

### 2.3 CELL PHONE RECEPTION

A typical cell phone contains a tiny low-power radio transmitter or antenna. EM signal intensity decreases as the inverse square of the distance from the phone.

The antenna's length is comparable to  $\lambda/2$ , where ' $\lambda$ ' is the wavelength of the EM signal being emitted by the cell phone.

As  $\lambda$  is short, so the cell phone antenna is also very short. Typically a simple dipole antenna as shown in the fig. 2.20 is used to detect the incoming EM signal in the cell phone.

#### Cell Phone Reception

In this antenna, the incident electric field of the EM signal induces a voltage across the wires of the antenna. This induced voltage is then amplified and processed by the circuitry in the cell phone.

The low power signals emitted by the cell phone will be received and transmitted by the cell phone towers. The towers are also another type of antenna. The cell phone transmits on one frequency and receive with other frequency.

