CABLE ASSEMBLIES

Flexible cable 10/50 D (ECO393X)



ECO-Friendly cable
Cost effective solution

P/N: C291 512 020

APPLICATION NOTE

Designed by Radiall, ECO393X is an alternative solution to ECO393 when higher power level is required:

- **Advantageous in term of electrical performance:** the crosslink foam polyethylene used as dielectric material allows higher temperature level (thus power range) than ECO393.
- **Environmental advantages:** halogen and sulphur free, this cable does not emit any toxic substance when submitted to fire. The flame retardant jacket allows ECO393X to meet fire resistance standards.
- **Advantageous in term of price:** ECO393X design has integrated all Radiall knowledge to reach the best performance with a very competitive price.

ECO393X is UL style 3651 approved.

This cable is compatible with a large range of standard connector series.

CONSTRUCTION / DIMENSIONS

	Material	mm	Inches
Center conductor	Stranded SPC[1]	2.35	0.093
Dielectric	X foam PE[2]	7.20	0.283
Inner shield	SPC[1] braid	7.89	0.311
Outer shield	SPC[1] braid	8.57	0.337
Jacket	Black LSZH PE[3]	10.00	0.394

ELECTRICAL CHARACTERISTICS

Characteristic impedance	50Ω ± 2Ω	
Operating frequency range	DC - 6 GHz	
Shielding effectiveness	78 dB (DC - 3 GHz)	
Voltage withstanding	5 000 V rms	
Capacitance	94 pF / m	28.1 pF / ft
Velocity of propagation	71 % (4.7 ns / m)	

MECHANICAL CHARACTERISTICS

Recommended minimum bending radius	50 mm	1.97 inch
Weight	180 g / m	0.120 lbs / ft

ENVIRONMENTAL CHARACTERISTICS

Operating temperature range	-40 / +105 °C	-40 / +221 °F
Fire resistance	Yes (UL1581 VW1)	
Halogen free	Yes (IEC 754-2)	

FREQUENCY / ATTENUATION (typ.) / CW MAX POWER (sea level / 25 °C)

GHz	dB / m	dB / ft	Watts
0.5	0.18	0.05	693
1.0	0.29	0.09	490
1.5	0.38	0.12	400
2.0	0.47	0.14	346
2.5	0.56	0.17	310
3.0	0.64	0.19	283
3.5	0.72	0.22	262
4.0	0.80	0.24	245
5.0	0.96	0.29	219
6.0	1.11	0.34	200
Attenuation calculation (dB/m)	(0.17 x √f GHz) + (0.115 x f GHz)		
Power calculation (W)	490 / √f GHz		

[1] SPC = Silver Plated Copper
[2] X foam PE = Crosslink foam PolyEthylene
[3] LSZH PE = Low Smoke Zero Halogen PolyEthylene

Note:
Typical attenuation for a couple of connectors (dB) = 0.045 x √f (GHz)

Corrugated cable 1/4" (Cellflex 1/4" Spiral)



P/N: C291 993 170 (Cellflex HCF 1/4" - 50 AlCu)

APPLICATION NOTE

The outer conductor of this cable is made up of a corrugated tube (spiral winding).

This construction allows perfect shielding and bendability while enabling a large bending radius.

The foam dielectric provides excellent loss and low return loss levels.

This cable will be advised for feeder and jumper assemblies in cellular networks as well as applications requiring high performance level on long distances.

The anti-UV LSZH (Low Smoke Zero Hallogen) material is also flame retardant and allows this cable to be used for indoor public areas as well as outoor installations.

CONSTRUCTION / DIMENSIONS

	Material	mm	Inches
Center conductor	Solid AlCC[1]	1.90	0.075
Dielectric	Foam PE[2]	4.30	0.169
Corrugated inner shield	Spiral copper tube	6.50	0.256
Outer shield	-	-	-
Jacket	Black LSZH PE[3]	7.80	0.307

ELECTRICAL CHARACTERISTICS

Characteristic impedance	50Ω ± 1Ω	
Operating frequency range	DC - 20.4 GHz	
Shielding effectiveness	110 dB	
Voltage withstanding	3 100 V rms	
Peak power	5.5 kW	
Capacitance	82 pF / m	24.8 pF / ft
Velocity of propagation	82 % (4.1 ns / m)	

MECHANICAL CHARACTERISTICS

Recommended minimum bending radius	25.0 mm	0.984 inch
Weight	70 g / m	0.047 lb / ft

ENVIRONMENTAL CHARACTERISTICS

Operating temperature range	-40 / +85 °C	-40 / +185 °F
Fire resistance	Yes (UL 1581 VW1 / IEC 332-1)	
Halogen free	Yes (IEC 754-2)	

FREQUENCY / ATTENUATION (typ. / 25 °C) / CW MAX POWER (sea level / 40 °C)

GHz	dB / m	dB / ft	Watts
1.0	0.19	0.06	339
2.0	0.27	0.08	232
3.0	0.34	0.10	185
4.0	0.40	0.12	156
6.0	0.51	0.15	124
8.0	0.60	0.18	104
10.0	0.69	0.21	91
12.4	0.78	0.24	79
18.0	0.99	0.30	63
20.0	1.06	0.32	59
Attenuation calculation (dB/m)	(0.17 x √f GHz) + (0.015 x f GHz)		

[1] AlCC = Aluminum Covered Copper
[2] PE = PolyEthylene
[3] LSZH PE = Low Smoke Zero Hallogen PolyEthylene