

INCH-POUND

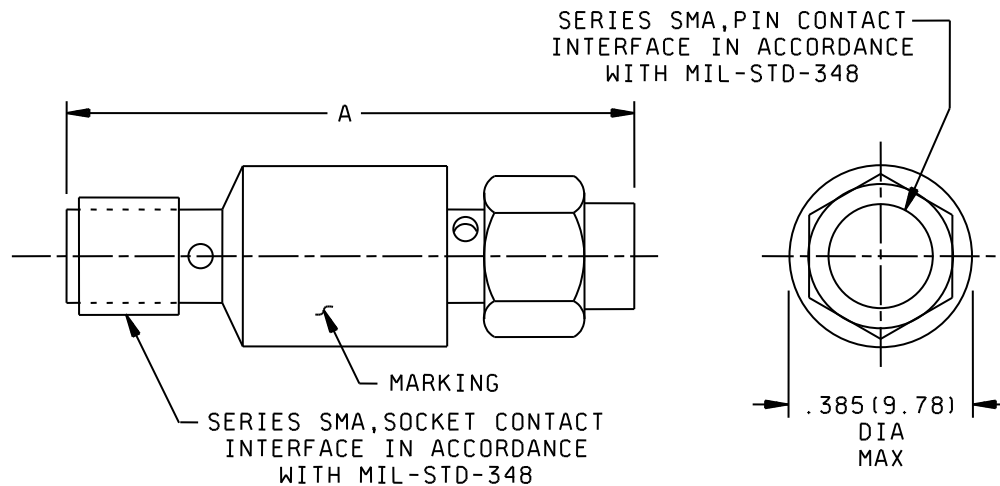
MIL-DTL-3933/16E
w/AMENDMENT 1
12 April 2021
SUPERSEDING
MIL-DTL-3933/16E
7 April 2011

DETAIL SPECIFICATION SHEET

ATTENUATORS, FIXED, SPACE LEVEL, NON SPACE LEVEL
COAXIAL LINE (SMA CONNECTORS),
FREQUENCY RANGE: DC TO 18 GHz, CLASS IV, LOW POWER

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

The 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.

AMSC N/A

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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 $\frac{dB}{x \text{ } ^\circ C}$ 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](#) with three device level designators are space level (T), screened (S) and non-screened (N) options).

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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			dc to 4.0 GHz	4.0 to 8.0 GHz	8.0 to 12.4 GHz	12.4 to 18.0 GHz		
		DC to 18 GHz	AV (W) <u>3</u> / (continuously)	Peak <u>2</u> / (kW)						
01 N S T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	0	± 0.4	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.

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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 DC to 18 GHz	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		
17 N S T	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 T	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 T	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 T	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)
21 N S T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	13	± 0.5	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.

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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 DC to 18 GHz	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		
33 N S T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	17	± 0.7	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.5	1.240 (31.50)
41 N S T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	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)

See footnotes at end of table.

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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 DC to 18 GHz	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		
49 N S T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	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 T	45	± 1.0	2	0.5	1.15:1	1.20:1	1.25:1	1.35:1	0.8	1.850 (46.99)

^{1/} VSWR value is for both ends.

^{2/} Peak power for a duty cycle of 5×10^{-4} ; maximum pulse duration of 5 microseconds.

^{3/} Power input is derated linearly to 0.5 watts at +125°C.

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Referenced documents. In addition to [MIL-DTL-3933](#), this specification sheet references the following documents:
[MIL-STD-348](#)
[FED-STD-H28](#)

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Custodians:
Army - CR
Navy - EC
Air Force - 85
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Preparing activity:
DLA - CC
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