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