SCHEME OF TESTING AND INSPECTION
FOR CERTIFICATION OF
COLD ROLLED NON-ORIENTED ELECTRICAL
STEEL SHEET AND STRIP-FULLY PROCESSED TYPE
ACCORDING TO IS 648:2006

1. LABORATORY - A laboratory shall be maintained which shall be suitably equipped and staffed where different tests shall be carried out in accordance with the methods given in the specification.

2. TEST RECORDS

2.1 All records of tests and inspection shall be kept in suitable forms approved by the Bureau.

2.2 All the testing equipment/measuring instruments shall be periodically checked and calibrated and records of such checks/ calibration shall be maintained.

2.3 Copies of any records and other related papers that may be required by Bureau shall be made available at any time on request.

3. QUALITY CONTROL

3.1 It is recommended that, as far as possible, Statistical Quality Control methods may be used for controlling the quality of the product during production as envisaged in this Scheme [IS 397 (Part 1) to IS 397 (Part -4)].

3.2 In addition, efforts should be made to gradually introduce a Quality Management Systems in accordance with IS/ISO 9001.

4. MARKING

4.1 Standard Mark- The Standard Mark as given in Column (l) of the First Schedule of the licence shall be marked on cold rolled non oriented electrical steel sheet and strip- fully processed type, provided always that the product to which this mark is applied conforms to every requirement of the Specification and this Scheme. The grade designation shall be mentioned in the Test Certificate.

4.2 Other Marking- In addition, each bundle/coil of sheet/strip shall be legibly marked as follows:

(a) Manufacturer’s name or trade mark, if any;
(b) Grade and Thickness;
(c) Gross and net mass (at top of bundle);
(d) Type of coating (if coated);
(e) Batch/Cast Number or identification mark by which sheets/strips may be traced to the cast from which they were made;
4.3 **Designation of Grades** – Electrical steel sheet/strip shall be designated as given in clause 5 of the specification.

5. **TEST CERTIFICATE** - For each consignment of BIS certified material conforming to IS 648:2006, there shall be a test certificate which shall contain the standard Mark, the cast/batch number, grade designation, nominal thickness & size, type of coating (if coated), delivery condition and the corresponding test results (as given in Annexure I).

6. **SUPPLY OF MATERIAL** -

6.1 General requirements relating to condition of delivery shall be as per clause 6.1 of IS 648:2006.

6.2 If agreed to between the purchaser and the manufacturer, the manufacturer shall supply characteristics curves for properties agreed upon mutually as per clause 7.1.2.5 of IS 648:2006.

6.3 If agreed to between the purchaser and the manufacturer, the manufacturer should also give information to the purchaser on request as per clause 7.1.2.6 of IS 648:2006.

7. **LEVELS OF CONTROL** –

7.1 The tests, as indicated in Table 1 attached and at the levels of control specified therein, shall be carried out on the whole production of the factory which is covered by this scheme and appropriate records and charts maintained in accordance with paragraph 2.0 above. All the production which conforms to the Indian Standards and covered by the licence shall be marked with Certification Mark of the Bureau.

7.2 **Retest** -

7.2.1 Should a test sample fail, two further samples shall be selected at random from the same batch /cast of material and tested in the same manner.

7.2.2 If either or both of the retest samples on testing indicate that the core loss is greater than the maximum loss specified for the respective grade. The batch represented by these samples shall be taken as not complying with the requirements of that grade.

8. **CONTROL UNIT** – For the purpose of this scheme, a control unit shall be taken as a single charge of the product of one or more casts heat treated together with similar quality grading.

8.1 On the basis of tests and inspection results, the decision regarding conformity or otherwise of the lots of steel to the requirements of the specification shall be taken.

9. **CHEMICAL COMPOSITION** – Chemical composition of steel is left to the manufacturer’s discretion. However, the chemical composition may be provided, if agreed to between the manufacturer and the purchaser at the time of placing the order.

10. **PACKING** - The sheets/strip shall be suitably packed in metal protected containers lined with water-proof material lining to avoid any damage and to ensure protection from rust during
transit. The method of packing shall be subject to the approval by the purchaser before shipment from manufacturer’s works. Some typical methods of packing are given in fig. 4 to 8 of IS 648: 2006.

11. **REJECTIONS** – Records providing the detailed information regarding the rejection of material and the mode of their disposal shall be maintained. Such material shall in no case be stored together with that conforming to the specification.

12. **SAMPLES** - The licensee shall supply, free of charge, the samples required in accordance with the Bureau of Indian Standards (Certification) Regulations, 1988, as subsequently amended, from the factory or godowns. The Bureau shall pay for the samples taken by it from the open market.

13. **REPLACEMENT**

13.1 Whenever a complaint is received soon after the goods with the Standard Mark have been purchased and used, and if there is adequate evidence that the goods have not been misused, defective goods shall be replaced, free of cost, by the licensee in case the complaint is proved to be genuine and the warranty period (where applicable) has not expired. The final authority to judge conformity of the product to the Indian Standard shall be with Bureau. The firm should have own complaint investigation system as per IS/ISO 10002.

13.2 In the event of any damages caused by the goods bearing the Standard Mark, or claim being filed by the consumer against BIS Standard Mark and not “confirming to” the relevant Indian Standard, entire liability arising out of such non confirming product shall be of licensee and BIS shall not in any way be responsible in such cases.

14. **STOP MARKING** - The marking of the product shall be stopped under intimation to the Bureau if, at any time, there is some difficulty in maintaining the conformity of the product to the specification or the testing equipment goes out of order. The marking shall also be stopped immediately if directed to do so by the Bureau for any reason. The marking may be resumed as soon as the discrepancies are removed or when the Bureau gives the permission to do so. The information regarding the date of resumption of marking shall be sent to the Bureau.

15. **PRODUCTION DATA** - The licensee shall send to the Bureau as per the enclosed proforma a statement of the quantity produced, marked and exported by him and the trade value thereof for every quarter of the operating period of the licence. The statement is required to be forwarded to BIS at the end of every quarter of operative period.

Table 1....
# Cold Rolled Non-Oriented Electrical Steel Sheet and Strip-Fully Processed Type

## Table 1, Levels of Control

(Para 7 of Scheme of Testing and Inspection)

<table>
<thead>
<tr>
<th>Cl.</th>
<th>Requirements</th>
<th>Test Method</th>
<th>Levels of Control</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. of Samples</td>
<td>Lot Size</td>
<td>Frequency</td>
</tr>
<tr>
<td>6.1</td>
<td>Condition of Delivery</td>
<td>Adequate inspection to ensure each sheet/strip to be free from defects and meet the other general requirements of IS 648:2006.</td>
<td>Adequate inspection to ensure each sheet/strip to be free from defects and meet the other general requirements of IS 648:2006.</td>
<td>If agreed to between manufacturer and purchaser</td>
</tr>
<tr>
<td>6.2</td>
<td>Chemical Composition</td>
<td>One Each cast</td>
<td>Every Cast</td>
<td>Adequate inspection to ensure each sheet/strip meets the requirements of IS 648:2006.</td>
</tr>
<tr>
<td>6.3</td>
<td>Surface Condition (Visual)</td>
<td>IS 648:2006</td>
<td>Adequate inspection to ensure each sheet/strip to be free from defects and meet the other general requirements of IS 648:2006.</td>
<td>Adequate inspection to ensure each sheet/strip meets the requirements of IS 648:2006.</td>
</tr>
<tr>
<td>7.1.1</td>
<td>Magnetization Test</td>
<td>Table 1 &amp; IS 648:2006 &amp; IS 649</td>
<td>One One control unit Every control unit</td>
<td>Test as per clause 7.1.2.4 is to be carried out, if required by the purchaser</td>
</tr>
<tr>
<td>7.1.2</td>
<td>Total Specific Loss/Core Loss</td>
<td>Table 1 &amp; Annex ‘B’ &amp; IS 648:2006 &amp; IS 649</td>
<td>One One control unit Every control unit</td>
<td>Adequate inspection to ensure that each sheet / strip meets the requirements of 7.2.1 to 7.2.3</td>
</tr>
<tr>
<td>7.2</td>
<td>Surface Insulation Characteristics</td>
<td>7.2.1 to 7.2.3 IS 648:2006</td>
<td>Adequate inspection to ensure that each sheet / strip meets the requirements of 7.2.1 to 7.2.3</td>
<td>If agreed, between the purchaser and the manufacturer</td>
</tr>
<tr>
<td></td>
<td>Thermal effect on coating</td>
<td>IS 648:2006</td>
<td>One One control unit Every control unit</td>
<td>Adequate inspection to ensure that each sheet / strip meets the requirements of 7.2.1 to 7.2.3</td>
</tr>
<tr>
<td>Resistance to solvents and cleanliness</td>
<td>7.2.8</td>
<td>IS 648:2006</td>
<td>One</td>
<td>One control unit</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>-------</td>
<td>-------------</td>
<td>-----</td>
<td>------------------</td>
</tr>
<tr>
<td>Thickness</td>
<td>8.1 &amp; 8.7</td>
<td>IS 648:2006</td>
<td>Adequate inspection</td>
<td>Adequate inspection</td>
</tr>
<tr>
<td>Width</td>
<td>8.2 &amp; Table 3</td>
<td>IS 648:2006</td>
<td>Adequate inspection</td>
<td>Adequate inspection</td>
</tr>
<tr>
<td>Length</td>
<td>8.3 &amp; 8.4</td>
<td>IS 648:2006</td>
<td>Adequate inspection</td>
<td>Adequate inspection</td>
</tr>
<tr>
<td>Out of Squareness</td>
<td>8.5.1 &amp; Fig. 1</td>
<td>IS 648:2006</td>
<td>Adequate inspection</td>
<td>Adequate inspection</td>
</tr>
<tr>
<td>Edge Camber</td>
<td>8.5.2 &amp; Fig. 2</td>
<td>IS 648:2006</td>
<td>Adequate inspection</td>
<td>Adequate inspection</td>
</tr>
<tr>
<td>Residual Curvature</td>
<td>8.5.3</td>
<td>IS 648:2006</td>
<td>Adequate inspection</td>
<td>Adequate inspection</td>
</tr>
<tr>
<td>Flatness (Wave Factor)</td>
<td>8.6, 8.7 &amp; Fig.3</td>
<td>IS 648:2006</td>
<td>Adequate inspection</td>
<td>Adequate inspection</td>
</tr>
</tbody>
</table>

| 8 (8.1 to 8.7)                        | Table 4 of IS 648:2006 and IS 649 | One | One control unit | Every control unit | - |
| Stacking Factor                       | Table 1 of IS 648:2006 & IS 649 | One | One control unit | Every control unit | - |

Bend Test

Table 1 of IS 648:2006 & IS 649

One

One control unit

Every control unit

-
ANNEXURE-I

BIS STANDARD MARK

(Para 5 of the Scheme of Testing and Inspection)

M/s…………………………………………….

(Registered Office Address and Works Address)

TEST CERTIFICATE FOR COLD ROLLED NON-ORIENTED ELECTRICAL STEEL SHEET AND STRIP-FULLY PROCESSED TYPE

(According to IS 648:2006)

TEST CERTIFICATE No.____________________________________________________________________DATE_________

To M/s__________________________________________________________________________________

It is certified that the material described below conforms to IS 648:2006. The chemical composition, as tested in accordance with the Scheme of Testing and Inspection contained in the BIS Certification Marks Licence No. CM/L-___________________ , are as indicated below against each order No. etc. (Please refer to IS 648:2006 for details of specification requirements)

<table>
<thead>
<tr>
<th>TEST RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order No. &amp; Date</td>
</tr>
<tr>
<td>---------------</td>
</tr>
</tbody>
</table>

The material supplied conforms to the standard specification

REMARKS
Shipping Advice No. Signature:
Wagon Nos./Truck No. Designation:

FOR M/s…………………………..

(It is suggested that size A-4 paper (210 x 297 mm) be used for this Test Certificate)Proforma-1…….
Proforma-1

PROFORMA FOR OBTAINING PRODUCTION DETAILS

Period covered

Name of Licensee

CM/L No.

Name of Articles (s) IS No.

Grade/Type/Size/Variety/Class/Rating

1.1 Brand/Trade/Name(s) of BIS Certification Marked Products

2.0 Total production of the articles(s)
   Licensed for certification marking

2.1 Total production of the article(s)
   Conforming to Indian Standard

3.0 Production covered with BIS Certification Mark and its Value
   a) Quantity
   b) Value (Rs.)

3.1 Brand Name used on production covered under BIS Certification Mark

3.2 Calculation of marking fee on unit-rate basis; Marking Fee per unit
   a) Unit
   b) Quantity covered with BIS Certification Mark
   c) Marking fee rounded off in whole rupees as obtained by applying unit rates given
      in (a) on quantity given in (b)

Note: Incase a clause is not applicable, suitable remarks may be given against it.

4.0 Quantity not covered with BIS Certification Mark. If any, and the reasons for
   such non-coverage

4.1 Brand Name under with non certified goods were sold

5.0 Quantity Exported with BIS Standard Mark and its value

5.1 Brand Name under which BIS Certified goods are exported

6.0 Authentication by Chartered Accountant