

Attachment No. 3

EIA 364 test procedures and their possible use in MIL-PRF-39012

DSCC is reviewing MIL-PRF-39012 with the intent of replacing a number of tests in section 4 with standardized tests from industry, or more specifically, with EIA-364 test procedures. This will be accomplished using standard procedures for changing a military specification (i.e. by publishing an initial draft with the proposed changes, allowing 45 days for comments period from industry and the military, etc.) culminating in a final document with the changes.

Nine tests have been identified as candidates for replacement with EIA-364 test procedures. For six of these tests, the EIA replacements are very similar and should be adaptable for use within MIL-PRF-39012 with little if any change. Any changes appear minor, such as test times, etc., and would be incorporated within the mil spec. The three remaining tests are RF frequency tests and are more complex. MIL-PRF-39012 covers RF frequency connectors. The RF subcommittee does not have a meeting scheduled, and we do not know when it will.

Below is summary of the nine tests of interest.

1. Air Leakage Test: MIL-PRF-39012 paragraph 4.7.7 vs. EIA 364-02.

EIA-364-02 can be used as written, with minor changes, such as immersion time, which would be incorporated into MIL-PRF-39012.

2. Contact Resistance: MIL-PRF-39012 paragraph 4.7.13 vs. EIA 364-06.

EIA 364-06 can be used as written.

3. Durability: MIL-PRF-39012 paragraph 4.7.12 vs. EIA 364-09.

The cycle rates specified in paragraph 4.2 of 364-09 are not applicable to most RF connectors, and will be changed in the military specification.

4. Mating and unmating forces: MIL-PRF-39012 paragraph 4.7.2.2 vs. EIA-364-13.

EIA 364-13 can be used as written.

5. Cable retention force test: MIL-PRF-39012 paragraph 4.7.21 vs. EIA-364-38.

The EIA-364-38 load application rate of 89 newtons/minute will be changed. This would be incorporated within individual specification sheets.

6. Permeability: MIL-PRF-39012 paragraph 4.7.5 vs. EIA-364-54.

EIA 364-54 can be used as written.

7. RF leakage/EMI shielding: MIL-PRF-39012 paragraph 4.7.23 vs. EIA-364-66.

The mil spec test is similar to the EIA spec and to MIL-STD-1344, method 3008, which was cancelled. This test is sufficiently complex that we are not sure of the degree to which the tests measure the same thing, or what modifications would be necessary to use the EIA procedure as a replacement. We need assistance from someone familiar with RF shielding test procedures.

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8. Insertion loss: MIL-PRF-39012 paragraph 4.7.24 vs. EIA-364-101.

This is also an RF test. EIA-364-101 allows for different measurement techniques and procedures, whereas 39012 is more specific. The use of a network analyzer in the EIA specification probably means insertion loss can be measured with the s parameters, while the mil spec does uses slotted lines and tuners to compensate for reflection losses of the cable attached to the connector. We need assistance in determining if these two procedures are measuring the same thing.

9. VSWR: MIL-PRF-39012 paragraph 4.7.11 vs. EIA-364-106.

This is the third RF frequency test, and we need help with this too. The present 39012 test is similar to EIA-364-106 and the cancelled MIL-STD-1344, method 3005. It appears that the EIA test is a direct replacement.

Summary: DSCC would like to use industry standard test procedures where possible when updating MIL-PRF-39012. However, assistance is needed to accomplish for a number of possible replacements from EIA-364.

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