Please ensure this form is annexed to the Report to the Standardization Management Board if it has been prepared during a meeting, or sent to the Central Office promptly after its contents have been agreed by the committee.

A. STATE TITLE AND SCOPE OF TC

Are there any new or emerging trends in technology that will impact the scope and work activities of the TC? Please describe briefly. **None**

Do you need to update your scope to reflect new and emerging technologies? If yes, will these changes impact another TC’s scope or work activities? **No**

If yes, describe how these will impact another TC(s) and list the TC(s) it would impact

Title: Magnetic alloys and steels

Scope: To prepare international standards relating to the magnetic and other physical properties of alloys and steels which are relevant to their electrotechnical usage.

NOTE: The work of TC 68 should be at all times co-ordinated with the activities of IEC/TC 51 and ISO/TC 17.

B. MANAGEMENT STRUCTURE OF THE TC

Describe the management structure of the TC (use of an organizational chart is acceptable) (should be integrated by CO automatically) and, if relevant (for example an unusual structure is used), provide the rationale as to why this structure is used. **The scope and titles of WG2 and WG5 have been slightly changed according to decisions made at the TC68 meeting, 23rd September 2015 in Linz, Austria. (See paragraph before the last one of section B)**

Note: Check if the information on the IEC website is complete.

When was the last time the TC reviewed its management structure? **The structure was checked at every TC 68 meeting and occasionally the scopes of WGs were modified (for updated details see paragraph before the last one of section B).**

Describe any changes made. When does the TC intend to review its current management structure? In the future, will the TC change the current structure, for example due to new and emerging technologies, product withdrawal, change in regulations etc. Please describe.

Make sure the overview includes:
- any joint working groups with other committees,
- any special groups like advisory groups, editing groups, etc.

TC 68 was set up in 1968. Since its inception the Secretariat has been held by Germany and the Chairmanship by Great Britain until 2014-09-30. The Chairmanship is now held by France from 2014-10-01.

Presently, there are 11 P-members in TC 68: Austria, Belgium, China, France, Germany, Japan, Republic of Korea, Pakistan, Sweden, United Kingdom and United States of America.

Liaison is maintained with IEC/TC 51 "Magnetic components and ferrite materials" and ISO/TC 17 "Steel" which is formed through the joint working group IEC/TC 68/WG 1 - ISO/TC 17/WG 16 responsible for the specification standards for soft magnetic steels, in particular electrical steel, Liaison with TC 51 is through the exchange of documents with occasional holding of joint meetings of the Maintenance Teams 3, Terminology, thus giving an opportunity for discussion of topics of
There are six working groups/maintenance teams dealing with:

WG 1: Classification, composition and properties of magnetic materials;
WG 2: Measuring methods for soft and feebly magnetic materials;
MT 3 (jointly with TC 51): Terminology;
WG 4: Magnetic alloys of iron-nickel, iron-cobalt, iron-aluminium and iron-aluminium silicon;
WG 5: Specifications and measurement methods for hard magnetic materials.

JWG 1 (IEC/TC68/WG1 – ISO/TC17/WG16): Specification standards for soft magnetic steels, in particular electrical steel and iron-based amorphous material

The Working Groups simultaneously constitute the Maintenance Teams for those standards which are prepared by them.

Due to changes in the IEC regulations – introduction of maintenance and project teams apart from the Working Groups – TC 68 has considered the structural problem and has come to the conclusion that it is not reasonable for such a small TC to form and maintain these three categories of bodies for this work. Instead, it was discussed with IEC Central Office and agreed that the existing Working Groups would be able to administer the terms of references of the three categories of functional groups, with responsibility for the standards falling within their terms of reference. Concurrently, the work and scope of the Working Group 2, that is responsible for all measurement methods, increased considerably as did the number of experts in this WG.

Therefore, a modification of the scope and title of WG2 and WG5, reflecting the movement of the measurement methods for hard magnetic materials from WG2 to WG5, was discussed and agreed at the TC68 meeting on 23rd September 2015. A restriction of the number of experts per WG and per National Committee was discussed but not accepted. The new titles of WG2 and WG5 are:

WG2: Measurement methods for soft and feebly magnetic materials;
WG5: Specifications and measurement methods for hard magnetic materials.

The Joint Working Group IEC/TC68/WG1 – ISO/TC17/WG16 (JWG) has been working successfully for many years and should continue their technically and economically relevant work of specifying magnetic materials.

C. BUSINESS ENVIRONMENT

Provide the rationale for the market relevance of the future standards being produced in the TC.

If readily available, provide an indication of global or regional sales of products or services related to the TC/SC work and state the source of the data.

Specify if standards will be significantly effective for assessing regulatory compliance.

The global magnetics and electrical engineering industries employ soft magnetic alloys and steels which are fundamental to the generation and distribution of electrical power, electrical machine and related technologies. At the other end of the spectrum of magnetic material behaviour are the magnetically hard compounds and alloys which are crucial for a large number of magneto-mechanical applications and some key areas of technical energy transformation. Whilst the worldwide quantity of all magnetic material produced is of the order of 12.5 million tons per year, electrical steel sheet constitutes a share of the order of 8 million tons, giving a market share of 4.8 billion Euro (this can vary considerably from year to year).

D. MARKET DEMAND

Provide a list of likely customers of the standards (suppliers, specifiers, testing bodies, regulators, installers, other TC/SC’s etc.). Do not specify company names, only categories of customers.

The market is in need of international standards for measuring and specifying the technically relevant magnet properties of all magnetic materials. The specification standards take account, and form a compromise, of the interests of the steel manufacturing industries and of the end
users, i.e. the producers of transformers, rotating electrical machines and all other electrical appliances including the whole automotive industry. The standards relating to measurement methods are intended to represent methods that are optimal with regard to the reproducibility and the economical and efficient use of measurement systems.

E. TRENDS IN TECHNOLOGY AND IN THE MARKET

If any, indicate the current or expected trends in the technology or in the market covered by the products of your TC/SC.

The trends in technology which are relevant to TC68 are determined by the sustainability of fossil fuels, the reduction of carbon dioxide emission, in particular through more electric transport, exploitation of new renewable energy sources and limiting environmental burdens and hazards. New soft magnetic materials with lower specific total loss are being developed to meet the demand for energy transformers with improved efficiency. A new trend, determined by the demand for small and effective electro-mechanical devices and also for the economical production of small magnetic cores with complex geometries, is the development and use of coated iron powders as core material. These materials are expected to influence TC68 activities in the future.

F. SYSTEM APPROACH ASPECTS (REFERENCE - AC/33/2013)

Does your TC/SC have a need for a systems approach?

If so:
- Will the Systems work be in a single TC or in multiple TCs? See table below.
- Will a Systems Evaluation Group (SEG), Systems Committee (SyC), or Systems Resource Group be required? No
- Is your TC/SC work of relevance to ISO? Yes (see section B, relevance of the Joint Working Group.)
- Is or are there fora or consortia working in parallel to IEC? Is there a chance to integrate this work in your TC/SC? No such fora.

This should not only be restricted to the customer/supplier relationships with other TC/SCs indicating types of co-operation (e.g. liaisons, joint working groups) but be of a more generic nature.

If there is no need for a systems approach as outlined in AC/33/2013, is it intended a TC would not be requested to report on general systems approach considerations such as customer/supplier relationships, liaisons, joint WGs, etc. as referenced in the system approach matrix illustrated in slide 14 of the presentation attached to AC/37/2006?

There is no such intention within IEC TC68.

<table>
<thead>
<tr>
<th>TC 68 System approach relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Component committees</strong> (TC 68 – role of customer)</td>
</tr>
<tr>
<td>IEC/TC 85 Measuring equipment for electrical and electromagnetic quantities</td>
</tr>
<tr>
<td><strong>System committees</strong> (TC 68 – role of supplier)</td>
</tr>
<tr>
<td>IEC/TC 14 Power transformers</td>
</tr>
<tr>
<td>IEC/TC 29 Electroacoustics</td>
</tr>
<tr>
<td>IEC/TC 38 Instrument transformers</td>
</tr>
<tr>
<td>IEC/TC 51 Magnetic components and ferrite materials</td>
</tr>
<tr>
<td>IEC/TC 77 Electromagnetic compatibility</td>
</tr>
<tr>
<td>IEC/TC 88 Wind turbines</td>
</tr>
<tr>
<td>TA 12 Energy efficiency</td>
</tr>
<tr>
<td><strong>Other committees</strong></td>
</tr>
</tbody>
</table>
The work of TC 68 is of relevance to ISO TC 17. As mentioned in Section B the joint working group is established between both committees.

G. CONFORMITY ASSESSMENT

With reference to clause 6.7 of Part 2 of the ISO/IEC directives, are all your publications in line with the requirements related to conformity assessment aspects? Yes

Will the TC/SC publications be used for IEC Conformity Assessment Systems (IECEE, IECEx, IECQ, IECRE)? There is no knowledge of such use.

Will any of your standards include test specifications, reproducible test requirements, and test methods? Yes, this is included in all standards on measurement methods.

Are there likely to be special conformity assessment requirements generated by any standards projects? If yes, list which projects. No.

With reference to clause 6.7 of Part 2 of the ISO/IEC directives, TC 68 publications are in line with the requirements related to conformity assessment aspects.

Although TC 68 publications do include test specifications, requirements of test reproducibility and test methods in all TC 68 standards on measurement methods, there is no knowledge or foreseen usage of TC 68 publications for IEC Conformity Assessment Systems (IECEE, IECEx, IECQ, and IECRE).

H. 3-5 YEAR PROJECTED STRATEGIC OBJECTIVES, ACTIONS, TARGET DATES

<table>
<thead>
<tr>
<th>STRATEGIC OBJECTIVES 3-5 YEARS</th>
<th>ACTIONS TO SUPPORT THE STRATEGIC OBJECTIVES</th>
<th>TARGET DATE(S) TO COMPLETE THE ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consideration of the specifications of electrical steel measured by means of single sheet testers in accordance with 60404-3, with the intention of supplementing the specification standard 60404-8-7 at their next revision by the addition of corresponding SST reference values for high permeability electrical steel.</td>
<td>Measurement comparisons arranged by the JWG and discussions on their results with regard to usage as a basis for this strategic objective.</td>
<td>The stability date of the currently revised standard of specification of grain-oriented electrical steel, IEC 60404-8-7 Ed.4.0, is intended to be fixed to a short period so that the next revision containing the intended changes can be realized in about 5 years’ time on the basis of experience achieved by then: 2020.</td>
</tr>
<tr>
<td>Measurement methods for the magnetic properties of single strips or bundles of soft magnetic amorphous materials.</td>
<td>Comparisons are being undertaken presently through WG2 (see Annex A) using Fe-based amorphous strips in order to find an appropriate measurement method.</td>
<td>This item was thoroughly discussed at the meetings in Linz and it was concluded to enter the preparatory stage through a NWIP from Japan. The target date may be 2018.</td>
</tr>
<tr>
<td>The specification of soft magnetic amorphous iron-based materials for transformer cores.</td>
<td>The completion of the related previous object is a precondition for the progress in this object which is treated in parallel.</td>
<td>This item was thoroughly discussed at the meetings in Linz and it was concluded to enter the preparatory stage through a NWIP from Japan. The target date may be 2018.</td>
</tr>
<tr>
<td>Revision of IEC 60404-3 with an attempt to take account of yokes’ impact on the systematic</td>
<td>The revision of this otherwise proven and useful standard is resting in PWI stage until longsome studies will result in</td>
<td>After discussion at Linz it was decided to keep this project in the PWI stage, a possible target date for completing the revision</td>
</tr>
<tr>
<td>error of the method</td>
<td>relevant findings.</td>
<td>may be 2020</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Measurement methods for magnetostriction for relevant applications of grain-oriented electrical steel and as a quantity relevant to environmental aspects.</td>
<td>Measurement comparisons arranged by the WG2 and discussions on their results with the intention to select the best method for a respective standard.</td>
<td>2020</td>
</tr>
</tbody>
</table>