

ENGINEERING DESIGN DATA

Insertion loss vs Temperature

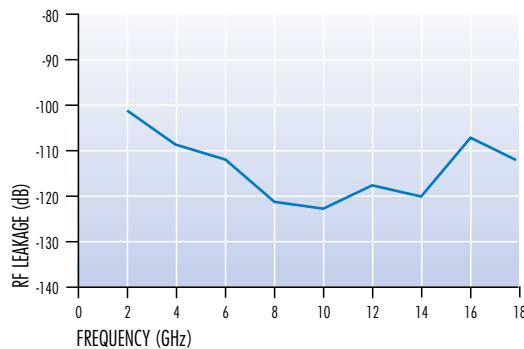
The following equation can be used to determine cable loss at any temperature.

$$dB_T = \alpha_{20} \sim \sqrt{.0038 (T-20) + 1}$$

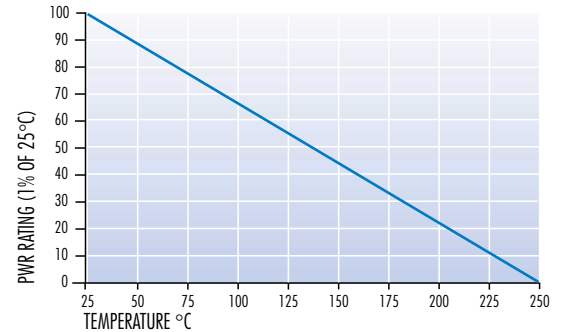
where dB_T is the loss at temperature α_{20} is the cable loss at 20°C, and T the temperature of interest in degrees C.

RF Leakage

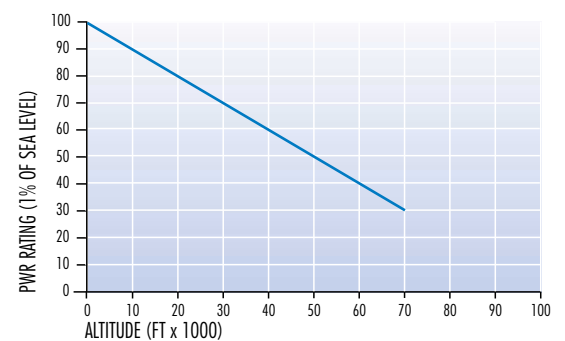
The graph shows measured values of 1801 cable using the test method specified in MIL-T-81490.



Power rating vs. temperature



Power rating vs. altitude



Armoured cable assemblies

The following charts show the results of crush and bend tests of Armour Cable assemblies. The test samples were 2h. long and used our 1803 cable. Results show max VSWR and Insertion Loss over the .04 to 18 GHz frequency range.

Armour Cable performance vs crush force

Force (xx)	1803 Cable	
	Max VSWR	Max loss (dB)
X	1.32	1.1
XX	1.32	1.1
X	1.32	1.1
X	1.32	1.1
X	1.35	1.1
X	1.43	1.2

The cable was placed between two 1 inch diameter plates with the force applied to the top plate.

Armour Cable performance vs bend radius

Bend Radius (In)	1803 Cable	
	Max VSWR	Max loss (9dB)
STR	1.25	1.1
6.35mm	1.25	1.1
3.175mm	1.32	1.1
STR	1.25	1.1

The same cable was tested using successive smaller bend radii.

Conversion tables

Return loss	to	VSWR
55		1.00
40		1.02
35		1.04
30		1.07
25		1.12
24		1.13
23		1.15
22		1.17
21		1.20
20		1.22
19		1.25
18		1.29
17		1.33
16		1.38
15		1.43
14		1.50
13		1.58
12		1.67
11		1.78
10		1.92
9		2.10
8		2.32
7		2.61
6		3.01
5		3.57

Millimetres	to	Inches
0.25		0.01
0.50		0.02
1.0		0.04
1.5		0.06
2.0		0.08
2.5		0.10
3.0		0.12
3.5		0.14
4.0		0.16
4.5		0.18
5.0		0.20
6.0		0.24
7.0		0.28
8.0		0.31
9.0		0.35
10.0		0.39
15.0		0.59
20.0		0.79
25.0		0.98