PERFORMANCE SPECIFICATION SHEET

CONNECTOR, PLUG, ELECTRICAL, SERIES SSMA, PIN CONTACT,
FOR FLEXIBLE CABLE, CLASS 2

This specification is approved for use by all Departments
and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall
consist of this specification sheet and MIL-PRF-39012.

NOTES:
1. Dimensions are in inches. Metric equivalents are given for information only.
2. Wrench flats are to accommodate standard wrench opening in accordance with FED-STD-H28,
appendix 10.
3. All undimensioned pictorial configurations are for reference purposes only.
4. Dimension 1.281 (32.54 mm) defines the maximum overall length of the connector when
assembled to the cable.
5. Steel bodied connectors shall be furnished with passivated coupling nuts.
6. Unless otherwise specified, tolerances are ± .005 inch (0.13 mm).
7. Safety wire holes, three holes equally spaced .018 (0.45 mm) +.004 (0.10 mm), -.002 (1.29 mm)
inch diameter.

FIGURE 1. General configuration.
### TABLE I. Dash number and applicable cable.

<table>
<thead>
<tr>
<th>Dash number</th>
<th>Applicable cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>CATEGORY A – FIELD SERVICEABLE 5/ (NO SPECIAL TOOLS REQUIRED)</td>
<td></td>
</tr>
<tr>
<td>3001</td>
<td>Cable group II</td>
</tr>
<tr>
<td>3101 6/</td>
<td>M17/113-RG316*</td>
</tr>
<tr>
<td>4001</td>
<td></td>
</tr>
<tr>
<td>4101 6/</td>
<td></td>
</tr>
</tbody>
</table>

| CATEGORY C – FIELD REPLACEABLE 7/ 8/ (SAE-AS22520 CRIMP TOOL, SEE FIGURE 2) |
| 3002        | Cable group IIA  |
| 3102 6/     | M17/113-RG316*   |
| 4002        |                  |
| 4102 6/     |                  |

* Cable to be used when performing tests requiring cable.

1/ These connectors have captivated center contacts.
2/ For logistics purposes, only connectors with safety wire holes will be stocked.
3/ Coupling nuts shall be corrosion-resistant steel with a passivated finish in accordance with MIL-DTL-14072. Applies to “-3XXX” series connectors only.
4/ Although only one MIL-DTL-17 cable Part Identifying Number (PIN) is specified, all cables in the specification sheet specified accommodate the connectors referenced herein, as shown in table I.
5/ All corrosion-resistant steel bodied connectors shall be gold plated in accordance with ASTM-B488, type II, code C, class 1.27, at least in the area of solder attachment.
6/ No safety wire holes.
7/ These connectors are assembled, using the applicable crimp tool, to the specified cables stripped as shown on figure 2.
8/ Preferred die is SAE-AS22520/5-03, closure A.
MIL-PRF-39012/139A
w/AMENDMENT 1

NOTES:
1. Dimensions are in inches. Metric equivalents are given for information only.
2. Unless otherwise specified, tolerances shall be ±.005 inch (0.13 mm).

FIGURE 2. Cable stripping dimensions for field replaceable connectors.
ENGINEERING INFORMATION:

Impedance: 50 Ohms, nominal.

Frequency range: 0 to 35 GHz.

Voltage rating:

250 V rms, at sea level.

60 V rms, at 70,000 feet.

Operating temperature: -65°C to 165°C.

REQUIREMENTS:

Dimensions and configuration: See figure 1.

Interface: MIL-STD-348. The following exception applies.

SSMA pin contact interface, dimension “L” shall not apply.

Force to engage and disengage:

Longitudinal force: Not applicable.

Torque: 2 inch-pounds, maximum.

Coupling proof torque: 7 inch-pounds, minimum.

Recommended mating torque: 2 inch-pounds.

Hermetic seal: Not applicable.

Leakage (pressurized connectors): Not applicable.

Center contact retention: 4 pounds, minimum, axial force.

Radial torque: Not applicable.

Voltage standing wave ratio (VSWR): 1.07 +.015F (F in GHz) dB, maximum, or approximately 80 percent of the upper cutoff frequency of the cable, whichever is lower.

Moisture resistance: In accordance with MIL-STD-202-106, no measurements at high humidity. Insulation resistance shall be at least 200 megohms within 5 minutes after removal from humidity.

Contact resistance: In milliohms, maximum:

<table>
<thead>
<tr>
<th></th>
<th>Initial</th>
<th>After environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center contact</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Outer contact</td>
<td>2.0</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Outer conductor to body</td>
<td>0.5</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
Dielectric withstanding voltage: 750 V rms, minimum at sea level.

Vibration, high frequency: In accordance with MIL-STD-202-204, test condition D.

Corona level:

Altitude: 70,000 feet, 190 V rms, minimum.

Shock (specified pulse): In accordance with MIL-STD-202-213, test condition I.

Insulation resistance: In accordance with MIL-STD-202-302, test condition B, 1,000 megohms, minimum.

Thermal shock: In accordance with MIL-STD-202-107, test condition B, except high temperature shall be +85°C.

Barometric pressure (reduced): Not applicable.

RF high potential voltage: 500 V rms, minimum.

Frequency: 5 MHz.

Leakage current: Not applicable.

Cable retention force: 20 pounds, minimum.

Torque: Not applicable.

Coupling mechanism retention force: 60 pounds, minimum.

RF leakage: \(-90 + F \text{ (in GHz)}\) dB, minimum.

RF insertion loss: \(.04 \times \sqrt{F} \text{ (GHz)}\) dB, maximum, tested to 3 GHz.

PIN: M39012/139- (dash number from table I).

NOTE: This specification sheet supersedes DSCC drawing 86119 once a QPL source is obtained.
Amendment notations. The margins of this specification are marked with vertical lines to indicate modifications generated by this amendment. 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.

Referenced documents: In addition to MIL-PRF-39012, this specification references the following:

- FED-STD-H28
- MIL-STD-202-106
- MIL-STD-202-107
- MIL-STD-202-204
- MIL-STD-202-213
- MIL-STD-202-302
- MIL-STD-348
- MIL-DTL-14072
- MIL-DTL-17
- ASTM B488
- DD86119
- SAE-AS22520

CONCLUDING MATERIAL

Custodians:  
Army - CR  
Navy - EC  
Air Force - 85  
DLA - CC

Preparing activity:  
DLA - CC

(Project 5935-2018-098)

Review activities:  
Army - AR, AT, MI  
Navy - AS, MC, OS, SH  
Air Force - 19, 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at https://assist.dla.mil.