Customer Name: _____ Date: _____

Tester Name: _____ Meter Type: _____

Serial #: _____

Cow Contact Test Form

Form Instructions

1) The cow contact test is set forth in ARSD 20:10:39:27 through ARSD 20:10:39:33.
2) Select cow contact points to be tested, which shall include a number of locations reasonably likely to demonstrate the presence of stray current or stray voltage.
3) If one of the contact points is the floor surface or earth, a metal plate must make a high-quality conductive contact, using the procedures as follows:
    i)   the metal plate must be square, rectangular, or round and have a surface area equal to or greater than 16 square inches;
    ii)   a weight of no less than 20 pounds shall be placed on the plate and applied evenly without touching adjacent surface;
    iii)   the metal plate shall be placed a distance of not less than 12 inches from any metal equipment making contact with the surface
    iv)   the surface of the metal place must be clean and free of corrosion;
    v)   if the surface is a floor, the surface must be flat, cleaned with a wire brush and water, and a paper tower (or similar material) soaked in saltwater must be placed between the metal plate and floor surface; and
    vi)   if the surface is the earth, the surface must be flat, all debris must be removed, and water added to the area (if necessary) to dampen the soil.
4) The tester must record the location of each test point and measurements on this form as follows:
    i)   an open circuit voltage (Voc) and voltage with shunt resistor (Vshunt) are taken and recorded;
    ii)   the shunt resistor must be 500 ohms, plus or minus two percent;
    iii)   the readings must be taken with not more than 10 seconds between each reading; and
    iv)   a current measurement with the shunt resistor (Ishunt) may be taken in place of the voltage measurement.
5) The source resistance (Rsource) is then calculated for each cow contact location and recorded on this form.

$$\text{Rsource} = \frac{\text{(Voc-Vshunt)} \times \text{(Rshunt)}}{\text{Vshunt}} \quad \text{Or} \quad \text{Rsource} = \text{(Voc/Ishunt)} - \text{Rshunt}$$

Shunt Resistor _____ Ω

Location Description	Time	Voc	Vshunt or Ishunt	Rsource
Cow Contact:				
Cow Contact:				
Cow Contact:				
Cow Contact:				
Cow Contact:				
Cow Contact:				
Cow Contact:				
Cow Contact:				
Cow Contact:				
Cow Contact:				
Cow Contact:				

Location Description	Time	Voc	Vshunt or Ishunt	Rsource
Cow Contact:				
Cow Contact:				
Cow Contact:				
Cow Contact:				
Cow Contact:				
Cow Contact:				
Cow Contact:				
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