

INCH-POUND

MIL-C-15305E  
AMENDMENT 5  
3 November 1994  
SUPERSEDING  
AMENDMENT 4  
4 December 1991

MILITARY SPECIFICATION

COILS, ELECTRICAL, FIXED AND VARIABLE, RADIO FREQUENCY  
GENERAL SPECIFICATION FOR

This amendment forms a part of MIL-C-15305E, dated  
17 July 1979, and is approved for use by all Depart-  
ments and Agencies of the Department of Defense.

PAGE 1

\* Title, delete and substitute as printed above.

PAGE 2

2.1, STANDARDS, MILITARY, add:

"MIL-STD-454 - Standard General Requirements for Electronic Equipment."

\* 2.1, STANDARDS, MILITARY, delete:

"MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes."

\* Following 2.1, add new paragraph as follows:

"2.2 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated detail specifications, specification sheets, or MS standards), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained."

PAGE 3

\* 3.4.7, delete and substitute:

"3.4.7 Solder (internal connection) and solder flux. Solder shall be in accordance with QQ-S-571 and have a liquidus melting point greater than +270°C and a solidus greater than +260°C. Flux shall be in accordance with MIL-F-14256, type R or RMA.

PAGE 5

3.15, delete and substitute:

"3.15 Resistance to soldering heat. When coils are tested as specified in 4.8.11, there shall be no evidence of mechanical damage, loosening of terminals or solder reflow as evidenced by solder flowing from the body. Pre- and post- test X-ray inspection at 10X shall be required."

3.23, delete and substitute:

"3.23 Fungus. Materials used in the construction of coils shall be fungus inert in accordance with requirement 4 of MIL-STD-454 (see 4.8.19)."

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DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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\* Following 3.27.3, add new paragraph as follows:

"3.27.4 Laser marking (cylindrical coils). At the option of the manufacturer, cylindrical coils may be laser marked. The marking shall be legible after all tests and as a minimum contain the manufacturer's name or source code, inductance value, tolerance and date code."

3.28, delete and substitute:

"3.28 Workmanship. Coils shall be processed in such a manner as to be uniform in quality and free of defects that will affect function, life, or serviceability."

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TABLE IV, group II, Electrical characteristics (final): Delete "3.8 and 4.8.4" and substitute "3.12 and 4.8.8".

TABLE IV, group II, Inductance: Delete "3.8.1 and 4.8.4.1" and substitute "3.12.1 and 4.8.8.1".

TABLE IV, group II, Q: Delete "3.8.2 and 4.8.4.2" and substitute "3.12.2 and 4.8.8.2".

TABLE IV, group IV, Electrical characteristics (final): Delete "3.8 and 4.8.4" and substitute "3.12 and 4.8.8".

TABLE IV, group IV, line 5, delete, "Moisutre" and substitute "Moisture".

TABLE IV, group VI, Resistance to solvents, number of sample units: Delete "3" and substitute "4".

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\* 4.7.1.2.1, delete and substitute:

"4.7.1.2.1 Sampling plan. A sample of parts shall be randomly selected from each inspection lot in accordance with table V-A, if one or more defects are found, the lot shall be rescreened and defects removed. After screening and removal of defects, a new sample of parts shall be randomly selected in accordance with table V-A, if one or more defects are found in the second sample, the lot shall be rejected and shall not be supplied to this specification."

\* After 4.7.1.2.1, add the following new table.

"TABLE V-A. Sampling plan."

Lot size	Group A	Group B
1 to 5	100 percent	100 percent
6 to 13	100 percent	5
14 to 50	13	5
51 to 90	13	7
91 to 150	13	11
151 to 280	20	13
281 to 500	29	16
501 to 1,200	34	19
1,201 to 3,200	42	23
3,201 to 10,000	50	29
10,001 to 35,000	60	35
35,001 to 150,000	74	40
150,001 to 500,000	90	40
500,001 and over	102	40

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\* 4.7.1.2.2, delete in its entirety.

TABLE V, Visual and mechanical examination (external): Delete "3.5.3" and substitute "3.5.2".

\* TABLE V, delete last two columns under "AQL (percent defective)".

\* 4.7.1.3.1, delete and substitute the following:

"4.7.1.3.1 Sampling plan. A sample of parts shall be randomly selected from each inspection lot in accordance with table V-A. If one or more defects are found, the lot shall be rescreened and defects removed. After screening and removal of defects, a new sample of parts shall be randomly selected in accordance with table V-A. If one or more defects are found in the second sample, the lot shall be rejected and shall not be supplied to this specification."

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\* 4.7.1.3.2, delete in its entirety.

PAGE 12

TABLE VII, Subgroup IV, Resistance to solvents, sample units to be inspected: Delete "3" and substitute "4".

TABLE VII, footnote 3/, first word of sentence: Delete "Nine" and substitute "Ten". Second line: Delete "3 units for resistance to solvents" and substitute "4 units for resistance to solvents".

PAGE 13

4.8.2a., delete and substitute:

"a. Test condition A-1 for qualification and for group C inspection; A for group A inspection. Step 3 shall be at the maximum operating temperature for the class."

PAGE 15

4.8.8.1.1, delete and substitute:

"4.8.8.1.1 Effective inductance for cylindrical coils (inductance 0.10 to 10.0 microhenries, inclusive). The tests shall be performed using a Q meter such as Hewlett Packard model 260A, HP4342A, HP250RX, or equivalent at appropriate test frequencies as listed in the instructions for the test equipment. Suitable means shall be used to calibrate the frequency dial of the Q meter within 0.1 percent for the applicable test frequency. Frequencies to be used for testing the various ranges of inductance shall be as follows:

<u>Inductance range (<math>\mu</math>H)</u>	<u>Reference test frequency (MHz) for 260A</u>
0.10 to 1.0 incl. - - - -	25.0
Above 1.0 to 10.0 incl. - -	7.9

Allowance shall be made for the internal inductance of the Q meter and the test fixture as determined in 4.8.8.1.1.1."

PAGE 16

4.8.8.1.2, under paragraph: Delete "Test Frequency, MHz" and substitute "Reference test frequency (MHz) for 260A".

FIGURE 3, after title, add: "or equivalent."

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FIGURE 4, after title, add: "or equivalent."

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PAGE 19

4.8.8.2, first sentence, delete and substitute: "The test shall be performed using a Q meter such as Hewlett Packard model 260A, HP4342A, HP250RX meter, or equivalent."

4.8.8.3, first sentence, delete and substitute: "Unshielded coils shall be placed in a field of a variable-frequency oscillator, such as Measurements Corporation megacycle meter, model 59, or equivalent."

4.8.8.3.1, first sentence, delete and substitute: "When unshielded coils under test cannot be resonated by the method specified in 4.8.8.3, the test shall be performed using the instruments specified in 4.8.8.2 or equivalent."

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FIGURE 7, after title, add: "or equivalent."

PAGE 21

FIGURE 8, after title, add: "or equivalent."

PAGE 22

FIGURE 9, after title, add: "or equivalent."

PAGE 24

4.8.8.6, equation, delete and substitute:

$$R_p = \frac{.159 Q_1 Q_2}{FC_1 (Q_1 - Q_2)}$$

PAGE 26

FIGURE 11, after title, add: "or equivalent."

PAGE 27

FIGURE 11, after title, add: "or equivalent."

PAGE 28

4.8.11b., delete and substitute the following:

"b. Test condition letter - A. "

4.8.11, add new subparagraphs as follows:

"c. After the test and as soon as the solder terminals have returned to room ambient temperature, the following tests shall be made in the order shown:

- (1) Visual: There shall be no evidence of solder reflow of internal connections as evidenced by solder flowing from the body of the device.
- (2) Thermal shock: As specified in 4.8.2a.
- (3) Terminal strength: As specified in 4.8.12. There shall be no evidence of mechanical damage or loosening of terminals.
- (4) Electrical verification: Winding continuity shall be verified."

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PAGE 29

4.8.15.1a., line 4: Delete "1.25" and substitute ".250".

PAGE 30

4.8.18a., last sentence: Delete "steps 7a and 7b" and substitute "step 7a". At the end of sentence, add: "Step 7b shall not be applicable."

PAGE 32

5.4.2.4, line 3: Delete "Governemnt" and substitute "Government".

6.1, line 2: Delete "involing" and substitute "involving".

PAGE 34

6.9: Delete in its entirety.

PAGE 35

20.1.2, line 3: Delete "Nine" and substitute "Ten".

The margins of this amendment are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous amendment were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous amendment.

CONCLUDING MATERIAL

Custodians:

Army - ER  
Navy - EC  
Air Force - 85

Review activities:

Army - AR, ME, MI  
Navy - AS, CG, OS, SH  
Air Force - 17, 19, 99  
DLA - ES

Preparing activity:

Army - ER

Agent:

DLA - ES

(Project 5950-0852)