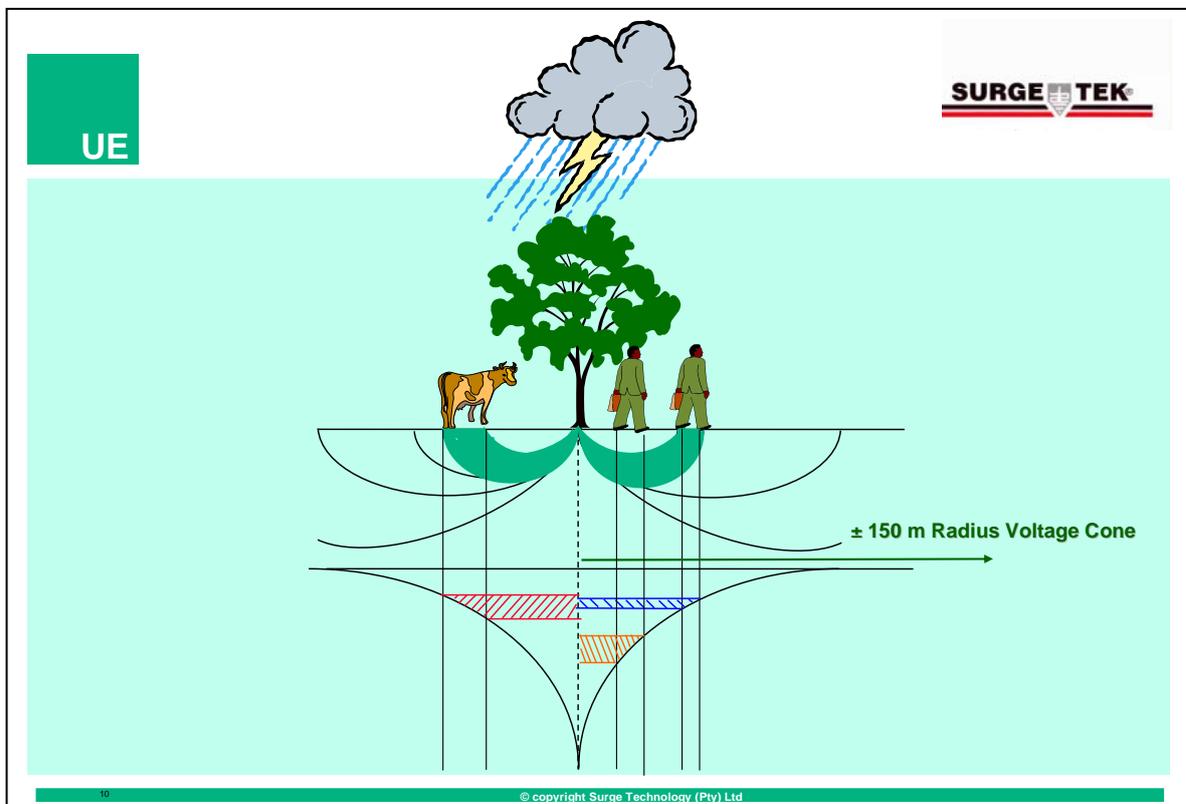
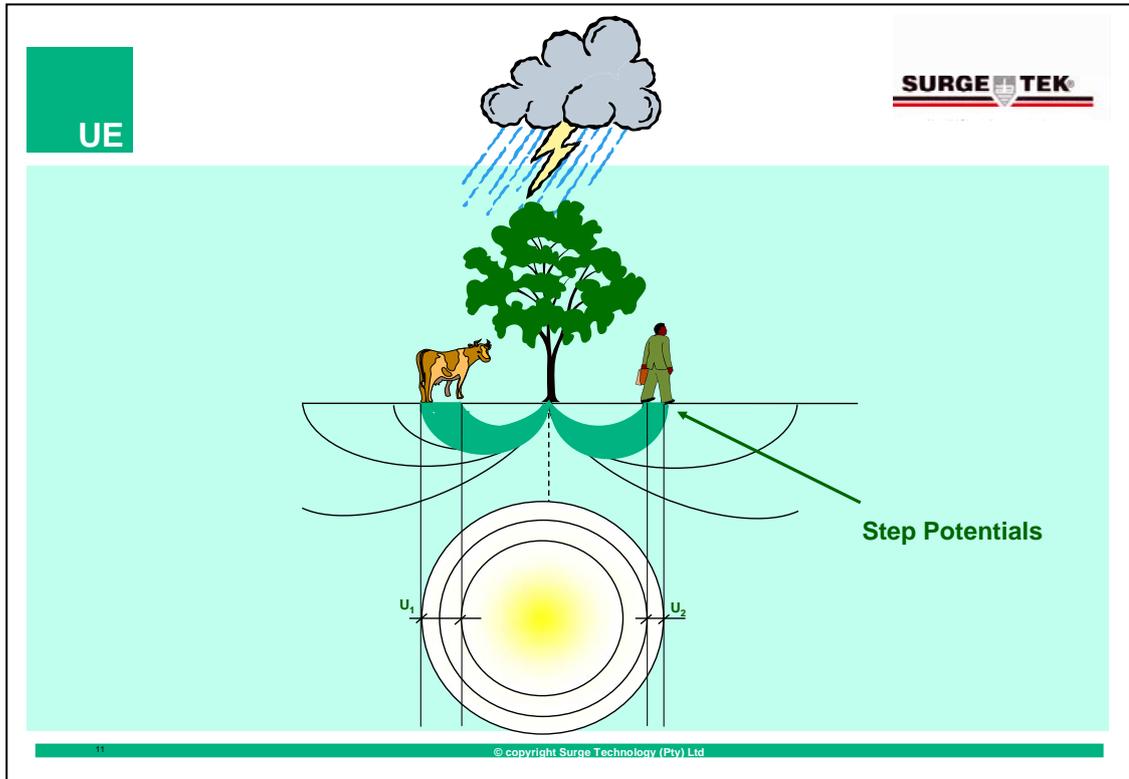


Explanation on Step Potentials due to a direct lightning strike



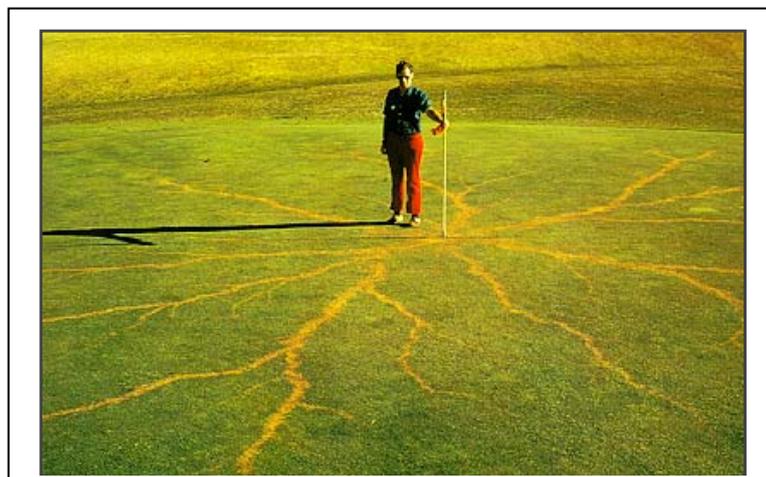
In the above example the tree gets struck and the man on the right hand side is the same distance from the tree as the cow. Due to the distance between the cows feet the cow is exposed to a much higher voltage (Red) than the man (Blue). The second man on the left is closer to the tree and exposed to an even higher voltage (Orange) and would most possibly be killed. If the two men were holding hands then they would both be exposed to the total voltage between them (bottom of Orange to top of Blue)



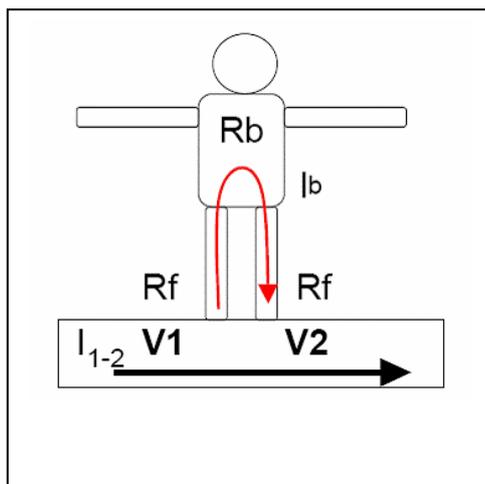
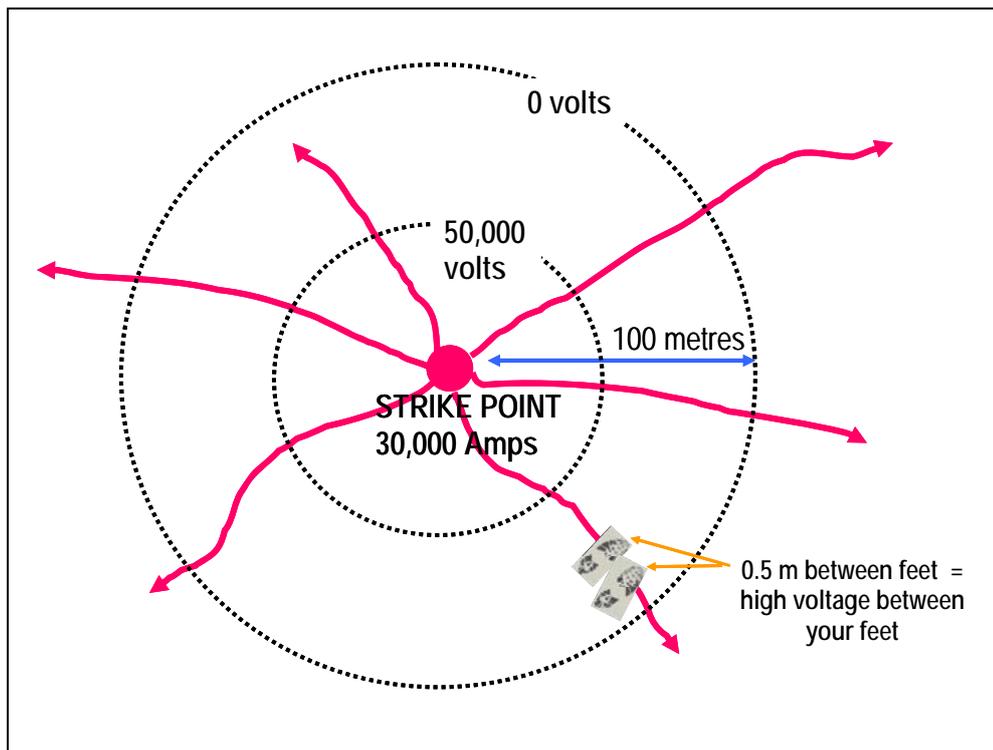
This picture shows the same effect but as voltage rings (gradients) radiating out from the point of strike. If each ring indicated 5000 Volts, then the man would have 5000 Volts between his legs and the cow would have 10 000 Volts between its legs.

Based on the above you can see why it is dangerous to stand next to a tall object during a storm.

The following picture shows a strike to a flag pole on a golf course.



From these pictures you can see how the voltage is developed between your feet when in close proximity to a strike. It is the difference in voltage between your feet that causes the current to flow through your body which can easily cause death. Thus to be safe keep your feet as close together as possible. The voltages and currents indicated are for explanation only.



The following picture shows cattle killed due to a lightning strike in close proximity. It was the voltage between their feet that caused them to die.



The same principle applies to electrical and electronic equipment. Any cable between equipment will also have a difference in potential between the 2 x devices and then lightning surge currents will rather flow in the low resistance cables that in the ground, damaging equipment at both ends.

Lightning up to 1 kilometre away can cause damage to sensitive electrical and electronic equipment. A lightning strike 100 meters away can induce as much as 2000 Volts per meter of cable. A lightning strike 1 kilometre away can induce as much as 200 Volts per meter of cable.

