

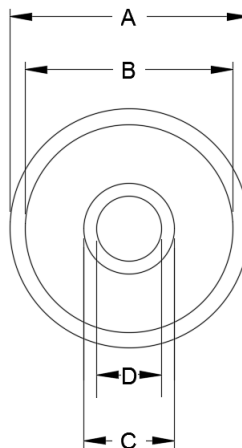
MIL-DTL-3890/1C
15 February 2019
SUPERSEDING
MIL-L-3890/1B
23 January 1976

MILITARY SPECIFICATION SHEET

LINES, RADIO FREQUENCY TRANSMISSION (COAXIAL, AIR DIELECTRIC), 50 OHM

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

The complete requirements for procuring the product described herein
shall consist of this Specification Sheet and MIL-DTL-3890.



NOTES

1. Dimensions are in inches.
2. Metric equivalents (to the nearest .01 mm) are given for general information only.

FIGURE 1. Transmission line.

TABLE I. Dash numbers and dimensions.

Dash Number	Line size	Outer conductor				
		Material	Diameter		Wall thickness <u>1/</u>	
			A	B	Nominal	Maximum deviation from average <u>2/</u>
01	6.125	AL	6.125 ±0.008	5.981 ±0.008	0.072	0.012
02	(155.58)	CU	(155.58) ±(.20)	(151.92) ±(.20)	(1.83)	(.30)
03	3.125	AL	3.125 ±0.005	3.027 ±0.005	0.049	0.0075
04	(79.38)	CU	(79.38) ±(.13)	(76.89) ±(.13)	(1.24)	(.19)
05	1.625	AL	1.625 ±0.003	1.527 ±0.003	0.049	0.005
06	(41.28)	CU	(41.28) ±(.08)	(38.79) ±(.08)	(1.24)	(.13)
07	0.875	AL	0.8750 ±0.0025	0.7850 ±0.0025	0.045	0.005
08	(22.23)	CU	(22.23) ±(.06)	(19.94) ±(.06)	(1.14)	(.13)
09	0.375	AL	0.375 ±0.002	0.285 ±0.002	0.045	0.0045
10	(9.53)	CU	(9.53) ±(.05)	(7.24) ±(.05)	(1.14)	(.11)

TABLE I. Dash numbers and dimensions - Continued.

Dash Number	Line size	Inner conductor				
		Material	Diameter		Wall thickness <u>1/</u>	
			C	D	Nominal	Maximum deviation from average <u>2/</u>
01	6.125	CU	2.600 ±0.004	2.520 ±0.004	0.040	0.0075
02	(155.58)		(66.04) ±(.10)	(64.01) ±(.10)	(1.02)	(.19)
03	3.125		1.315 ±0.003	1.231 ±0.003	0.042	0.005
04	(79.38)		(33.40) ±(.08)	(31.27) ±(.08)	(1.07)	(.13)
05	1.625		0.6640 ±0.0025	0.5880 ±0.0025	0.038	0.005
06	(41.28)		(16.87) ±(.06)	(14.94) ±(.06)	(.97)	(.13)
07	0.875		0.341 ±0.002	0.291 ±0.002	0.025	0.003
08	(22.23)		(8.66) ±(.05)	(7.39) ±(.05)	(.64)	(.08)
09	0.375		0.125 ±0.002	---	---	---
10	(9.53)		(3.18) ±(.05)	---	---	---

1/ Average wall thickness is one-half the difference between the corresponding inside and outside diameters at any cross section perpendicular to the axis, and measured arbitrarily at any point on the periphery.

2/ Maximum deviation of the wall thickness from the average wall thickness (eccentricity) at any cross section is the difference between the average wall thickness and either the maximum or minimum wall thickness, whichever is greater.

TABLE II. Electrical characteristics.

Dash Number	Material	Line size	Operating frequency range	Characteristic impedance Ohms	Dielectric withstanding voltage kV (rms)	Attenuation dB/100 ft							
						10 MHz	100 MHz	500 MHz	1,000 MHz	2,000 MHz	4,000 MHz	10 GHz	
01	AL	6.125	.5MHz - .65 GHz	50 +.15 -.18	40.0	0.18	0.56	.16	---	---	---	---	
02	CU					0.17	0.54	.15	---	---	---	---	
03	AL	3.125	.5MHz - 1.3 GHz	50 +.26 -.27	20.0	.037	.121	.27	.41	---	---	---	
04	CU					.036	.115	.26	.39	---	---	---	
05	AL	1.625	.5MHz - 2.7 GHz	50 +.31 -.36	10.0	.064	.22	.53	.75	1.10	---	---	
06	CU					.061	.21	.50	.71	1.05	---	---	
07	AL	.875	.5MHz - 3.3 GHz	50 +.57 -.52	5.0	.143	.46	1.08	1.65	2.43	3.64	---	
08	CU					.136	.44	1.03	1.58	2.31	3.46	---	
09	AL	.375	.5MHz - 10 GHz	50 +.07 -.73	0.5	---	---	---	---	---	---	16.54	
10	CU					---	---	---	---	---	---	15.75	

REQUIREMENTS:

Design and construction

Dimensions and configuration: See figure 1 and table 1.

Operating frequency range: See table II.

Attenuation: See table II.

Voltage standing wave ratio (VSWR): 1.10 : 1

Characteristic impedance: See table II.

Velocity of propagation: 99.7 percent minimum.

Dielectric withstanding voltage: See table II.

Pressurization:

Test: $30 \frac{lbf}{in^2} \begin{smallmatrix} +2 \\ -0 \end{smallmatrix}$ gaugeOperating: $20 \frac{lbf}{in^2} \pm 2$ gauge.

Example of PIN: M3890/1-(dash number from table I)

M 3890/1 -01 010

Length in inches
Dash number
Specification sheet number
M prefix

TABLE III. Cross reference.

Part number M3890/I-	Aluminum	Copper
01 ---	-	
02 ---		RG-152/U
03 ---	-	
04 ---		RG-154/U
05 ---	RG-382/U	
06 ---		RG-153/U
07 ---	-	
08 ---		RG-155/U
09 ---	-	
10 ---		RG-151/U

Referenced documents. This document references MIL-DTL-3890.

Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.”

CONCLUDING MATERIAL

Custodians:

Army – CR
Navy – EC
Air Force – 85

Preparing activity:
DLA - CC

(Project 5985-2018-012)

Review activities:

Army – AR, AT, CR4, MI
Navy – AS, MC, OS, SH
Air Force – 11, 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>.