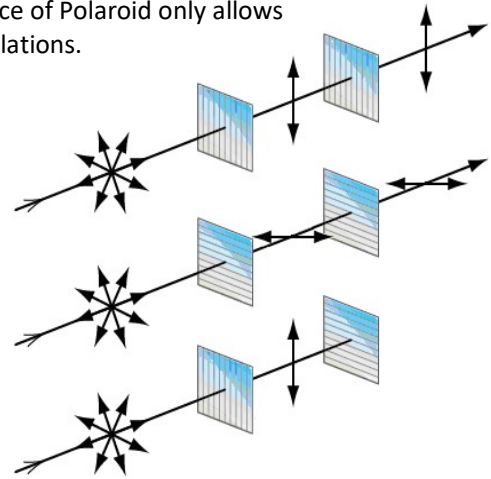


Polarisation

Polarisation restricts the oscillations of a transverse wave to one plane. In the diagrams, the light is initially oscillating in all directions perpendicular to the wave direction. A piece of Polaroid only allows light transmission in one plane, filtering out oscillations in other oscillations.

- * In the top diagram the light passes through a vertical plane Polaroid and becomes polarized in the vertical plane. This can then pass through the second vertical Polaroid.
- * In the middle diagram the light becomes polarized in the horizontal plane.
- * In the bottom diagram the light becomes vertically polarized but this cannot pass through a horizontal plane Polaroid.



This is proof that the waves of the EM spectrum are transverse waves. If they were longitudinal waves the forwards and backwards motion would not be stopped by crossed pieces of Polaroid; the bottom set up would emit light.

Applications of polarization

Polarizing filters are used in photography to reduce reflections (Reflected light is polarized and can be filtered with 2 polaroids as in the middle diagram above).

TV aerials get the best reception when they point to the transmission source so they absorb the maximum amount of the radio waves.