AGY’s L-Glass® yarns are specifically designed to meet the demanding performance requirements of PCBs used in high speed digital communications.

**Product Application**
The continuing exponential growth of mobile data traffic requires data handling systems to operate at higher speeds and frequencies. PCB laminates made with L-Glass yarns enable higher processing speeds while minimizing signal loss for critical devices such as high speed routers and servers, and mobile communications infrastructure. L-Glass yarns can also be deployed to offset increases in dielectric constant (Dk) and dissipation factor (Df) often seen when switching to halogen-free resin systems.

**Product Description**
L-Glass yarns are produced using a proprietary patented glass composition designed for the specific requirements of low Dk and low Df. L-Glass yarns are available in a wide range of fiber micronage and yield/tex, allowing production of low loss fabrics analogous to most all standard PCB fabrics.

**Features**
- Low Dk, low Df:
  - Dk = 4.8 @ 10 GHz
  - Df = 0.003 @ 10 GHz

**Benefits**
- Enables higher signal speeds while minimizing signal loss.
- Offsets Dk/Df increases when switching to halogen-free resins.
- Minimizes skew effect

- CTE = 3.9 ppm/OC
- Minimizes CTE mismatch with silicon chips for use in IC substrates

- Low hollow fibers
- Excellent conductive anodic filamentation (CAF) resistance

- Wide range of fiber micronage and yield/tex
- Allows production of most standard PCB fabrics.

- Treated with electronics grade starch/oil sizing
- Fabric surface smoothness with high speed air jet weaving

**PRODUCT INFORMATION**
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AGY L-Glass® Fiber
Low-loss laminates for high-speed applications have traditionally been produced in one of two ways. In one method, a higher performing epoxy resin system is used in conjunction with E-Glass. This approach limits the achievable Dk and Df properties.

The second method combines very low Dk/Df resins, such as PTFE, with ceramic filler and a much lower E-Glass content. While these systems can achieve much lower Df/Dk properties, they suffer from high material and processing costs. The low glass loading also reduces the dimensional stability of the laminate.

The use of L-Glass fiber overcomes these limitations by allowing epoxy resin systems to achieve much lower Dk/Df properties, and the PTFE-based systems to use a higher glass loading.

At 10G Hz L-Glass fiber has a dielectric constant of 4.8 and a dissipation factor as low as 0.0028, whereas E-Glass has a dielectric constant of 6.81 and a dissipation factor of 0.0060. The coefficient of thermal expansion (CTE) of L-Glass fiber is 3.9 ppm/°C compared to 5.4ppm/°C for E-Glass. This makes AGY's L-Glass fibers available in a variety of yarn counts, allowing production of low-loss fabrics analogous to styles 1027, 1037, 106, 1067, 1078, 1080, 1280, 2113/2313, 3313, and 2116. Additional yarn counts can be produced as needed to meet market demands.

L-Glass fiber an attractive material for use in IC packaging, where CTE mismatches with silicon are magnified due to the thermal environment and can cause defects.