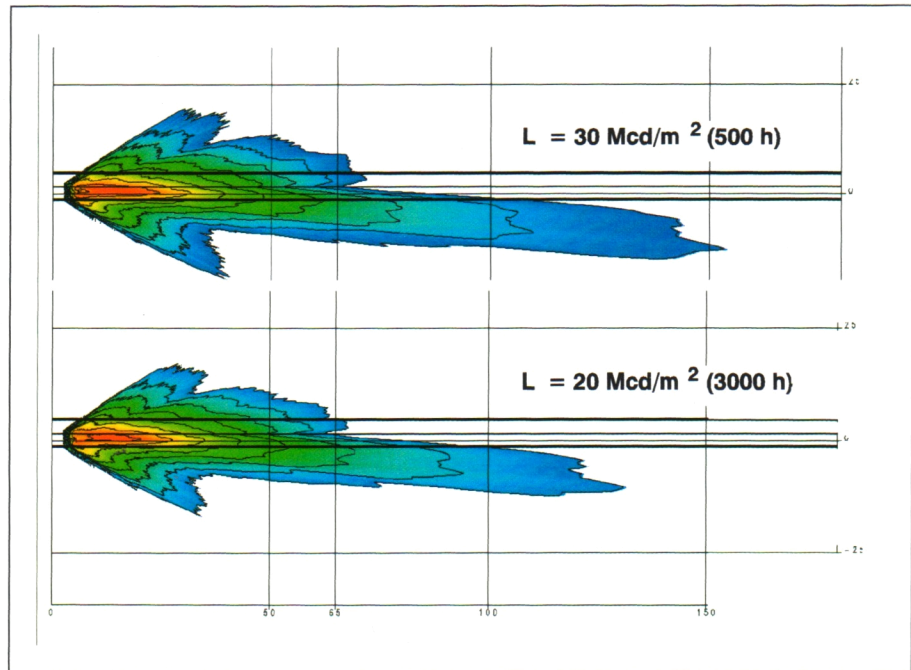


The luminance can only be increased by increasing the coiled filament temperature, whereby the rate of tungsten evaporation also increases, see figure 4. By reverse logic, this means that to achieve a long service life, the luminance must be reduced. The consequence of this is that the luminous intensity, and therefore also the beam range of headlamps, is drastically reduced using this type of bulb, see figure 5.

Figure 5: Effect of reduced luminance on light characteristics



In order to obtain the same luminous flux in spite of a lower luminance, it follows that the surface area of the coiled filament, and therefore also the filament size, must be increased. Using the H7 bulb as an example, figure 6 demonstrates how the coiled filament diameter would ideally need to change in order to meet the increased service life requirement. The resulting effects on light parameters are shown in figure 7. This relates mainly to a decrease in beam range. At the same time, the 'handling' of the bulb becomes very critical in terms of reflector development, as the projection scale would need to be considerably increased. With an increase in diameter of the coiled filament, the length also increases (optimal ratio between diameter and length).