

INCH-POUND

MIL-DTL-22641/16H
w/AMENDMENT 1
17 July 2019
SUPERSEDING
MIL-DTL-22641/16H
9 March 2010

DETAIL SPECIFICATION SHEET

ADAPTERS, COAXIAL TO WAVEGUIDE (SERIES N TO WAVEGUIDE - CLASS 1)

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 specification sheet and [MIL-DTL-22641](#).

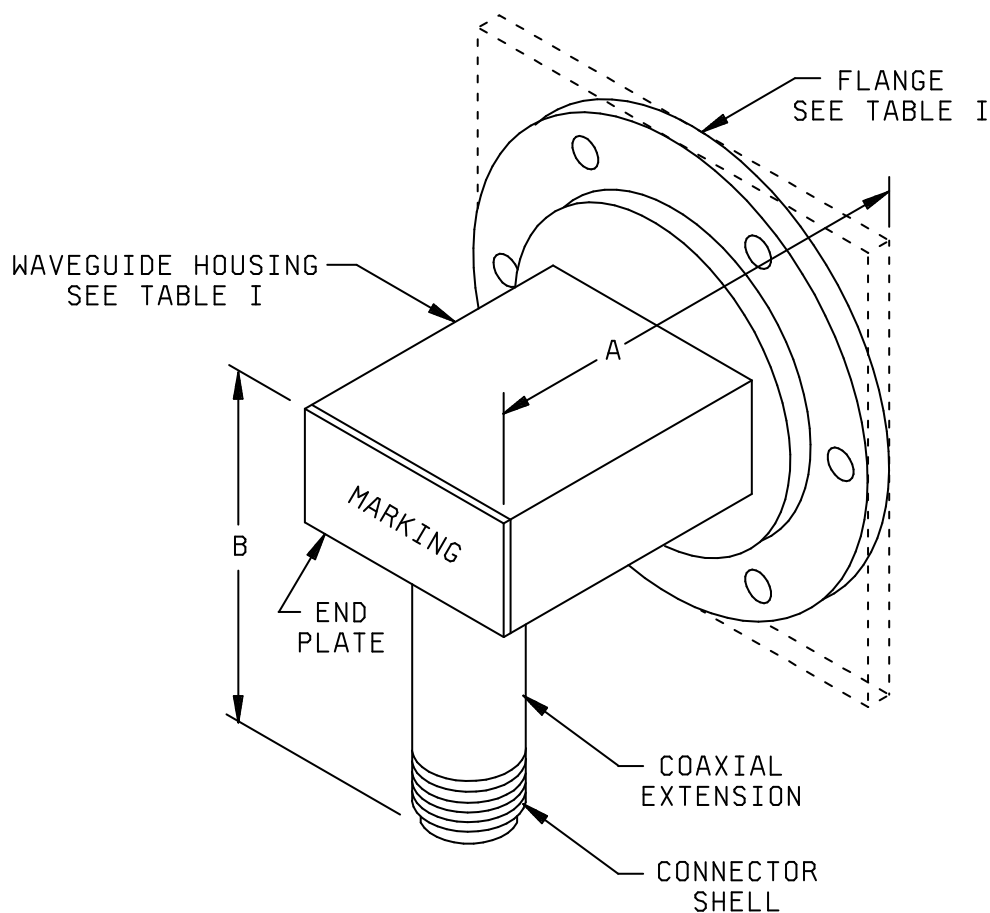


FIGURE 1. Configuration for PIN M22641/16-01 through M22641/16-22.



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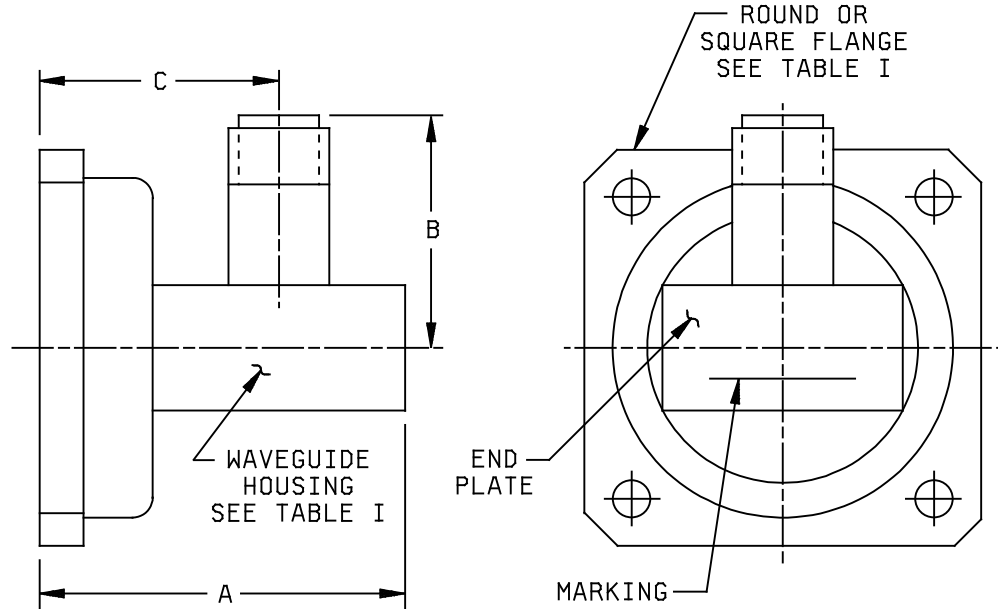


FIGURE 2. Configuration for PIN M22641/16-23 through M22641/16-30.

REQUIREMENTS:

Design, construction, and physical dimensions: See [figures 1 and 2](#) and [table I](#).

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.

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

Radio frequency connector: The coaxial connector shall be compatible and mate with series N plug in accordance with MIL-PRF-39012/1.

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

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

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TABLE I. Adapters, coaxial to waveguide (class I - series N to waveguide).

Dash number	Figure	Frequency range (GHz)	VSWR over entire frequency range <u>5/ 6/</u>	VSWR over 50 percent frequency range <u>5/ 6/</u>	RF insertion loss (dB) max <u>6/</u>	Waveguide housing <u>7/</u>	Flange <u>3/</u>	Dimensions <u>1/ 2/</u>			Waveguide and flange material
								A (max)	B (max)	C (max)	
01	1	7.05 - 10.0	1.25:1	1.20:1	.10	M85/1-069 M85/1-073 RG-51/U	M3922/53-002 UG-51/U Cover <u>3/</u>	2.197 (55.80)	2.250 (57.15)	---	Copper alloy
02	1	5.85 - 8.2	1.25:1	1.20:1	.10	M85/1-063 M85/1-067 RG-50/U	M3922/55-001 UG-344/U Cover <u>3/</u>	2.500 (63.50)	2.375 (60.33)	---	Copper alloy
03	1	3.95 - 5.85	1.25:1	1.20:1	.10	M85/1-051 M85/1-055 RG-49/U	M3922/57-002 UG-149A/U Cover <u>3/</u>	3.687 (93.65)	2.437 (61.90)	---	Copper alloy
04	1	2.6 - 3.95	1.25:1	1.20:1	.10	M85/1-039 M85/1-043 RG-48/U	M3922/56-001 UG-53/U Cover <u>3/</u>	4.062 (103.17)	4.250 (107.95)	---	Copper alloy
05	1	8.2 - 12.4	1.25:1	1.20:1	.20	M85/1-079 M85/1-075 RG-52/U	M3922/53-001 UG-39/U Cover <u>3/</u>	2.000 (50.80)	2.218 (56.34)	---	Copper alloy
06	1	1.7 - 2.6	1.25:1	1.20:1	.05	M85/1-027 M85/1-031 RG-104/U	M3922/58-009 UG-435B/U Contact <u>3/</u>	4.125 (104.78)	5.000 (127.00)	---	Copper alloy
07	1	1.12 - 1.7	1.25:1	1.20:1	.05	M85/1-015 M85/1-017 RG-69/U	M3922/58-007 UG-417B/U Contact <u>3/</u>	5.250 (133.35)	7.250 (184.15)	---	Copper alloy
08	1	4.9 - 7.05	1.25:1	1.20:1	.10	M85/1-057 M85/1-061 RG-343/U	M3922/52-037 UG-1354/U Contact <u>3/</u>	2.000 (50.80)	2.000 (50.80)	---	Copper alloy
09	1	7.05 - 10.0	1.25:1	1.20:1	.10	M85/1-071 RG-68/U	M3922/53-004 UG-138/U Cover <u>3/</u>	2.197 (55.80)	2.250 (57.15)	---	Aluminum alloy

See footnotes at end of table.

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TABLE I. Adapters, coaxial to waveguide (class I - series N to waveguide) - Continued.

Dash number	Figure	Frequency range (GHz)	VSWR over entire frequency range <u>5/ 6/</u>	VSWR over 50 percent frequency range <u>5/ 6/</u>	RF insertion loss (dB) max <u>6/</u>	Waveguide housing <u>7/</u>	Flange <u>3/</u>	Dimensions <u>1/ 2/</u>			Waveguide and flange material
								A (max)	B (max)	C (max)	
10	1	5.85 - 8.2	1.25:1	1.20:1	.10	M85/1-065 RG-106/U	M3922/55-002 UG-441/U Cover <u>3/</u>	2.500 (63.50)	2.375 (60.33)	---	Aluminum alloy
11	1	3.95 - 5.85	1.25:1	1.20:1	.10	M85/1-053 RG-95/U	M3922/57-001 UG-407/U Cover <u>3/</u>	3.687 (93.65)	2.437 (61.90)	---	Aluminum alloy
12	1	2.6 - 3.95	1.25:1	1.20:1	.10	M85/1-041 RG-75/U	M3922/56-002 UG-584/U Cover <u>3/</u>	4.062 (103.17)	4.250 (107.95)	---	Aluminum alloy
13	1	8.2 - 12.4	1.25:1	1.20:1	.20	M85/1-077 RG-67/U	M3922/53-003 UG-135/U Cover <u>3/</u>	2.000 (50.80)	2.218 (56.34)	---	Aluminum alloy
14	1	1.7 - 2.6	1.25:1	1.20:1	.10	M85/1-029 RG-105/U	M3922/58-010 UG-437B/U Contact <u>3/</u>	4.125 (104.78)	5.000 (127.00)	---	Aluminum alloy
15	1	1.12 - 1.7	1.25:1	1.20:1	.05	M85/1-018 RG-103/U	M3922/58-008 UG-418B/U Contact <u>3/</u>	5.250 (133.35)	7.250 (184.15)	---	Aluminum alloy
16	1	4.9 - 7.05	1.25:1	1.20:1	.10	M85/1-059 RG-344/U	M3922/52-038 UG-1355/U Contact <u>3/</u>	2.000 (50.80)	2.000 (50.80)	---	Aluminum alloy
17	1	7.0 - 11.0	1.25:1	1.20:1	.20	M85/1-155 RG-320/U	M3922/70-001 UG-1493/U Cover <u>3/</u>	1.515 (38.48)	1.755 (44.58)	---	Copper alloy
18	1	4.9 - 7.05	1.25:1	1.20:1	.10	M85/1-059 M85/1-060 RG-344/U	M3922/52-038 UG-1355/U Contact <u>3/</u>	3.500 (88.90)	2.188 (55.58)	---	Aluminum alloy

See footnotes at end of table.

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TABLE I. Adapters, coaxial to waveguide (class I - series N to waveguide) - Continued.

Dash number	Figure	Frequency range (GHz)	VSWR over entire frequency range <u>5/ 6/</u>	VSWR over 50 percent frequency range <u>5/ 6/</u>	RF insertion loss (dB) max <u>6/</u>	Waveguide housing <u>7/</u>	Flange <u>3/</u>	Dimensions <u>1/ 2/</u>			Waveguide and flange material
								A (max)	B (max)	C (max)	
19	1	4.9 - 7.05	1.25:1	1.20:1	.10	M85/1-061 RG-343/U	M3922/52-037 UG-1354/U Contact <u>3/</u>	3.500 (88.90)	2.188 (55.58)	---	Copper alloy
20	1	2.25 - 5.5	1.30:1	1.20:1	.10	M85/4-001 RG-109/U	M3922/75-01 UG-509/U Cover	6.000 (152.40)	4.000 (101.60)	---	Copper alloy
21	1	5.0 - 10.0	1.40:1	1.30:1	.10	M85/4-003 RG-110/U	M3922/75-03 UG-511/U Cover	3.00 (76.2)	2.75 (69.9)	---	Copper alloy
22 <u>4/</u>	1	7.0 - 11.0	1.10:1	1.10:1	.20	M85/1-155 RG-320/U	M3922/70-001 UG-1493/U <u>3/</u> Cover	1.40 (35.6)	1.10 (27.9)	---	Copper alloy
23	2	3.95 - 5.85	1.065:1	1.03:1	.10	M85/1-055 RG-49/U	M3922/52-013 UG-1728/U Contact <u>3/</u>	2.00 (50.8)	1.96 (49.8)	1.50 (38.1)	Copper alloy
24	2	3.95 - 5.85	1.065:1	1.03:1	.10	M85/1-053 RG-95/U	M3922/52-014 UG-1729/U Contact <u>3/</u>	2.00 (50.80)	1.96 (49.8)	1.50 (38.1)	Aluminum alloy
25	2	7.05 - 10.00	1.065:1	1.03:1	.10	M85/1-073 RG-51/U	M3922/52-019 UG-1734/U Contact <u>3/</u>	1.44 (36.6)	1.07 (27.2)	.88 (22.4)	Copper alloy
26	2	7.05 - 10.00	1.065:1	1.03:1	.10	M85/1-071 RG-68/U	M3922/52-020 UG-1735/U Contact <u>3/</u>	1.44 (36.6)	1.07 (27.2)	.88 (22.4)	Aluminum alloy
27 <u>8/</u>	2	2.60 - 3.95	1.04:1	---	.05	M85/4-017	M3922/75-06	2.50 (63.5)	1.29 (32.8)	1.53 (38.9)	Aluminum alloy

See footnotes at end of table.

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TABLE I. Adapters, coaxial to waveguide (class I - series N to waveguide) - Continued.

Dash number	Figure	Frequency range (GHz)	VSWR over entire frequency range <u>5/ 6/</u>	VSWR over 50 percent frequency range <u>5/ 6/</u>	RF insertion loss (dB) max <u>6/</u>	Waveguide housing <u>7/</u>	Flange <u>3/</u>	Dimensions <u>1/ 2/</u>			Waveguide and flange material
								A (max)	B (max)	C (max)	
28 <u>8/</u>	2	2.60 - 5.85	1.25:1 max	---	.05	M85/4-007	M3922/75-02	2.50 (63.5)	1.47 (37.3)	1.60 (40.6)	Aluminum alloy
29 <u>8/</u>	2	5.85 - 8.20	1.04:1	---	.05	M85/4-008	M3922/75-04	1.50 (38.1)	1.17 (29.7)	1.13 (28.7)	Aluminum alloy
30 <u>8/</u>	2	5.85 - 12.4	1.25:1 max	---	.05	M85/4-008	M3922/75-04	1.50 (38.1)	1.17 (29.7)	1.13 (28.7)	Aluminum alloy

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/ Flange in accordance with [MIL-DTL-3922](#).

4/ Connector shall be female type N (corrosion-resistant steel). Shock, vibration, and salt spray requirements are not required for this Part or Identifying Number (PIN).

5/ A larger attenuator pad may be used for VSWR test setup (see figure 1 of [MIL-DTL-22641](#)) when measuring VSWR values less than 1.25:1.

6/ Swept frequency measuring technique is an acceptable alternate test method for determining VSWR and RF insertion loss value.

7/ Waveguide in accordance with [MIL-DTL-85](#).

8/ Reduced height waveguides and flanges.

Marking: See [figures 1](#) and [2](#).

PIN: M22641/16- (dash number from [table I](#)).

TABLE II. Cross-reference of AN nomenclature to PIN.

AN nomenclature	PIN M22641/16- ()	AN nomenclature	PIN M22641/16- ()
UG-397/U	01	UG-1653/U	09
UG-398/U	02	UG-1654/U	10
UG-399/U	03	UG-1655/U	11
UG-400/U	04	UG-1656/U	12
UG-446A/U	05	UG-1657/U	13
UG-952/U	06	UG-1658/U	14
UG-953/U	07	UG-1659/U	15
UG-1004/U	20	UG-1660/U	16
UG-1005/U	21	UG-1661/U	08
UG-1538/U	17	UG-1679/U	19
UG-1646/U	18		

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

MIL-DTL-85
MIL-DTL-3922
MIL-PRF-39012/1

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 5985-2019-011)

Review activities:

Army - AR, GL, MI
Navy - AS, OS
Air Force - 19

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