

## ABSTRACT

Most of the television and computer operate in a high voltage. It leads the television or computer screen to be potentially raising X-ray up in which it creates radiation that influences human health especially our eyes.

It has been reported that monitor or screen or obviously known as Visual display Terminal (VDT) as an essential part of computer gives a few numbers of bad symptoms in the eyes of the user. One of the symptoms in the eyes is asthenopia, it is a slow motion of the eye's retina to react with the light caused by the length of over-lightened eyes ( it reaches 75 to 90 percent as reported, WHO).

Besides, it is caused by overworking eyes in front of the computer that is potentially influencing the Productivity of Melatonin Hormone in human body. This hormone is firstly produced by the human body in the sunset. This Melatonin sets up in the evening, particularly in a dark and chilling out atmosphere. Yet, this productivity is getting smaller by any of outer stimulation, such as the light and electromagnetic field. Either the light or electromagnetic field, with high intensity and long period of time, can reduce the productivity of melatonin hormone and potentially emerge a number of side effects, such as headache, dizzy, insomnia and tiredness.

In this final project, the writer has carried out to stimulate electromagnetic radiation that comes out from the computer screen by using Finite Difference Time Domain (FDTD) method with a particular absorbing boundary condition in Perfect Matched Layer (PML) as recommended, JP Berenger. The type of mode is Transverse Electric (TE-Mode). It is visually shown as electromagnetic radiation in two dimensions. The simulation is carried out by using Matlab 7.1 programable language.