



Power Handling Capability of Coaxial Cable

To select an appropriate coaxial cable for the transmission of power it must be confirmed that the cable is capable of withstanding a certain voltage without arcing and dissipating the generated heat without exceeding acceptable temperature limits.

Peak power handling is dependent on the dielectric strength of the insulating materials and dimensions of the coax. Failure of the coax to withstand the necessary voltage will result in arcing between the inner and outer conductors. For non-air dielectrics the exact peak power handling limit for a coax is largely irrelevant as arcing will occur at the interface of the cable and connector at much lower voltage than through the dielectric of the cable.

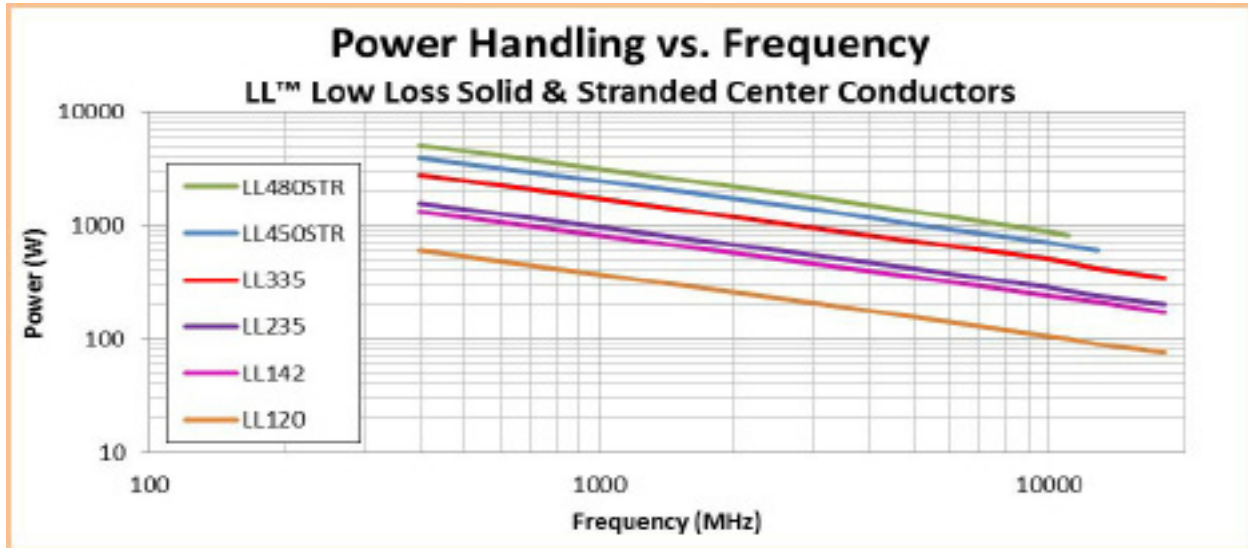
Average power handling is dependent on (a) the amount of heat generated within the cable due to losses, (b) the ability of the cable to dissipate that heat radially to the surface of the cable, and (c) the rate at which the surface of the cable can transfer the heat to the surrounding environment. Heat is generated within the cable due to attenuation of the signal and is proportional to the input power and the frequency of the signal.

The heat is transmitted from the core to the surface of the cable dependent on the dimensions and thermal conductivities of the various layers making up the coax and the temperature gradient within the cable. At the surface the heat is transferred to the surrounding air based on the cable surface area, the surface and ambient temperatures, the emissivity of the surface and the flow of air. The maximum average power for a coax is determined such that at no location within the cable does the steady state temperature exceed the temperature rating of the material.

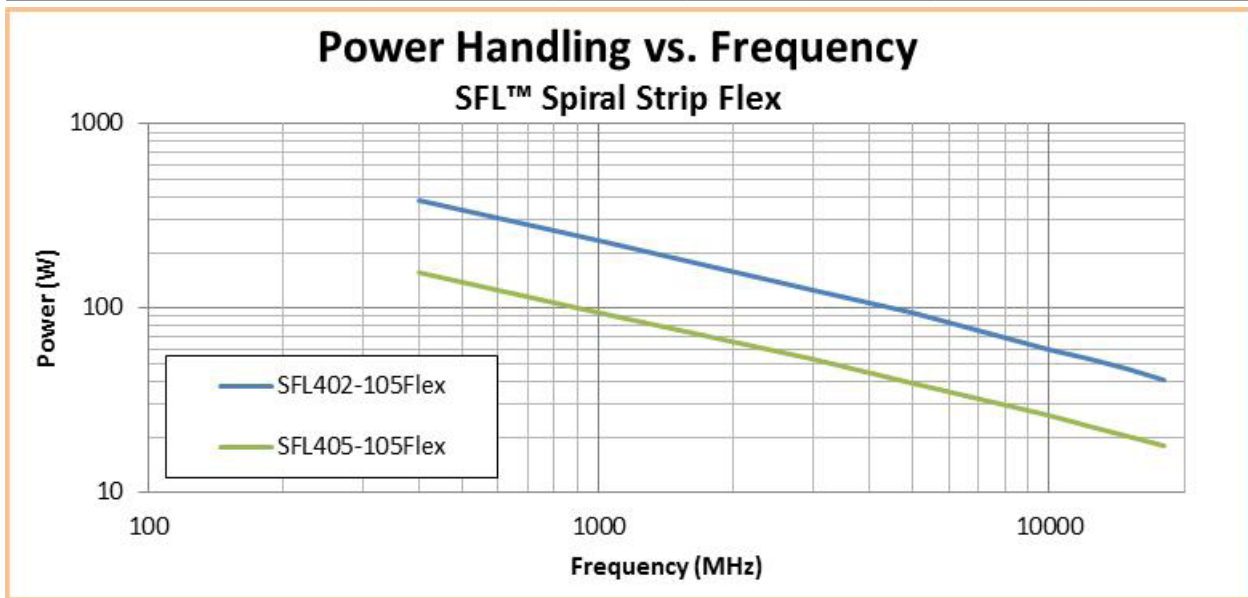
For RF applications, average power handling is most commonly used. The following graphs provide recommended average power handling limits for a variety of Harbour Industries' coaxial constructions. This information is for reference only and the suitability of any cable for a particular application should be confirmed taking into consideration the exact usage and environmental conditions.

Power Handling vs. Frequency data for MIL-DTL-17 Coax Cables may be found on individual "slant sheets" at the Defense Supply Center Columbus (DSCC) website: www.landandmaritime.dla.mil

Maximum Power Handling Capability of Coaxial Cable (In Watts)



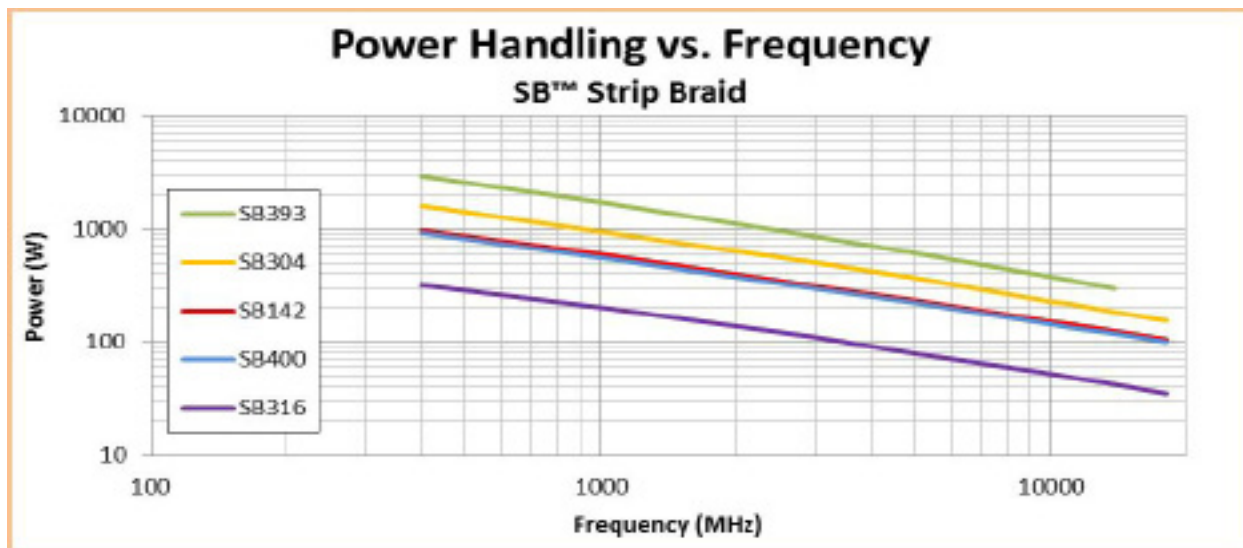
	400MHz	1GHz	3GHz	5GHz	10GHz	18GHz
LL120	590	370	205	155	105	76
LL142	1310	820	460	350	240	170
LL235	1550	970	545	415	280	200
LL335	2750	1700	950	730	500	345
LL450STR	3900	2450	1370	1020	700	-
LL480STR	5100	3160	1750	1310	870	-



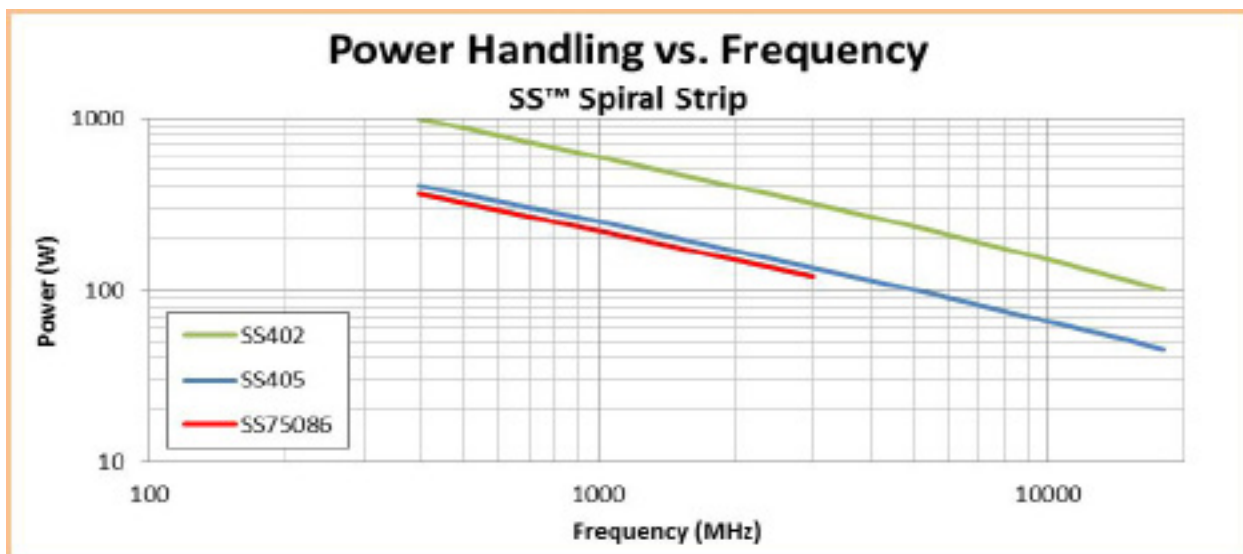
	400MHz	1GHz	3GHz	5GHz	10GHz	18GHz
SFL405-105Flex	155	95	53	39	26	18
SFL402-105Flex	385	235	125	95	60	41

(Recommend limits are for reference only and calculated assuming 25°C ambient at sea level in free air)

Maximum Power Handling Capability of Coaxial Cable (In Watts)



	400MHz	1GHz	3GHz	5GHz	10GHz	18GHz
SB316	320	200	110	80	52	35
SB400	920	560	300	220	145	100
SB142	965	590	315	235	150	105
SB304	1585	950	500	365	230	155
SB393	2890	1700	860	615	375	-



	400MHz	1GHz	3GHz	5GHz	10GHz	18GHz
SS75086	360	220	120	-	-	-
SS405	405	250	135	100	65	45
SS402	990	600	320	235	150	100

(Recommend limits are for reference only and calculated assuming 25°C ambient at sea level in free air)