

INCH-POUND

MIL-DTL-22641/20D
w/AMENDMENT 1
17 July 2019
SUPERSEDING
MIL-DTL-22641/20D
9 March 2010

DETAIL SPECIFICATION SHEET

ADAPTERS, COAXIAL TO WAVEGUIDE (SERIES SMA TO WAVEGUIDE - CLASS 5)

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

The requirements for acquiring the adapters described
herein shall consist of this document and [MIL-DTL-22641](#).

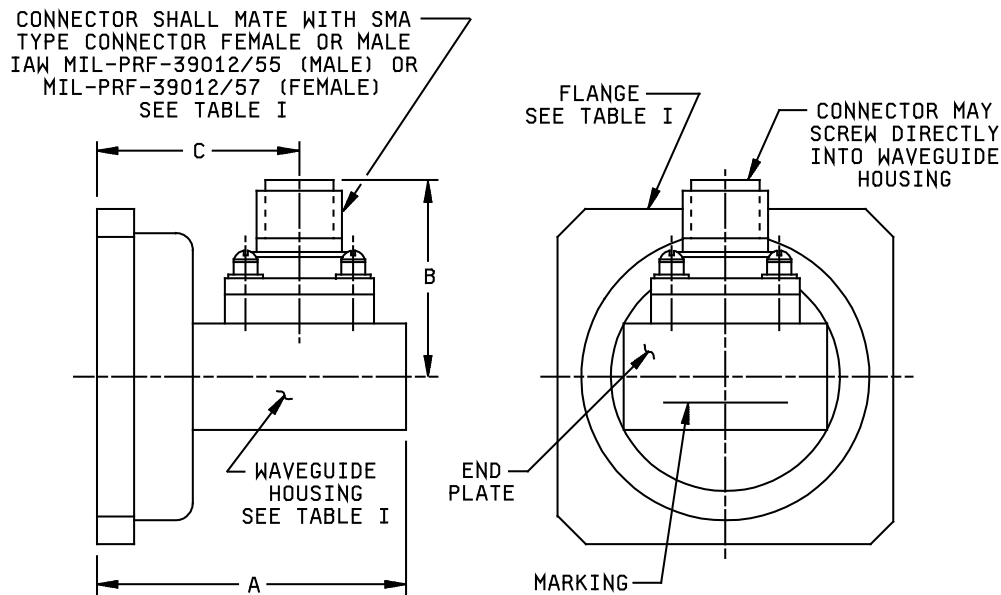


FIGURE 1. Adapters, coaxial to waveguide (class 5).

REQUIREMENTS:

Design, construction, and physical dimensions: See [figure 1](#) and [table I](#).

Operating temperature range: -54°C to +125°C.

Frequency range: See [table I](#).

VSWR: See [table I](#). VSWR over 50 percent frequency range shall be VSWR measured over any continuous frequency band of width equal to 50 percent of the entire frequency range, chosen at the discretion of the tester.

AMSC N/A

FSC 5985



MIL-DTL-22641/20D
w/AMENDMENT 1

RF insertion loss: See [table I](#).

Connector: Connector bodies shall be corrosion-resistant steel.

Flange, waveguide: See [table I](#).

Housing, waveguide: See [table I](#).

Marking: See [figure 1](#).

Part or Identifying Number (PIN): M22641/20- (dash number from [table I](#)).

TABLE I. Adapters, coaxial to waveguide (class 5 - SMA to waveguide).

Dash number	Frequency range (GHz)	VSWR over entire frequency range (max) <u>4/</u> <u>5/</u>	VSWR over 50 percent frequency range (max) <u>4/</u> <u>5/</u>	RF insertion loss dB (max) <u>5/</u>	Waveguide housing <u>6/</u>	Flange <u>7/</u>	Waveguide and flange material	Connector	Dimensions <u>1/</u> <u>2/</u> <u>3/</u>		
									A (max)	B (max)	C (max)
01	2.60 - 3.95	1.10:1	1.05:1	0.05	M85/1-041 (RG-75/U)	M3922/56-002 (UG-584/U)	Aluminum	Male	2.235 (56.77)	1.219 (30.96)	1.269 (32.23)
02	2.60 - 3.95	1.10:1	1.05:1	0.05	M85/1-041 (RG-75/U)	M3922/56-002 (UG-584/U)	Aluminum	Female	2.235 (56.77)	1.219 (30.96)	1.349 (34.26)
03	8.2 - 12.4	1.10:1	1.05:1	0.15	M85/1-077 (RG-67/U)	M3922/53-003 (UG-135/U)	Aluminum	Male	1.296 (32.92)	0.807 (20.50)	0.940 (23.88)
04	8.2 - 12.4	1.10:1	1.05:1	0.15	M85/1-077 (RG-67/U)	M3922/53-003 (UG-135/U)	Aluminum	Female	1.296 (32.92)	0.734 (18.64)	0.940 (23.88)
05	12.4 - 18.0	1.10:1	1.05:1	0.20	M85/1-090 (RG-349/U)	M3922/53-006 (UG-1665/U)	Aluminum	Male	1.265 (32.13)	0.782 (19.86)	0.941 (23.90)
06	12.4 - 18.0	1.10:1	1.05:1	0.20	M85/1-090 (RG-349/U)	M3922/53-006 (UG-1665/U)	Aluminum	Female	1.265 (32.13)	0.687 (17.45)	0.941 (23.90)
07	2.60 - 3.95	1.10:1	1.05:1	0.05	M85/1-043 (RG-48/U)	M3922/56-001 (UG-53/U)	Copper	Male	2.235 (56.77)	1.219 (30.96)	1.269 (32.23)
08	2.60 - 3.95	1.10:1	1.05:1	0.05	M85/1-043 (RG-48/U)	M3922/56-001 (UG-53/U)	Copper	Female	2.235 (56.77)	1.219 (30.96)	1.269 (32.23)
09	8.2 - 12.4	1.10:1	1.05:1	0.15	M85/1-079 (RG-52/U)	M3922/53-001 (UG-39/U)	Copper	Male	1.296 (32.92)	0.807 (20.50)	0.940 (23.88)
10	8.2 - 12.4	1.10:1	1.05:1	0.15	M85/1-079 (RG-52/U)	M3922/53-001 (UG-39/U)	Copper	Female	1.296 (32.92)	0.807 (20.50)	0.940 (23.88)
11	12.4 - 18.0	1.10:1	1.05:1	0.20	M85/1-089 (RG-91/U)	M3922/53-005 (UG-419/U)	Copper	Male	1.256 (31.90)	0.734 (18.64)	0.940 (23.88)
12	12.4 - 18.0	1.25:1	1.05:1	0.20	M85/1-089 (RG-91/U)	M3922/53-005 (UG-419/U)	Copper	Female	1.256 (31.90)	0.782 (19.86)	0.940 (23.88)
13	7.0 - 11.0	1.10:1	1.05:1	0.15	M85/1-158	M3922/70-014	Aluminum	Male	1.350 (34.29)	0.970 (24.64)	0.950 (24.13)
14	7.0 - 11.0	1.10:1	1.05:1	0.15	M85/1-158	M3922/70-014	Aluminum	Female	1.350 (34.29)	0.970 (24.64)	0.950 (24.13)
15	12.4 - 18.0	1.10:1	1.05:1	0.20	M85/1-090 (RG-349/U)	M3922/70-020	Aluminum	Male	1.265 (32.13)	0.910 (23.11)	0.840 (21.34)
16	12.4 - 18.0	1.10:1	1.05:1	0.20	M85/1-090 (RG-349/U)	M3922/70-020	Aluminum	Female	1.265 (32.13)	0.910 (23.11)	0.840 (21.34)
17	7.0 - 11.0	1.10:1	1.05:1	0.15	M85/1-155 (RG-320/U)	M3922/70-013	Copper	Male	1.350 (34.29)	0.970 (24.64)	0.950 (24.13)
18	7.0 - 11.0	1.10:1	1.05:1	0.15	M85/1-155 (RG-320/U)	M3922/70-013	Copper	Female	1.350 (34.29)	0.970 (24.64)	0.950 (24.13)
19	12.4 - 18.0	1.10:1	1.05:1	0.20	M85/1-089 (RG-91/U)	M3922/70-019	Copper	Male	1.265 (32.13)	0.910 (23.11)	0.840 (21.34)

See footnotes at end of table.

MIL-DTL-22641/20D
w/AMENDMENT 1

TABLE I. Adapters, coaxial to waveguide (class 5 - SMA to waveguide) - Continued

Dash number	Frequency range (GHz)	VSWR over entire frequency range (max) <u>4/</u> <u>5/</u>	VSWR over 50 percent frequency range (max) <u>4/</u> <u>5/</u>	RF insertion loss dB (max) <u>5/</u>	Wave-guide housing <u>6/</u>	Flange <u>7/</u>	Wave-guide and flange material	Connector	Dimensions <u>1/</u> <u>2/</u> <u>3/</u>		
									A (max)	B (max)	C (max)
20	12.4 - 18.0	1.10:1	1.05:1	0.20	M85/1-089 (RG-91/U)	M3922/70-019	Copper	Female	1.265 (32.13)	0.910 (23.11)	0.840 (21.34)
21 <u>8/</u>	2.60 - 3.95	1.04:1	---	0.05	M85/4-017	M3922/75-06	Aluminum	Male	2.50 (63.5)	.913 (23.19)	1.53 (38.9)
22 <u>8/</u>	2.60 - 3.95	1.04:1	---	0.05	M85/4-017	M3922/75-06	Aluminum	Female	2.50 (63.5)	.913 (23.19)	1.53 (38.9)
23 <u>8/</u>	2.60 - 5.85	1.25:1	---	0.05	M85/4-007	M3922/75-02	Aluminum	Male	2.50 (63.5)	1.10 (27.9)	1.60 (40.6)
24 <u>8/</u>	2.60 - 5.85	1.25:1	---	0.05	M85/4-007	M3922/75-02	Aluminum	Female	2.50 (63.5)	1.10 (27.9)	1.60 (40.6)
25 <u>8/</u>	5.85 - 8.20	1.04:1	---	0.05	M85/4-008	M3922/75-04	Aluminum	Male	1.50 (38.1)	.88 (22.4)	1.13 (28.7)
26 <u>8/</u>	5.85 - 8.20	1.04:1	---	0.05	M85/4-008	M3922/75-04	Aluminum	Female	1.50 (38.1)	.88 (22.4)	1.13 (28.7)
27 <u>8/</u>	5.85 - 12.4	1.25:1	---	0.05	M85/4-008	M3922/75-04	Aluminum	Male	1.50 (38.1)	.88 (22.4)	1.13 (28.7)
28 <u>8/</u>	5.85 - 12.4	1.25:1	---	0.05	M85/4-008	M3922/75-04	Aluminum	Female	1.50 (38.1)	.88 (22.4)	1.13 (28.7)

1/ Dimensions are in inches.

2/ Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.

3/ Metric equivalents are in parentheses.

4/ A larger attenuator pad may be used for VSWR test setup (see figure 1 of [MIL-DTL-22641](#)).

5/ VSWR and RF insertion loss may be measured by swept frequency techniques.

6/ The internal dimensions and material of the waveguide shall be in accordance with [MIL-DTL-85](#).

7/ Flange material and flange mounting hole dimensions shall be in accordance with [MIL-DTL-3922](#).

8/ Reduced height waveguides and flanges.

MIL-DTL-22641/20D
w/AMENDMENT 1

Referenced documents. In addition to MIL-DTL-22641, this document references the following:

MIL-DTL-85
MIL-DTL-3922
MIL-PRF-39012/55
MIL-PRF-39012/57

Amendment notations. The margins of this specification sheet 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.

Custodians:

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

Preparing activity:
DLA - CC

(Project 5985-2019-012)

Review activities:

Army - MI
Navy - AS, MC, OS
Air Force - 19

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>.