GHANA ELECTRICAL WIRING CERTIFICATION GUIDELINES

February 2013
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1.0 INTRODUCTION
These guidelines are issued this 5th day of February, 2013 in fulfillment of the provisions of Regulation 8 of the Electrical Wiring Regulations, 2012, L.I. 2008.

2.0 BACKGROUND
The Ghana Electrical Wiring Regulations was passed by the Parliament of Ghana into law on Friday 24th February, 2012. The key objectives of the Regulations are to guide professionals who engaged in electrical wiring, and installation works in the performance of their duties and to ensure safety of lives and property.

The Electrical Wiring Regulations, 2012, L.I 2008 specifically provides for issues related to:

i. **Who qualifies to undertake electrical wiring in Ghana?**
   Regulation 7 provides that:
   “A person shall not undertake electrical wiring on premises unless that person is certified by
   (a) a licensed electricity distribution utility; or
   (b) a recognised person appointed by the Energy Commission”.

ii. **How a certified qualified electrical wiring professional undertakes the wiring?**
   Regulation 5 (1) and (2) state that:
   “5. (1) The Ghana Standards for electrical wiring set out in the Schedule, consists of the following matters:
   (a) requirements for control and distribution of electricity on premises;
   (b) protective measures for safety;
   (c) selection and erection of equipment;
   (d) special installations, locations and structures; and
   (e) inspection and testing

   and shall be construed in accordance with the provisions of these Regulations.

   (2) A person shall not undertake electrical wiring on premises unless the wiring is carried out in accordance with the requirements provided in GS 1009”; and

iii. **The type of materials to be used for electrical wiring in Ghana**
   Regulation 4 states that:
   “A person shall not use a material for electrical wiring unless that material is
(a) capable of maintaining the integrity of an electrical equipment or installation under environmental conditions stipulated by the manufacturer of the material for electrical wiring; and
(b) approved by the Standards Authority”.

3.0 CERTIFICATION

3.1 Classes of Certification
There shall be two classes of certification;

a) Certified Electrical Wiring Professional (CEWP); and

b) Certified Electrical Wiring Inspector (CEWI).

3.1.1 Certified Electrical Wiring Professional (CEWP)

The Certified Electrical Wiring Professional shall be a qualified person certified to undertake safe electrical wiring in accordance with the Electrical Wiring Regulations, 2012, L.I.2008.

The CEWP shall be certified to undertake one or more of the following:
  a. Domestic electrical wiring and installations;
  b. Commercial electrical wiring and installations; or
  c. Industrial electrical wiring and installations.

3.1.1.1 Electrical Installation Certificate
All CEWPs shall be issued with identification numbers, cards and seals by the certifying authority. Blank Electrical Installation Certificate forms shall be issued by the certifying authority for completion, signature and seal by the CEWP in his certification class. Without prejudice to any legitimate requirements of the Utility, an Electricity Distribution Utility may connect a premise to its distribution system only upon presentation of;

(a) a signed and sealed Electrical Installation Certificate; and
(b) the “As Wired Electrical Drawing”.

The “As Wired Electrical Drawing” is a single line diagram showing the details of the installation as completed by the CEWP and capable of being used to trace and rectify faults in the installation should they occur. The Utility may further demand an Inspection Report prepared by a CEWI before connection.
3.1.2 Certified Electrical Wiring Inspector (CEWI)

A person may be certified and authorized to undertake inspection and auditing of ongoing, new and existing wiring of buildings and installations by the certifying authority in accordance with Regulation 11 of the Electrical Wiring Regulations 2012, L.I.2008 which provides that:

“(1) A person who is authorised by an electricity distribution utility to carry out an inspection and test of an installation shall

(a) inspect and test that installation before use, and carry out another inspection and test where an addition or alteration is made to the fixed wiring of the existing installation;

(b) take precautions during the inspection and testing to avoid causing danger to persons and damage to property including installed equipment;

(c) complete and sign the relevant Electrical Installation Certificate and the schedule of inspection and test results; and

(d) submit the documents referred to in paragraph (c) to the person who requested for the inspection and test if the inspection and test are satisfactory.

(2) A distribution utility that authorises an inspection and test of an installation shall ensure that a periodic inspection and test is carried out at the intervals indicated in subsection (3) taking into consideration the type of installation, its use, maintenance schedule and environmental influences.

(3) Periodic inspection and testing shall be carried out in accordance with the following schedule:

(a) ten years after the initial installation and use;

(b) every three to five years after ten years of the initial installation and use but before the expiration of thirty years; and

(c) every two years after thirty years of service”.

A CEWI shall:

(i) be a CEWP with a minimum of five (5) years’ experience; and

(ii) have evidence of at least ten (10) duly certified electrical wiring installation works executed within the period.

3.2 How to obtain Certification

A person can become a CEWP through

i Apprenticeship

ii Formal education and Practical Training

An apprentice may during the course of apprenticeship or training undertake wiring works only under the supervision of a CEWP, who shall be responsible for all works performed by the apprentice.
An apprentice can undergo the proficiency training of the NVTI to prepare and take the examinations and interview to become a CEWP.

### 3.3 Stages in Certification

The certification process shall be in 3 stages and shall consist of:

- i. Written examination
- ii. Practical examination and
- iii. Interview

**The Written Examination** shall be based on the Ghana Standard for Electrical Wiring, GS 1009 which is part of the Schedules to the Electrical Wiring Regulations, 2012, L.I. 2008 and as per the curriculum developed for that purpose. The written examination shall be practically oriented and shall involve the testing of the ability of an applicant to read and understand electrical wiring diagrams. The written examination shall be conducted at least twice in a year. Applicants shall have the choice of receiving private tuition from any source they deem good enough to prepare them for the examination.

**The Practical Examination** shall be a hands-on type. Candidates shall perform given practical assignment under the supervision of industry experts at accredited technical institutions.

The **interview** shall involve the applicant facing a panel of experts for an oral examination and shall be coordinated and chaired by the Technical and Vocational Education Directorate of the Ministry of Education. The interview shall be conducted at least twice in a year at accredited examination centres. Members of the interview panel may be drawn from the following institutions:

- i. Technical and Vocational Education Directorate of the Ministry of Education (Chair);
- ii. Electricity Distribution Company within the area;
- iii. Polytechnic in the region that offers courses in Electrical Wiring;
- iv. Ghana Institution of Engineers ;
- v. Ghana Electrical Contractors Association;
- vi. Institute of Incorporated Engineers; and
- viii. Energy Commission;
- ix. Technical Examinations Unit of the Ministry of Education;

### 3.4 Exemptions

Electricians who have been certified by the Electricity Company of Ghana (ECG) or the Ghana Electrical Contractors Association or other similar body recognized by a licensed electricity distribution utility under Regulation 2 (1)(a) of L.I.1816 before 24th February, 2007 shall be exempted from the written and practical examinations but shall take the interview and when successful shall be issued with

- a) A Certificate
- b) An Identity Card; and
Electricians who have been certified by the Electricity Company of Ghana (ECG) or the Ghana Electrical Contractors Association or other similar body recognized by a licensed electricity distribution utility under Regulation 2 (1)(a) of L.I.1816 after 24th February, 2007 shall before 24th February 2015 pass the written examinations, the practical examination and the interview and shall be issued with

a) A Certificate
b) An Identity Card; and
c) A Seal

A person who fails to take or who fails to pass the examinations and interview and in the case of the persons exempted who fails the interview to obtain the necessary certification shall from 24th February, 2015 cease to undertake any wiring installation works in Ghana.

3.5 Certified Electrical Wiring Inspectors

A person who has been a member of the Ghana Electrical Contractors Association, for more than 15 years as at 24th February 2012, who holds an internal installation license issued before 24th February 2007 and wishes to practice as a Certified Electrical Wiring Inspector (CEWI) shall undergo a proficiency interview and shall be required to show proof of jobs at least five (5) electrical wiring works.

Applications for certification as a CEWI shall be made to the Technical Examinations Unit and shall be accompanied with the payment of the appropriate application fee to be determined by the Examination Body and the Commission.

3.6 Renewal of Certificate

A certificate shall be subject to renewal every five (5) years. The renewal process shall involve the applicant passing an interview.
4.0 ACCREDITED INSTITUTIONS

4.1 Curriculum Development
The Technical and Vocational Education Directorate of the Ghana Education Service shall be responsible for the development and subsequent revision of the curriculum in consultation with Distribution Utilities and the Energy Commission. The curriculum shall be reviewed periodically to conform to changing technological trends in the electrical wiring industry.

4.2 Conduct of Examination
The Technical Examination Unit (TEU) which is under the Technical and Vocational Education Directorate of the Ghana Education Service (GES) shall coordinate and conduct the certification examination. The examination shall be conducted at least twice in a year at selected centres in the various regions of the country.

4.3 Practical Examination
The Practical Examination shall be conducted at designated technical institutions. The Energy Commission shall grant accreditation to such institutions to host the practical examinations.

4.4 Oral Examination (Interview)
The Energy Commission shall coordinate the conduct of the oral examination or may appoint an institution/professional body to coordinate it on its behalf.

4.5 Certification
Results of the examination and interviews shall be forwarded to the Energy Commission. The Commission or any person authorized by the Commission shall issue the certificates of the appropriate class to qualified applicants. The Commission shall keep a register of all qualified electrical wiring professionals and inspectors and shall publish the names on the Commission’s website - www.energycom.gov.gh and the print media.

4.6 Revision of Regulation
The Energy Commission shall hold at least one (1) stakeholder forum every two (2) years to discuss and share experiences in the implementation of the regulation and possible review in the light of changing trends in the electrical wiring industry in an effort to sustain relevance of the regulations in the industry.
5.0 INSPECTION AND TESTING

5.1 New Facilities
The distribution utility shall appoint inspectors who are certified under 2.1.2 of these guidelines, in accordance with Regulation 11 of the Electrical Wiring Regulation 2012, L.I. 2008.

The distribution utility shall appoint a minimum of two inspectors per district within its distribution zone and make the list and contact details of certified inspectors for the respective districts available to the public on its website, at the offices of the Distribution Utility and in the print media and also make it available to the Commission. The cost of inspection shall be borne by the owner of the facility.

The distribution utility shall report annually on inspection performed to the Commission in a format that shall be agreed with the Commission.

5.2 Existing Facilities

The electrical wiring of facilities existing before the commencement of the regulation shall be sampled and inspected by certified electrical inspectors to assess their capacity to continue receiving supply from a distribution utility in accordance with Regulation 11 of the Ghana Electrical Wiring Regulations.

6.0 ENFORCEMENT

Enforcement of the provisions of the regulation shall be the preserve of the Energy Commission. Certified professionals shall be issued seals, I.D. cards and Electrical Installation Certificates by the certifying authority. The seal shall appear on the Electrical Installation Certificate and shall be demanded by the distribution utility before connecting a new customer to its distribution network. This shall have a registered number traceable to the CEWP. This will ensure that, all households are wired by a CEWP or the wiring inspected and tested by CEWI before receiving supply from a distribution utility.

A licensed electrical wiring professional shall keep signed copies of;

i. Electrical Installation Certificate;
ii. Minor Electrical Installation Works Certificate;
iii. Periodic Inspection Report; duly endorsed by the distribution utility serving the area; and
iv. Single line diagram of the wired installation or facility labeled “As Wired Electrical Drawing”.

Such reports and drawings shall be made available to the Commission on request for monitoring and enforcement purposes.
A copy of the “As Wired Electrical Drawing” shall be made available to the owner of the building or premises where the wiring was undertaken.

Periodically, the Commission shall obtain data of new service connections from distribution utilities and perform random checks on the wiring of new customers for compliance. If found short of the requirement, the CEWP who endorsed the wiring (as per the seal) shall be sanctioned. A distribution utility that connects a premise, which has not been endorsed by a CEWP, shall be sanctioned.

7.0 BUILDING CONTRACTS
In all building contracts, electrical wiring jobs shall be undertaken only by a CEWP. Distribution Utilities shall be entreated to demand the duly signed Electrical Installation Certificate for such projects before connecting to the utility system.

8.0 SANCTIONS
Sanctions shall be applied to a person in accordance with Section 12(2) and 13 of L.I. 2008, Electrical Wiring Regulations, 2012

9.0 TRANSITIONAL PROVISIONS
9.1 Regularization of existing ECG and Ghana Electrical Contractors Association Internal Installation Licenses

Holders of Indoor Installation Licenses issued by the Electricity Company of Ghana (ECG) and the Ghana Electrical Contractors Association or other similar body recognized by a licensed electricity distribution utility under Regulation 2 (1)(a) of L.I.1816, shall upon an application to the Energy Commission, be issued a provisional certificate to practice as CEWPs for a transitional period ending on 24th February 2015.

Indoor Installation Licenses issued by the Electricity Company of Ghana (ECG) and the Ghana Electrical Contractors Association or other similar body recognized by a licensed electricity distribution utility under Regulation 2 (1)(a) of L.I.1816, shall continue to remain valid until 24th February 2014. After 24th February 2014, all Indoor Installation Licenses issued by the Electricity Company of Ghana (ECG) and the Ghana Electrical Contractors Association or other similar body recognized by a licensed electricity distribution utility under Regulation 2 (1)(a) of L.I.1816, shall cease to be valid but shall be exchangeable for provisional certificates until 24th February 2015.
Within the period ending on 24\textsuperscript{th} February 2015, holders of Indoor Installation Licenses issued by the Electricity Company of Ghana (ECG) and the Ghana Electrical Contractors Association or other similar body recognized by a licensed electricity distribution utility under Regulation 2 (1)(a) of L.I.1816, are expected to have their certificates regularized under the Electrical Wiring Regulations after taking the certification examination or loose their certification.

Application forms for regularization shall completed and the payment of the appropriate application fee in the form of a banker’s draft shall be submitted at the nearest Regional or District office of the Electricity Company of Ghana (ECG) or the Northern Electricity Distribution Company (NEDCO)

9.2 **Apprentices and Existing Practitioners**

Electricians who have undergone apprenticeship training but do not have the academic qualifications to take the written examination immediately but have exceptional practical experience shall work under the supervision of a CEWP, within the transitional period. An apprentice may during the course of apprenticeship or training undertake wiring works only under the supervision of a CEWP, who shall be responsible for all works performed by the apprentice.

Such electricians can undergo the proficiency training of the NVTI to prepare to take the written examinations and interview within the 24-month transitional period to become a CEWP.
APPENDIX
## DETAILS OF THE CLIENT

……………………………………………………………………………………………………

## INSTALLATION ADDRESS

……………………………………………………………………………………………………

……………………………………………………………………………………………………

## DESCRIPTION AND EXTENT OF THE INSTALLATION (Tick boxes as appropriate)

| Description of Installation:                      | New installation   |
| Extent of installation covered by this Certificate: | Addition to an existing installation |
| (Use continuation sheet if necessary)              | Alteration to an existing installation |

## FOR DESIGN

I/ We being the person(s) responsible for the design of the electrical installation (as indicated by my/our signature below), particulars of which are described above, have exercised reasonable skill and care when carrying out the design hereby CERTIFY that the design work for which I/ we have been responsible is to the best of my/our knowledge and belief in accordance with the Electrical Wiring Regulations.

The extent of liability of the signatory or the signatories is limited to the work described above as the subject of this Certificate.

For the DESIGN of the installation: *(Where there is mutual responsibility for the design)*

| Signature: .............................. | Date: ............. | Name (IN BLOCK LETTERS): .......................................... |
| Signature: .............................. | Date: ............. | Name (IN BLOCK LETTERS): .......................................... |

## FOR CONSTRUCTION

I/ We being the person(s) responsible for the construction of the electrical installation (as indicated by my/our signature below), particulars of which are described above, have exercised reasonable skill and care when carrying out the construction hereby CERTIFY that the construction work for which I/ we have been responsible is to the best of my/our knowledge and belief in accordance with the Electrical Wiring Regulations.

The extent of liability of the signatory or the signatories is limited to the work described above as the subject of this Certificate.

For CONSTRUCTION of the installation:

| Signature: .............................. | Date: ............. | Name (IN BLOCK LETTERS): .......................................... |

## FOR INSPECTION AND TESTING

I/ We being the person(s) responsible for the inspection and testing of the electrical installation (as indicated by my/our signature below), particulars of which are described above, have exercised reasonable skill and care when carrying out the inspection and testing hereby CERTIFY that the work for which I/ we have been responsible is to the best of my/our knowledge and belief in accordance with the Electrical Wiring Regulations.

The extent of liability of the signatory or the signatories is limited to the work described above as the subject of this Certificate.

For INSPECTION AND TESTING of the installation:

| Signature: .............................. | Date: ............. | Name (IN BLOCK LETTERS): .......................................... |

## NEXT INSPECTION

I/ We the designer(s), recommend that this installation is further inspected and tested after the interval of not more than ............ years/ months

SERIAL NO.:
### PARTiculars of Signatories to the Electrical Installation Certificate

<table>
<thead>
<tr>
<th>Designer (No 1)</th>
<th>Name: .............................................</th>
<th>Company: .................................................................</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location:</td>
<td>....................................................................</td>
<td>............................................................................</td>
</tr>
<tr>
<td>Postal address:</td>
<td>........................................................................</td>
<td>............................................................................</td>
</tr>
<tr>
<td>Tel No:</td>
<td>........................................................................</td>
<td>............................................................................</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Designer (No 2) (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: .................................</td>
</tr>
<tr>
<td>Location: ..................................................................................</td>
</tr>
<tr>
<td>Postal address: .............................................................</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Constructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: .................................</td>
</tr>
<tr>
<td>Location: ..................................................................................</td>
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<tr>
<td>Postal address: .............................................................</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Inspector</th>
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</thead>
<tbody>
<tr>
<td>Name: .................................</td>
</tr>
<tr>
<td>Location: ..................................................................................</td>
</tr>
<tr>
<td>Postal address: .............................................................</td>
</tr>
</tbody>
</table>

### Supply Characteristics and Earthing Arrangements

<table>
<thead>
<tr>
<th>Earthing Arrangements</th>
<th>Number and type of Live Conductors</th>
<th>Nature of Supply Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>TN-C</td>
<td>d.c.</td>
<td>Nominal voltage, U/U_o (1)</td>
</tr>
<tr>
<td>TN-S</td>
<td>d.c.</td>
<td>Nominal frequency, f (1)</td>
</tr>
<tr>
<td>TN-C-S</td>
<td>2-pole</td>
<td>Prospective fault current, I_{pf} (2)</td>
</tr>
<tr>
<td>TT</td>
<td>3-pole</td>
<td>External loop impedance, Z_o (2)</td>
</tr>
</tbody>
</table>

(Note: (1) by enquiry, (2) by measurement)

### Particulars of Installation Referred to in the Certificate

<table>
<thead>
<tr>
<th>Means of Earthing</th>
<th>Maximum Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier’s facility</td>
<td>Maximum demand (load) ................................................. Amps</td>
</tr>
<tr>
<td>Installation earth Electrode</td>
<td>Maximum demand (load) ................................................. Amps</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Details of Installation Earth Electrode (where applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type (e.g. rod(s), tape, etc)</td>
</tr>
<tr>
<td>........................................</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Main Protective Conductors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earthing conductor: material ........................................</td>
</tr>
<tr>
<td>Main equipotential bonding conductors: material ................</td>
</tr>
<tr>
<td>To incoming water and/or gas service: ..................................</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Main Switch or Circuit-breaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>GS, Type and No. of poles ...............</td>
</tr>
<tr>
<td>Location ..........................................</td>
</tr>
<tr>
<td>Rated residual operating current I_{An} = .......... mA, and operating time of .......... ms (at I_{An}) (applicable only where an RCD is suitable and is used as a main circuit breaker)</td>
</tr>
</tbody>
</table>

### Comments on Existing Installation

(in the case of an alteration or addition see Regulation 743-01-04):

..............................................................................................................................................................................................................................................
................................................................................................................................................................................................................................................................
................................................................................................................................................................................................................................................................

### Schedules

The attached Inspection and Test Result Schedules are part of this document and this Certificate is only valid when Test Result Schedules are attached to it.

............................ Inspection Schedules and ................................ Test Result Schedules are attached. (Enter quantities of schedules attached)
To be used only for minor electrical work which does not include the provision of a new circuit

**PART 1: Description of minor works**
1. Description of the minor works
   - Location/Address
2. Date of minor works completed

**PART 2: Installation details**
1. System earthing arrangement (where known)  
   - TN-C-S □  TN-S □  TT □
2. Method of protection against indirect contact
3. Protective device for the modified circuit  
   - Type: ...............................  Rating: ................. A

**PART 3: Essential Tests**
- Earth continuity satisfactory  □
- Insulation resistance:
  - Phase/neutral: ................................. MΩ
  - Phase/earth: ................................. MΩ
  - Neutral/earth: ................................. MΩ
- Earth fault loop impedance: ................................. Ω
- Polarity satisfactory  □
- RCD operation (if applicable). Rated residual operating current $I_{\Delta n}$ .............. mA
  and operating time of ...........ms (at $I_{\Delta n}$)

**PART 4: Declaration**
I/We CERTIFY that the said works do not impair the safety of the existing installation, that the said works have been designed, constructed, inspected and tested in accordance with the Electrical Wiring Regulations and that the said works, to be the best of my/our knowledge and belief, at the time of my/our inspection complied with the Electrical Wiring Regulations except as detailed in Part 2.

| Name: ................................................................. | Signature: ................................................................. |
| For and on behalf of: ................................................................. | Position: ................................................................. |
| Address: ........................................................................... | Date: ........................................................................... |
**DETAILS OF THE CLIENT**

Client: ..............................................................................................................................................

Address: ........................................................................................................................................

Purpose for which this Report is required:


**DETAILS OF THE INSTALLATION** (Tick boxes as appropriate)

Occipier: ........................................................................................................................................

Installation: ........................................................................................................................................

Address: ........................................................................................................................................

Description of Premises: Domestic □ Commercial □ Industrial □ Other □

Estimated age of the Electrical Installation: ......................... years

Evidence of Alterations or additions: Yes □ No □ Not apparent □

If “Yes”, estimate age: ................... years

Date of last inspection: ........................................... Records available Yes □ No □

**EXTENT AND LIMITATION OF THE INSPECTION**

Extent of electrical installation covered by this report:

........................................................................................................................................

........................................................................................................................................

Limitations:

........................................................................................................................................

........................................................................................................................................

This inspection has been carried out in accordance with the Electrical Wiring Regulations. Cables concealed within trunking and conduits, or cables and conduits concealed under floors, in roof spaces and generally within the fabric of the building or underground have not been inspected.

**NEXT INSPECTION**

I/ We recommend that this installation is further inspected and tested after an interval of not more than .......... months/ years, provided that any observations ‘requiring urgent attention’ are attended to without delay.

**DECLARATION**

IN SPECTED AND TESTED BY

Name: ............................................................... Signature: ............................................................

For and on behalf of: ........................................ Position: ............................................................

Address: ................................................................................................................................. Date: ............................................................

........................................................................................................................................
### SUPPLY CHARACTERISTICS AND EARTHING ARRANGEMENTS

<table>
<thead>
<tr>
<th>Earthing Arrangements</th>
<th>Number and type of Live Conductors</th>
<th>Nature of Supply Parameter</th>
<th>Supply Protective Device Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>TN-C</td>
<td>a.c.</td>
<td>Nominal voltage, $U/U_o$</td>
<td>*</td>
</tr>
<tr>
<td>TN-S</td>
<td>d.c.</td>
<td>Nominal frequency, $f$</td>
<td>Type: .................................</td>
</tr>
<tr>
<td>TN-C-S</td>
<td>1-phase, 2 wire</td>
<td>Prospective fault current, $I_{pf}$</td>
<td>Nominal current rating ........... A</td>
</tr>
<tr>
<td>TT</td>
<td>2-phase, 3 wire</td>
<td>External loop impedance, $Z_o$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3-phase, 4 wire</td>
<td><em>(Note: (1) by enquiry, (2) by enquiry or by measurement)</em></td>
<td></td>
</tr>
</tbody>
</table>

### PARTICULARS OF INSTALLATION REFERRED TO IN THE REPORT

<table>
<thead>
<tr>
<th>Means of Earthing</th>
<th>Details of Installation Earth Electrode (where applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppliers facility</td>
<td>Type (e.g. rod(s), tape, etc)</td>
</tr>
<tr>
<td>Installation earth</td>
<td>Location</td>
</tr>
<tr>
<td>electrode</td>
<td>Electrode resistance to earth</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Main Protective Conductors</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Earthing conductor:</td>
<td>material ...............................................</td>
</tr>
</tbody>
</table>
| Main equipotential bonding| csra ...................................................
| conductors                | material ...............................................|
|                          | csra ...................................................
| To incoming water service | To incoming gas service                               |
| To lightning protection   | To other incoming service(s)                         |
|                          | (state details .........................................)|

<table>
<thead>
<tr>
<th>Main Switch or Circuit-breaker</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GS, Type and No. of poles</td>
<td>Current rating .......... A Voltage rating ........... V</td>
</tr>
<tr>
<td>Location</td>
<td>Fuse rating or setting .......... A</td>
</tr>
<tr>
<td>Rated residual operating current $I_{dAn}$ = .......... mA, and operating time of .........ms (at $I_{dAn}$)</td>
<td><em>(applicable only where an RCD is suitable and is used as a main circuit breaker)</em></td>
</tr>
</tbody>
</table>

### OBSERVATIONS AND RECOMMENDATIONS

Recommendations as detailed below
Referring to the attached Schedule(s) of Inspection and Test Results, and subject to the limitations specified at the Extent and Limitations of the Inspection section

- No remedial work is required
- The following observations are made

One of the following numbers, as appropriate, is to be allocated to each of the observations made above to indicate to the person(s) responsible for the installation the action recommended.

1. requires urgent attention
2. requires improvement
3. requires further investigation
4. does not comply with the Regulations. This does not imply that the electrical installation inspected is unsafe.

### SUMMARY OF THE INSPECTION

Date(s) of the inspection:

General condition of the installation:

Overall assessment: Satisfactory/Unsatisfactory

### SCHEDULE(S)

The attached Inspection and Test Result Schedules are part of this document and this Report is only valid when Test Result Schedules are attached to it.

(Enter quantities of schedules attached)