Guidelines for Field Evaluation Agencies

1. **Objective**

   a) The objective of this document is to establish safety and operational guidelines for field evaluation of electrical equipment that all Field Evaluation (FE) agencies shall follow.

   b) This guideline is not intended as a design specification or a replacement for CSA SPE-1000-13, Model Code for the Field Evaluation of Electrical Equipment, current version as amended by Section 3 of the Ontario Electrical Safety Code or for the mandatory provisions contained in Ontario Regulation 438/07.

   c) The guidelines are supplemental to the product safety regulation.

2. **Definitions**

   a) **Acceptable** to the Electrical Safety Authority (ESA).

   b) **Director of Appeals** means a person appointed by THE INSPECTION DEPARTMENT as a director.

   c) **Electrical Equipment** means an “electrical product or device: as defined in subsection 113.12.1 of part VIII of the Electricity Act, 1998 and means anything used or to be used in the generation, transmission, distribution, retail or use of electricity subject to the limitations contained in SPE-1000-13 and Section 3 of the Ontario Electrical Safety Code.

   This includes any one piece of equipment or a collection of electrical components which can be totally self contained in a single piece without the need of interconnecting wiring run on, through, within or under the building structure

   d) **Field Evaluation agency** (FE agency) means a “Field Evaluation agency “as defined in Ontario Regulation 438/07 which means an Inspection Body accredited in accordance with the Standards Council of Canada Act (Canada) to evaluate electrical products and devices and recognized by the Inspection Department..

   e) **Inspection department** means Electrical Safety Authority, as designated by regulation pursuant to the Electricity Act, 1998.

   f) **Process** means any installation which includes a collection of individual pieces of equipment or complete systems or subassemblies which form a part of manufacturing line (example: assembly line)

   g) **System or Subassembly** means controllers, welders, robots, or one or more pieces of electrical equipment that receives the supply voltage and control voltage from one source or one piece of equipment. (example: Two robots fed directly from one controller)
3. **Scope**

a) Field Evaluation shall apply to electrical equipment as identified in the Scope of SPE-1000-13.

b) Field evaluation does not apply to:

   i) wire and cable products;

   ii) wiring devices;

   iii) equipment for use in hazardous locations;

   iv) medical electrical equipment and systems;

   v) equipment connected to line voltage in excess of 46kV;

   vi) manlifts, elevators, climb assists and similar systems (other than their associated control panels);

   vii) components that will require further evaluation as part of a complete assembly, such as switches, relays, and timers;

   viii) any equipment that is not permitted to be field evaluated as directed by an AHJ (such as air-cleaning equipment that intentionally produces ozone)

In addition to exclusions above contained in the scope of SPE-1000-13, ESA excludes the following products from FE:

   ix) any cord connected air quality equipment that intentionally produces ozone;

   x) residential swimming pool salt water chlorinators;

   xi) multimeters;

   xii) infrared saunas where the heaters do not bear a component certification mark;

   xiii) utility interconnected inverters 600 V or less

   c) FE shall be limited to electrical equipment of less than 300 units of the same model per year. Above 300 units requires the FE agency obtaining permission from the Inspection Department.

   d) FE as it applies to complex installations which may include multiple pieces of equipment, systems or subassemblies, shall be in accordance with Figure 1 and 2 and subparagraph 4.e and 4.f.
e) The equipment is within the scope of Section 3 of the Ontario Electrical Safety Code, and recognized by the Inspection Department.

4. **Direction**

   a) FE agency will contact the manufacturer to educate and reinforce the principle of certification of product before it arrives in Ontario.

   b) When an FE agency has undertaken the evaluation of electrical equipment, with identified deficiencies to be corrected, the FE agency shall notify the inspection
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department if the deficiencies have not been corrected in a timely manner, or the customer cancels the FE.

c) When an FE agency is evaluating equipment at the location where it is to be installed, the FE agency shall verify that an application for inspection has been made for the connection of this equipment Where there is no application for inspection, the FE agency shall notify the inspection department prior to labeling the equipment.

d) The FE agency shall maintain a record of all field evaluations reports and shall produce this report to the Inspection Department upon request within 5 business days:

i. Information to be included shall be the FE Serialized label number, the voltage, current, name of manufacturer, Dielectric test results, and any additional tests that are required.

ii. If the equipment is a system or assembly, the following equipment info is to be included:
   - The manufacturer of all directly controlled and energized equipment including: The equipment serial number, Manufacturer name, etc
   - The FE agency shall apply only labels published in the Inspection Department’s bulletins.
   - All labels to be applied by FE agency staff. (leaving or mailing labels is not an acceptable practice)
   - A Field Evaluation shall include where necessary an onsite evaluation of the equipment, system, or subassembly where it is reassembled onsite.

e) Where complex installations which might include multiple pieces of equipment, systems or subassemblies being installed that will be combined to form a process the FE agency and THE INSPECTION DEPARTMENT will discuss at the earliest opportunity to ensure that the scope of the FE agencies evaluation and scope of THE INSPECTION DEPARTMENT wiring inspections are understood and coordinated.

i. The contractor (equipment owner or user) shall be responsible for applying for an inspection for the interconnecting wiring

ii. The FE agency shall contact the Technical Advisor or Senior Inspector for that area

f) The FE agency shall notify the inspection department when systems, subassemblies, or a collection of equipment is used for a process installation.

i. The FE agency shall perform all FE of the equipment, systems or assemblies,

ii. The inspector shall perform inspection of all interconnecting wiring, which includes but not limited to Buss Duct, power outlets connected to Buss Duct. The Buss Duct and any conduit that is installed on site.
g) Lighting retrofit kits installation

When retrofitted luminaires are field evaluated, the applicable warning labels shall be applied to the retrofitted luminaire.

The luminaire retrofitted with LED retrofit kit shall be marked in accordance with CSA TIL (Technical Information Letter) B-79 “Requirements for retrofitted Luminaires and LED Retrofit Kits for Installation into Previously Installed Luminaires”. The luminaire retrofitted with fluorescent retrofit kit shall be marked in accordance with TIL B-64 A “Requirements for Retrofit Assemblies employing Fluorescent, Self Ballasted (SBL) and Induction Lamp Retrofit Assemblies and Retrofitted Luminaires utilizing those Assemblies.”

5. Requirements for Corrective Actions

Field evaluation agencies under their accreditation requirements are responsible for taking certain type of corrective actions (see SCC’s CAN-P-1527). In addition to the SCC requirements the FE agency shall meet its obligations under section 113 of Part VIII of the Electricity Act and the Product Safety Regulations 438/07 and work with the responsible parties and the ESA to resolve identified safety concerns with products they evaluated. See section 8 and 9 of Ontario Safety Regulation 438/07.

6. Requirements for FE agency to assist ESA in an investigation of industrial and commercial products

Field evaluation agencies shall provide information or information that they would obtain through their normal processes to investigate an accident, incident or defect with a product they evaluated. This includes the following:

1. Responding to Product Incident Reports (PIR’s) issued by ESA, the FE agency shall provide all relevant information on any and all similar incidents with the same or similar product types that may provide evidence of a pattern of failure, a product defect or any other safety concern.

For the purposes of the regulation, the preliminary report should include as a minimum:

a. The number of all reports to either the FE agency or the manufacturer of similar issues with either the same component or same product type but different model or color; or
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2. Providing assistance in the investigation and assessment of accidents, incidents or defects involving products were evaluated as outlined below:

When requested, the FE agency shall be expected to provide assistance in determining the root cause of the defect in the product, which may include testing of the product in question.

When requested, the FE agency shall assist in determining the appropriate corrective action that may be required to protect public safety.

For these investigations, there shall be a mutually agreed upon scope of work, timelines and outputs.

To respect confidentiality, test facilities and test results shall remain confidential unless maintaining confidentiality could result in undue hazard to the public.

3. Provide consultation on development of a corrective action as outlined below:

When requested, the FE agency shall provide assistance in consultation with ESA and the involved manufacturer, retailer, distributor or importer to determine and evaluate an appropriate corrective action when the need for such has been confirmed.

As indicated by the regulation, a FE agency would only be requested to provide assistance for products that they had evaluated.

ESA is making its prioritization methodology available to stakeholders to enhance the transparency of their decision-making processes and to better enable the responsible party (ies) assist and cooperate with ESA.

7. Obligations of FE agency

The following are obligations recognized field evaluation agencies shall meet for products that bear their label:

1. their accreditation requirements as outlined in the latest applicable SCC policies and procedures. A complete list of SCC requirements is available at www.scc.ca;

2. their obligations as outlined in Regulation 438/07, this guidelines document and any order issued by ESA under section 113(11) of the Electricity Act, 1998; and
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3. any additional requirements contained in the terms and conditions that form part of the ESA formal recognition process.

For more information about Ontario Regulation 438/07 and the established guidelines, please visit www.esasafe.com.

8. Products Excluded from the Field Evaluation process under the Scope of SPE-1000-13

In Section 3(b) of this document according to Sub-Clause 1.6 (h) of SPE-1000-13, ESA lists the following products which shall not to be approved under SPE-1000-13:

(1) Any cord connected air quality equipment that intentionally produces ozone

Background: The Canadian Advisory Council of Electrical Safety (CACES) has issued a Moratorium on the approval of Ozone Generators sold as Household Air Cleaners. Because of the Moratorium, several manufacturers are aggressively trying to get their product approved. Manufacturers are calling some of the devices "Air Cleaners" or "Air Fresheners" and avoid the use of the word "Ozone."

Direction: Do not approve any cord connected air quality equipment that intentionally produces ozone.

(2) Residential Swimming Pool Salt Water Chlorinators

Background: A "Swimming Pool Salt Water Chlorinator" is an electrolytic cell and a control panel. The swimming pool water is made slightly salty. A plumbing fitting that has electrodes (electrolytic cell) is added to the water system. A control panel provides a low dc voltage to the plumbing fitting that holds the "electrolytic cell." This converts the salt water into chlorine that sanitizes the pool. Additional information can be found at: www.saltwaterchlorinators.com.

There is a CSA standard C22.2 No. 218.1 that addresses obvious safety issues such as the supply voltage shorting out to the low voltage and limiting the leakage current to a safe limit in the salty water. But installation practices are not well defined (i.e. Can the electrolytic cell be on the far side of the pool remote from the control panel?). The package should be approved together (both the electrolytic cell and the control panel).

Direction: Due to the extensive leakage current testing required by the Standard used for certification of these devices, and that these tests are not reasonably achievable outside of a laboratory environment, do not perform Field Evaluation on these products. In addition, there is opportunity for a primary fault to be imposed on the secondary circuit, elevating the leakage current to unacceptable levels in the salty water.
(3) Multimeters

Background: ESA has investigated a number of reported incidents concerning personnel injuries when a Multimeter fails. We have come to the conclusion that many incidents were a result of the Multimeter being used on the wrong setting. Even though this constitutes user error, this type of injury could have been avoided. One item that has been brought forward during ESA's investigation is the need to have multimeters certified to the current standard. A number of meters which we investigated were field evaluated. The Model Code for Field Evaluation (edition SPE-1000-13) does not verify class rating as well as testing for any possible combination of rated input voltages, current and ohm with different settings of function, and range controls. These different combinations shall not cause a hazard. The current CSA standard C22.2 No. 61010-1 has added provisions to safeguard against this.

CSA standard C22.2 No. 61010-1 has added a number of additional tests to multimeters which are not required by the SPE-1000-13. The SPE-1000-13 does not address the safety provisions that have been incorporated in the CSA standard C22.2 No. 61010-1.

Direction: Only multimeters that are certified in accordance with the CSA standard C22.2 No. 61010-1 will be accepted in the province of Ontario if they require certification. Multimeters will not be accepted if they are Field Evaluated to the SPE-1000-13 in the province of Ontario.

(4) Infrared Saunas where the heaters do not bear a component certification mark

Background: In some cases, the Sauna represents high risk involving heaters, over temperature controllers and the wood enclosures etc. Therefore, it not only required that all components must be certified, but also certified for the very specific application. In addition, for the safety of the users, all the requirements of the sauna standard must be met.

Direction: The infrared saunas where the heater is not approved need to be certified under a certification program for safety reasons. Field Evaluation is not sufficient to satisfy the testing required under the Standard.

(5) Utility Interconnected Inverter

Background: Inverters used in renewable energy installations and interconnected with supply authority system are required to be approved and marked as “utility interconnected”. CSA standard 107.1 Section 15 provides specific testing requirements for inverters rated 600 V and less, including islanding protection that are critical for safe operation and maintenance of renewable energy installations.
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**Direction:** The products need to be certified under a certification program for safety reasons. There are protection schemes that are required as part of the inverter that is “utility interconnected” and these safety features cannot be field evaluated.

For inverters marked as “utility interconnected” and rated above 600 V, the field evaluation in accordance with SPE-1000-13 Clause 4.35.3, is permitted.

9. **Reference Publications:**
   
   
b. Ontario Regulation 438/07 Product Safety
   
c. Final Industry Guidelines for the Management of Electrical Product Safety
   
   
e. CAN-P-1527 “Corrective action”