

INCH-POUND

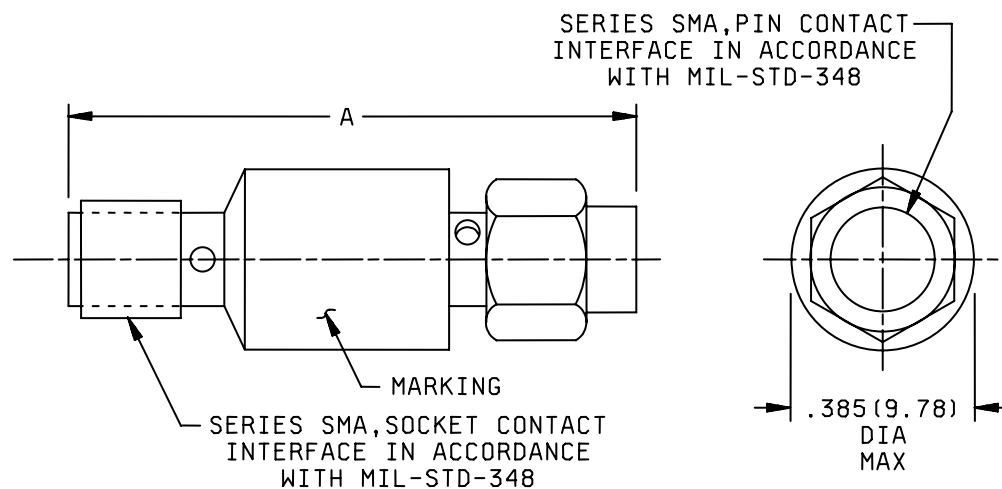
MIL-DTL-3933/16D  
10 January 2007  
SUPERSEDING  
MIL-A-3933/16C  
24 April 1985

DETAIL SPECIFICATION SHEET

ATTENUATORS, FIXED, COAXIAL LINE (SMA CONNECTORS),  
FREQUENCY RANGE: DC TO 18 GHz, LOW POWER

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

Requirements for acquiring the attenuators described herein shall consist of this specification sheet and MIL-DTL-3933.



NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Metric equivalents are in parentheses.
4. Body diameter dimension requirement includes both the diameter of the component body and the thickness of any externally attached marking label(s).
5. Widths across coupling nut flats are to accommodate wrench, normal size of .3125 (7.938) minimum in accordance with FED-STD-H28, appendix 10, wrench openings.
6. Width of coupling nut hex shall be .150 (3.81) minimum.

FIGURE 1. Dimensions and configuration.

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ENGINEERING DATA:

Operating frequency range: dc to 18 GHz.

Test frequencies for VSWR and attenuation measurements: dc, 4, 8, 12.4, and 18 GHz.

Basic test frequency: 8.0 GHz.

Operating temperature range: -55°C to +125°C.

Maximum weight: See table I.

REQUIREMENTS:

Dimensions and configuration: See figure 1.

Nominal impedance: 50 ohms.

Attenuation: See table I.

Power: See table I.

VSWR: See table I.

Power sensitivity: 0.005 dB/dB/watt maximum.

Temperature sensitivity: 0.0006  $\frac{dB}{dB \times ^\circ C}$  maximum.

RF leakage: 80 dB below the input power level over the frequency range of dc to 18.0 GHz.

Part or Identifying Number (PIN): M3933/16- (and dash number from table I).

## MIL-DTL-3933/16D

TABLE I. Electrical characteristics.

Dash number	Attenuation dB		Maximum power input @ 25°C		VSWR maximum 1/				Weight (oz) Max	Dimension A (inches) maximum
	Nominal	Deviation	AV (W) 3/ (continuously)	Peak 2/ (kW)	dc to 4.0 GHz	4.0 to 8.0 GHz	8.0 to 12.4 GHz	12.4 to 18.0 GHz		
01 N S	3	± 0.3	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
02 N S	6	± 0.3	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
03 N S	10	± 0.5	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
04 N S	20	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
05 N S	1	± 0.4	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
06 N S	2	± 0.4	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
07 N S	4	± 0.3	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
08 N S	5	± 0.3	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
09 N S	7	± 0.5	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
10 N S	8	± 0.5	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
11 N S	9	± 0.5	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
12 N S	30	± 1.0	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.8	1.850 (46.99)
13 N S	40	± 1.0	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.8	1.850 (46.99)
14 N S	50	± 2.0	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.8	1.850 (46.99)
15 N S	60	± 2.0	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.8	1.850 (46.99)
16 N S	0	± 0.4	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
17 N S	0.5	± 0.4	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
18 N S	1.5	± 0.4	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
19 N S	2.5	± 0.4	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
20 N S	3.5	± 0.3	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)

See footnotes at end of table.

## MIL-DTL-3933/16D

TABLE I. Electrical characteristics - Continued.

Dash number	Attenuation dB		Maximum power input @ 25°C		VSWR maximum 1/				Weight (oz) Max	Dimension A (inches) maximum
	Nominal	Deviation	AV (W) 3/ (continuously)	Peak 2/ (kW)	dc to 4.0 GHz	4.0 to 8.0 GHz	8.0 to 12.4 GHz	12.4 to 18.0 GHz		
21 N S	4.5	± 0.3	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
22 N S	5.5	± 0.3	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
23 N S	6.5	± 0.3	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
24 N S	7.5	± 0.5	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
25 N S	8.5	± 0.5	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
26 N S	9.5	± 0.5	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
27 N S	10.5	± 0.5	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
28 N S	11	± 0.5	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
29 N S	11.5	± 0.5	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
30 N S	12	± 0.5	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
31 N S	12.5	± 0.5	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
32 N S	13	± 0.5	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
33 N S	13.5	± 0.5	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
34 N S	14	± 0.5	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
35 N S	14.5	± 0.5	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
36 N S	15	± 0.5	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
37 N S	15.5	± 0.5	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
38 N S	16	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
39 N S	16.5	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
40 N S	17	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)

See footnotes at end of table.

## MIL-DTL-3933/16D

TABLE I. Electrical characteristics - Continued.

Dash number	Attenuation dB		Maximum power input @ 25°C		VSWR maximum <sup>1/</sup>				Weight (oz) Max	Dimension A (inches) maximum
	Nominal	Deviation	AV (W) <sup>3/</sup> (continuously)	Peak <sup>2/</sup> (kW)	dc to 4.0 GHz	4.0 to 8.0 GHz	8.0 to 12.4 GHz	12.4 to 18.0 GHz		
41 N S	17.5	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
42 N S	18	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
43 N S	18.5	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
44 N S	19	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
45 N S	19.5	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
46 N S	20.5	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
47 N S	21	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
48 N S	21.5	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
49 N S	22	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
50 N S	22.5	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
51 N S	23	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
52 N S	23.5	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
53 N S	24	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
54 N S	24.5	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
55 N S	25	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
56 N S	28	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.7	1.240 (31.50)
57 N S	32	± 1.0	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.8	1.850 (46.99)
58 N S	36	± 1.0	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.8	1.850 (46.99)
59 N S	44	± 1.0	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.8	1.850 (46.99)
60 N S	45	± 1.0	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.8	1.850 (46.99)

<sup>1/</sup> VSWR value is for both ends.

<sup>2/</sup> Peak power for a duty cycle of  $5 \times 10^{-4}$ ; maximum pulse duration of 5 microseconds.

<sup>3/</sup> Power input is derated linearly to 0.5 watts at +125°C.

MIL-DTL-3933/16D

NOTE: Referenced documents. In addition to MIL-DTL-3933, this specification sheet references the following documents: MIL-STD-348 and FED-STD-H28.

Custodians:

Army - CR  
Navy - EC  
Air Force - 11  
DLA - CC

Preparing activity:

DLA - CC

(Project 5985-2007-002)

Review activities:

Army - MI  
Navy - AS, MC  
Air Force - 99

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