

Light to text

(Ireland)

Background

Data terminals find it difficult to decode light packets if the light packet (wavelength) is sent in is too broad and messages can't be read and understood by the receiving machine.

This widening of wavelengths happens when the machine that sent the message gets too hot. The cooling and maintaining of the nodes that scramble light is the largest cost for modern day communications. Students will replicate the difficulty with the following experiment.

You will need:

- ✓ Light source
- ✓ Orange filter (orange polypocket)
- ✓ Skittles/M&M's
- ✓ Blanket

Follow these steps:

1. Jumble up the coloured sweets.
2. Separate them apart by colour.

3. Now jumble them up again.
4. Put your head underneath the blanket with an orange light source.
5. Try and separate the sweets again.

is what makes the task hard separating the similar colours to orange apart.

Red ~ 700–635 nm,
Orange ~ 635–590 nm
Yellow~ 590–560 nm.

So what happened?

When an orange filter is applied a certain bandwidth of light is available for reflection off the sweets. This orange bandwidth of light is relatively large and covers a range orange hues. This

The wavelength of light we use to send light packets along fibre optic cables is just outside the visible range. Looking at the electromagnetic spectrum it's to right of the colour red in the infrared region ~700 – 1750nm.

