the e-m spectrum electro-magnetic radiation is a strong force made of photons with a maximum speed of  $3x10^8\,\text{m/s}$ 

	frequency in Hertz (Hz)	(Hz) wave length in metres electron Volts (eV)		temperature in Kelvin	
cosmic rays particles hitting other particles giving off photons	high est	3x10 <sup>-16</sup> shortest	1 GeV	10 <sup>13</sup> K	about as hot as it gets - any hotter and all matter breaks up into quark soup
gamma radiation from black holes etc.	1021	3x10 <sup>-13</sup>	1 MeV	10¹º K	
X-rays	1018	3x10 <sup>-10</sup>	1 KeV	10 <sup>7</sup> K	15,000,000 K is the temperature of the inside of our sun
UV light far red	1015	3x10 <sup>-7</sup>	1 eV	10⁴ K	6,000 K is the temperature of the surface of our sun
infra red = heat millimetre	1012	3x10 <sup>-3</sup>	1 meV	10 K	293 K is room temperature (20°C)
microwaves TV	10°	0.3 metre.	1 μeV	10 mK	2.7 K, is the temperature of the background radiation in the universe
radio waves	106	300 metres.	1 neV	10 μΚ	radio waves are picked up from the synchrotron radiation in magnetic fields
very low frequency electric power is supplied at 50 Hz which extremely low frequency.	10³ ▼	300 Km   longest	1 peV	10 nK v	at 0 Kelvin, absolute zero there is no more radiation