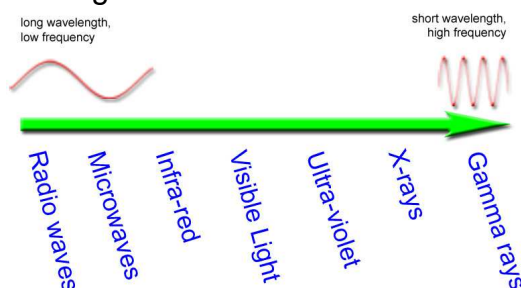


EXAMEN : Baccalauréat général - Série S-SVT ou S-SI	Session 2013
ÉPREUVE : Evaluation spécifique de Langue en section européenne	
<b>PHYSIQUE-CHIMIE en langue ANGLAISE</b>	
Thème : « ondes et matière »	Sujet n°4

## Microwaves

### How they're made

Microwaves are basically extremely high frequency radio waves, and are made by various types of transmitter. In a mobile phone, they're made by a transmitter chip and an antenna, in a microwave oven they're made by a "magnetron". Their wavelength is usually a couple of centimetres. Stars also give off microwaves.



### Uses

Microwaves cause water and fat molecules to vibrate, which makes the substances hot. So we can use microwaves to cook many types of food. Mobile phones use microwaves, as they can be generated by a small antenna, which means that the phone doesn't need to be very big. Microwaves are also used by fixed traffic speed cameras, and for radar, which is used by aircraft, ships and weather forecasters.



### Dangers

Prolonged exposure to microwaves is known to cause "cataracts" in your eyes, which is a clouding of the lens, preventing you from seeing clearly (if at all!) So don't make a habit of pressing your face against the microwave oven door to see if your food's ready! Recent research indicates that microwaves from mobile phones can affect parts of your brain - after all, you're holding the transmitter right by your head. Other research is inconclusive, although there is a feeling that you're more vulnerable if you're young and your brain is still growing. So the advice is to keep calls short.

Adapted from <http://www.darvill.clara.net/emag/emagmicro.htm> and from <http://www.darvill.clara.net/emag/index.htm>

### **Questions :**

- 1.a) Present and comment on this document.
- 1.b) Focus on at least one physics topic such as describing parameters of electromagnetic or mechanics waves.
2. How can physics and chemistry change our life?