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INCH-POUND

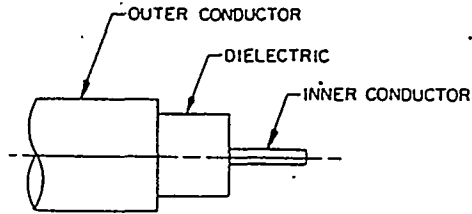
MIL-C-17/130E
 17 January 1992
 SUPERSEDING
 MIL-C-17/130D
 23 February 1988

MILITARY SPECIFICATION SHEET

CABLES, RADIO FREQUENCY, COAXIAL, 0.141 INCH (3.58 mm)
 DIAMETER, SEMIRIGID, 50 OHMS

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 the issue of the following specification listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation: MIL-C-17.



Inches	mm
.0003	0.008
.0005	0.013
.0007	0.018
.001	0.03
.002	0.05
.0362	0.919
.0367	0.932
.1175	2.984
.141	3.58

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.

TABLE I. Description.

Part number	Inner conductor	Dielectric core	Outer ^{1/} conductor
M17/130-RG402	Solid, silver-coated copper-clad steel diameter, .0362 ± .0007 inch	Type F-1 diameter, .1175 ± .0010 inch	Copper tubing ^{2/} diameter, .141 ± .001 inch
M17/130-00001	Same as above	Same as above	Copper tubing ^{2/ 3/} diameter, .141 + .002, - .001 inch tin-plated in accordance with MIL-T-10727, type I, .0003 minimum inch thick.
M17/130-00002	.0362 ± .0007 inch diameter ^{4/}	Same as above	Seamless copper ^{2/} tubing diameter, .141 ± .001 inch

See footnotes at end of table.

AMSC N/A

FSC 6145

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

TABLE I. Description - Continued.

Part number	Inner conductor	Dielectric core	Outer <u>1/</u> conductor
M17/130-00003	.0362 ±.0007 inch diameter <u>4/</u>	Same as above	Copper tubing <u>2/ 3/</u> diameter, .141 ±.002 inch, -.001 inch, tin-plated in accordance with MIL-T-10727 type I, .0003 minimum inch thick
M17/130-00004 <u>5/ 6/</u>	Solid, silver-coated copper-clad steel diameter .0362±.0007 inch	Type F-1 diameter, .1175 ±.0010 inch	Copper tubing diameter, .141 ±.001 inch
M17/130-00005 <u>5/ 6/</u>	Same as above	Same as above	Copper tubing <u>3/</u> diameter, .141 ±.002 inch, -.001 inch tin-plated in accordance with MIL-T-10727 type I, .0003 minimum inch thick
M17/130-00006 <u>5/ 6/</u>	.0362± .0007, inch diameter <u>4/</u>	Same as above	Copper tubing diameter, .141 inch ±.001
M17/130-00007 <u>5/ 6/</u>	.0362± .0007 inch, diameter <u>4/</u>	Same as above	Copper tubing, <u>3/</u> diameter .141 ±.002 inch, -.001 inch tin-plated in accordance with MIL-T-10727, type I, .0003 minimum inch thick

- 1/ Welded outer conductor in accordance with ASTM-B-447 and MIL-C-17 is optional.
- 2/ Hard outer conductor required.
- 3/ The outer diameter dimension is after plating.
- 4/ Nickel-coated, copper-clad steel wire, conforming to ANSI/ASTM B-559, class N 40 HS two percent, with uniform and continuous silver coating, 40 microinches minimum thick. Wire shall be drawn to final size after plating.
- 5/ Tensile strength (outer conductor): 35,000 inch²-pounds maximum, 40 percent elongation minimum measured over two inches.
- 6/ These part numbers are for soft outer conductor cables only.

ENGINEERING INFORMATION:

Continuous working voltage: 1,900 V rms, maximum.

Operating frequency: 20 GHz, maximum.

Velocity of propagation: 69.5 percent, nominal.

Power rating: See figure 2.

Operating temperature range: -40°C to +125°C.

Inner conductor properties:

DC resistance (maximum at 20°C): 2.06 ohms per 100 feet.

Elongation: 10 percent minimum for class 40 A wire.
1.0 percent minimum for class 40 HS wire.

Tensile strength: 40,000 inch²-pounds minimum for class 40 A wire.
90,000 inch²-pounds minimum for class 40 HS wire.

Tensile strength (outer-conductor): 35,000 inch²-pounds, maximum, 40 percent elongation minimum measured over two inches (not applicable to RG402 through-00003) in accordance with ASTM E8.

Engineering notes: This cable is useful in critical RF performance applications (see connector series SMA in accordance with MIL-C-39012). This cable is generally manufactured in 20-foot lengths. Different lengths are available.

REQUIREMENTS:

Dimensions, configuration, and descriptions: See figure 1 and table I.

Environmental and mechanical:

Eccentricity: 7.5 percent, maximum.

Adhesion of conductors:

Inner conductor to core: 4 pounds, minimum; 65 pounds, maximum.

Outer conductor to core: 4 pounds, minimum.

Aging stability: Not applicable.

Stress crack resistance: Not applicable.

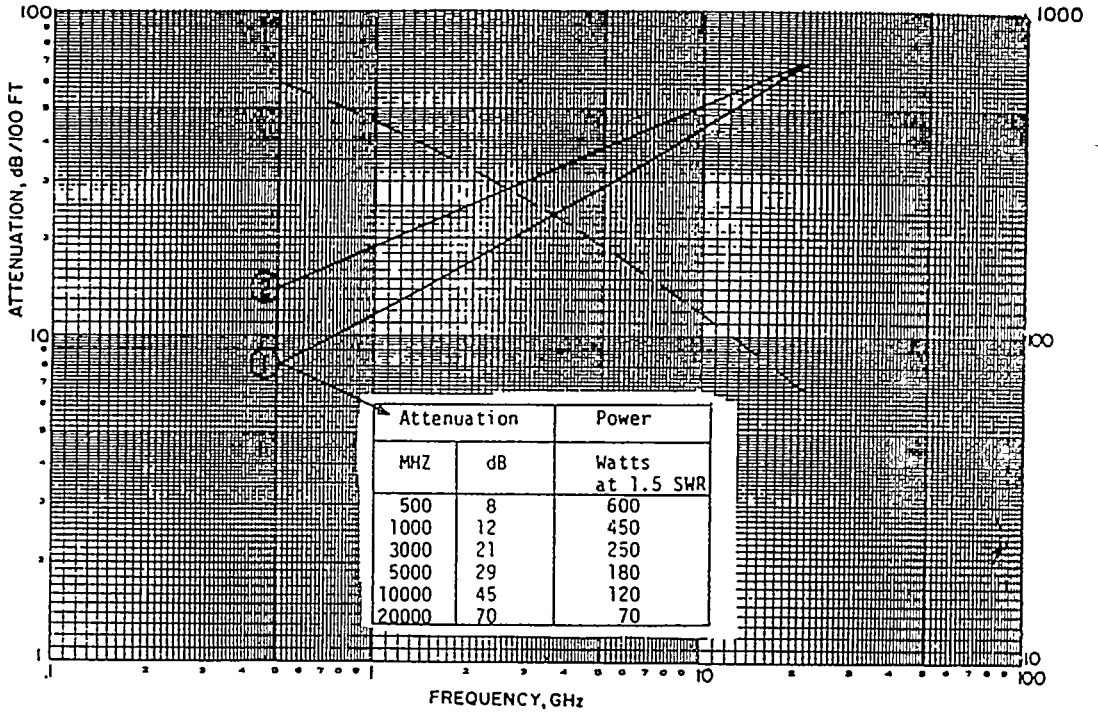
Cold bend: Not applicable.

Outer conductor integrity: +175° ±5°C.

Dimensional stability: +125° ±5°C.

Core to jacket: .015 inch, maximum.

Contamination: Not applicable.



MAXIMUM ATTENUATION — (Test requirements shall be as noted as line indicated on graph).
 MAXIMUM POWER - - -
 AT 25°C SEA LEVEL

1	M17/130-RG402, -00001, -00004, -00005
2	M17/130-00002, -00003, -00006, -00007
	Discrete characteristic:
	<u>f (GHz)</u> <u>dB/100 ft.</u>
	.5 14
	1 19
	3 31
	5 39
	10 52
	20 70

FIGURE 2. Power rating and attenuation

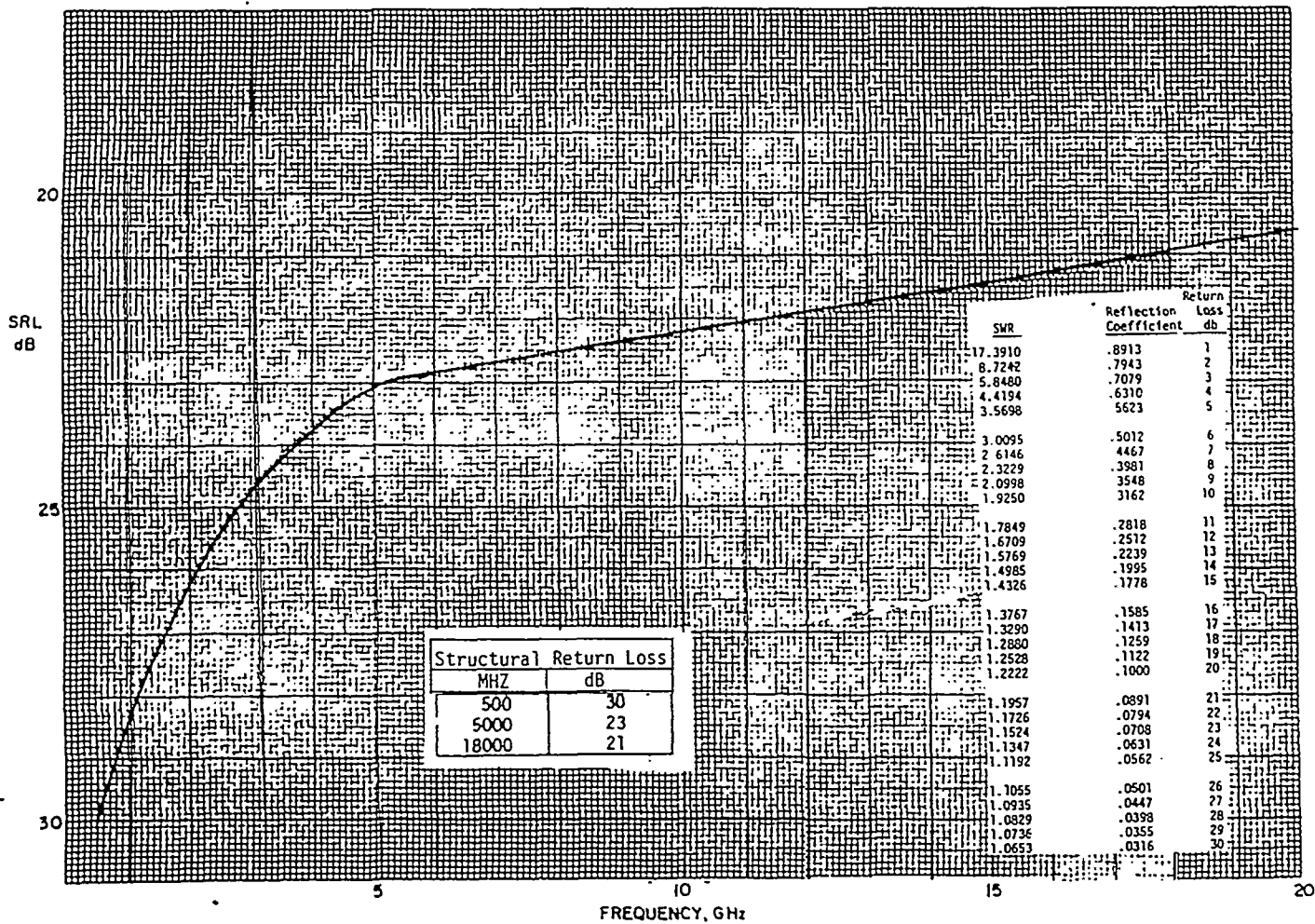


FIGURE 3. Minimum structural return loss cable.

1/ Bendability: Mandrel diameter .50 inch, maximum (except dash numbers -00004 through -00007 mandrel diameter shall be .150 inch maximum).

Flammability: Not applicable.

Weight: 34.4 pounds per 100 feet maximum (M17/130-RG402).
35.1 pounds per 100 feet maximum (M17/130-00001).

Electrical:

Test frequency: 500 MHz to 20 GHz.

Spark test: Not applicable.

Voltage withstanding: 5,000 V rms.

Insulation resistance: Not applicable.

Corona extinction voltage: 1,900 V rms, minimum.

Characteristic impedance: 50.0 ohms ± 1 .

Attenuation: See figure 2.

Structural return loss: See figure 3.

Capacitance: 29.9 pF per foot, maximum.

Capacitance stability: Not applicable.

Capacitance unbalance: Not applicable.

Transmission unbalance: Not applicable.

Phase stability: Not applicable.

Mechanically induced noise voltage: Not applicable.

Time delay: Not applicable.

Part number: See table II.

Supersession data: See table II.

TABLE II. Cross-reference of part number.

Part number	Superseded part number or type designation
M17/130-RG402	RG-402/U
M17/130-00001	---
M17/130-00002	---
M17/130-00003	---
M17/130-00004	---
M17/130-00005	---
M17/130-00006	---
M17/130-00007	---

1/ Performance may degrade after being subjected to the mandrel test.

MIL-C-17/130E

NOTE: Revision letters are not used to denote changes due to the extensiveness of the changes.

CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - EC
Air Force - 85

Review activities:

Army - MI
NAVY - SH
Air Force - 17, 99
DLA - ES, IS

User activities:

Army - AR, AT, ME

Preparing activity:

Army - CR

Agent:

DLA - ES

(Project 6145-1159-02)