drawings and other references to these sections. Added Part Marking Specification to list of related documents.	8/14/2019
20	Updated logos and proprietary in footer.	5/18/2021
N/A	Updated hyperlinks to IPC/WHMA 620 to latest revision. No revision upgrade necessary.	1/25/2021
21	Incorporated subsections (separate files) into this single document. Updated review and approval requirements.	9/7/2022
22	Updated section 3.2 to add additional information from MIL-DTL-15024G that is applicable to polyester labels, updated figure.	9/17/2025