

## Coil Wound Products

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### PURPOSE & SCOPE

This Workmanship Standard details the workmanship acceptance criteria to be applied to L3Harris Communication Systems-West (CSW), Salt Lake City facility products.

The Workmanship Standard includes examples of Electromechanical type assemblies structured for CSW Salt Lake City facility products

### WORKMANSHIP STANDARD

#### 1. APPLICATION

It shall be the responsibility of all personnel involved with assembly, inspection, and test to ensure that all Electromechanical Assembled product meets the minimum acceptance criteria during all phases of the build and test process.

#### 2. TOROIDAL WINDINGS

##### 2.1. Hand Wound

Note: The number of turns is counted on the inside portion of the toroid.



#### Target Condition

- A. Windings are distributed equally around the core.
  - Unless otherwise specified, secondary windings are equally distributed over the primary windings (secondary windings are not shown).



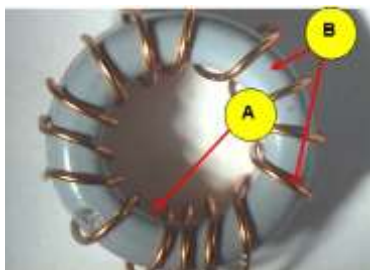
**Acceptable**

- Windings are not equally distributed around the core; however, the number of turns is as specified per the drawing.



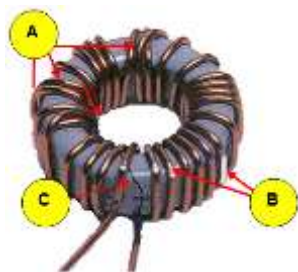
**Acceptable**

- A. Chips, nicks, or scratches in the paint/coating are allowed providing the core (ferrite material) is not damaged.
- Windings are concentrated in one general area with the specified number of turns per drawing.



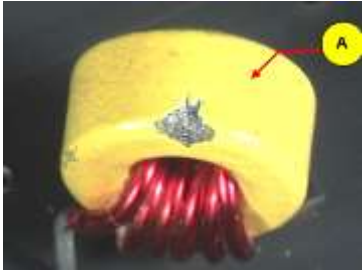
**Nonconforming**

- A. Chip in core (ferrite material).
- B. Wires are wrapped loosely.
- The number of turns is not as specified per drawing.



**Nonconforming**

- Windings overlap where sufficient space is available.
- Winding insulation is nicked/scraped, exposing base metal.
- Crack in core.



**Nonconforming**

- A. Chips or nicks have gone beyond the paint/coating surface and have damaged the core (ferrite material).

**2.2. Machine Wound**

Note: The number of turns is counted on the inside portion of the toroid.

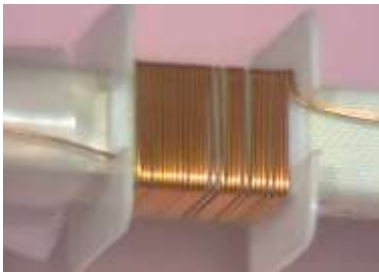


**Acceptable**

- Number of turns are as specified per drawing. Inherent overlap is uniformly distributed.
- The windings are free of nicks or deformation.
- The windings are free of kinks.
- The windings are free of exposed base metal.

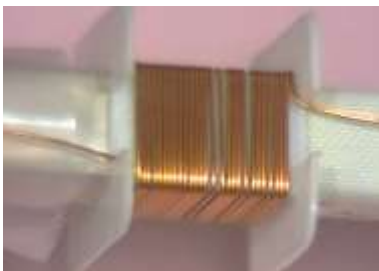
**3. BOBBIN WINDINGS**

Note: The wire is free of kinks or deformations with no base metal exposed.



**Target Condition**

- The wire is free of kinks or deformations with no base metal exposed.



**Acceptable**

- Single layer winding, with the windings tight against the bobbin.
- Number of turns are as specified per drawing.



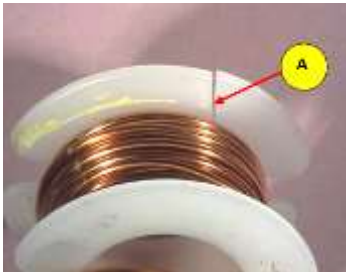
**Acceptable**

- When specified per drawing, windings are wound in a crisscross pattern.



**Nonconforming**

- **(Bifilar)** Double wire strands wound tight against the bobbin with the specified number of turns per drawing.



**Nonconforming**

- A. Bobbin is cracked or broken.

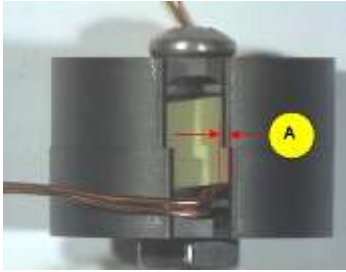
**4. COIL HOUSING**



**Target Condition**

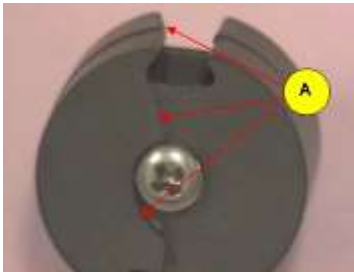
- Coil housing is aligned top to bottom.
- Wiring exit slots are aligned.

Note: hardware is shown for build purposes only, prior to bonding.



**Acceptable**

- Misalignment of wiring slots shall not exceed .03 inch.



**Nonconforming**

- A. Cracks or chips in the composite material of the coil housing.

**5. E-CORE TYPE COILS**



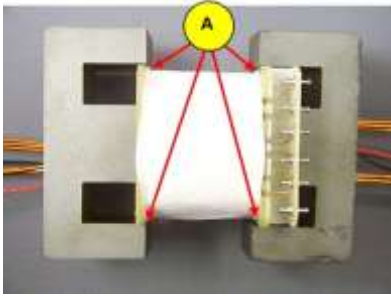
**Acceptable**

- Trifilar winding is tight against the core or previous winding.
- Number of turns are as specified per drawing.
- Entry and exit of wires are in the correct slot per drawing.
- The windings are free of nicks or deformation.
- The windings are free of kinks.
- The windings are free of exposed base metal.



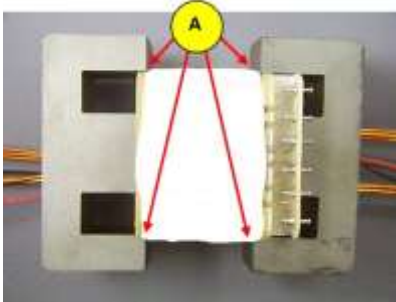
**Acceptable**

- Number of layers of paper/tape covering windings are as specified per drawing.



**Acceptable**

- A. Windings and paper/tape do not interfere with the installation of the E-Cores.



**Nonconforming**

- A. Wiring and/or paper/tape windings are causing interference with the installation of the E-Cores.

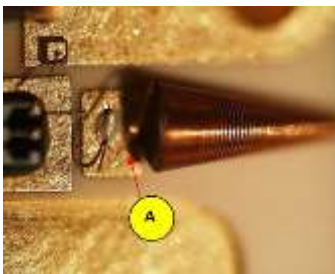
**6. CONICAL COIL**

**Note:** Magnification 27X



**Target Condition**

- Wire remains continuous to connection point.
- Wire does not span the gap between pads more than 50 percent.
- Wire insulation is not evident in epoxy connection



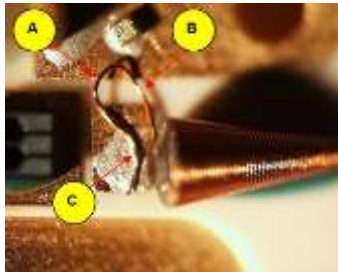
**Acceptable**

- A. Wire is only slightly unwound to connection point.
- Wire does not span the gap between pads more than 50 percent.
- Wire insulation is not evident in epoxy connection.



**Acceptable**

- A. Wire remains continuous to connection point.
- Wire does not span the gap between pads more than 50 percent.
- Wire insulation is not evident in epoxy connection.



**Nonconforming**

- A. Wire is not continuous to connection point.
- B. Wire spans the gap between pads more than 50 percent.
- C. Wire insulation is evident in epoxy connection.

**RECORDS**

There are no records associated with this document.

**END OF DOCUMENT**

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**DOCUMENT INFORMATION**

<b>Responsible Organization:</b>	Operations
<b>Function/Sub-function:</b>	Manufacturing
<b>Governing Document(s):</b>	Y-001, Quality Management System
<b>Subordinate Document(s):</b>	N/A
<b>Related Document(s):</b>	IS-003, Workmanship Acceptability of Electronic Assemblies P-047, Inspection WS-000, Workmanship Standards Introduction WS-002, IPC-A-610
<b>Related Training:</b>	N/A
<b>Approval Requirements:</b>	Manager, Manufacturing Engineering Supervisor, Quality Management Director, Operations Management
<b>Review Requirements:</b>	Manager, Engineering Management Sr. Manager, Quality Management

### Revision History Summary

Revision #	Description of Change	Date
New - 04	Initial Release through revision 04.	Various
N/A	Reformatted in accordance with new document template. Combined Purpose and Scope. Updated section numbering throughout. Updated titles in Approval requirements. No revision upgrade necessary.	02/14/2017
05	Updated point of contact. Update Logo and Proprietary. Content of section 4.2 is the same as section 4.6. Section 4.2 was inadvertently changed to section 4.6 sometime before 2006. Section 4.2 can't be recovered. Polling of subject matter experts shows that section 4.2 "Spring Coils" is not needed. Deleted section 4.2.	9/7/2021
06	Incorporated subsections (separate files) into this single document. Updated approval requirements.	10/03/2022