$$S_{\mathrm{L}}(z,f)=\frac{6.8\,f_{\mathrm{L}}(z,f)}{\left[1+10.2\,f_{\mathrm{L}}(z,f)\right]^{5/3}} \qquad \text{with} \qquad f_{\mathrm{L}}(z,f)=\frac{f\,L(z)}{V_{\mathrm{m}}(z)} \tag{3.10}$$

The variation of $S_{\mathrm{L}}(z,f)$ with $f_{\mathrm{L}}(z,f)$ is shown in Figure 3.5 below.

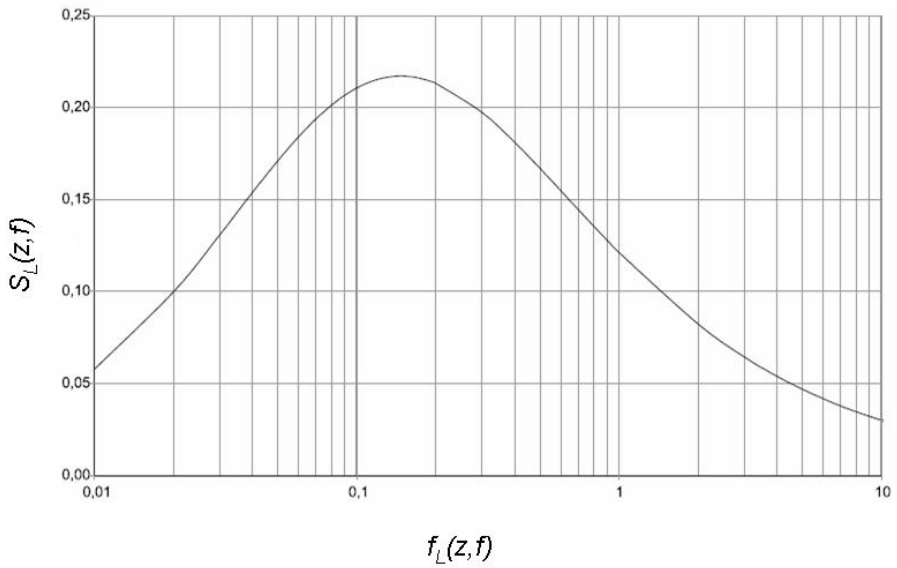


Figure 3.5. Power spectral density function of turbulance.

### 3.3. MAXIMUM WIND VELOCITY

Using Eqs. 3.1 and 3.7, the expected maximum wind velocity, $|V(z,t)|_{max}$ , is calculated as

$$\left|V(z,t)\right|_{\max} = V_{\mathrm{m}}(z) + \overline{w}_{\max} \tag{3.11}$$

## 4. WIND PRESSURE

### 4.1. MAXIMUM PRESSURE AT A POINT

Wind pressure is expressed in terms of the density of the air and the square of wind velocity. The wind pressure, $q_{\mathrm{p}}(z)$, for a unit area at elevation $z$ on a plane perpendicular to the main wind flow is calculated by