

CIGRE Study Committee B3

PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP ⁽¹⁾

WG* N° B3.40	Name of Convenor: Eamonn Duggan E-mail address: Eamonn.duggan1960@gmail.com
Technical Issues # ⁽²⁾: 1	Strategic Directions # ⁽³⁾: 2, 3
The WG applies to distribution networks ⁽⁴⁾: Yes	
Title of the Group: SF₆ Gas Measurement Guide	
<p>Scope, deliverables and proposed time schedule of the Group :</p> <p>Background :</p> <p>There is an inconsistent approach to the units used and the methods of measuring the parameters of SF₆ gas that are causing confusion within the industry.</p> <p>Specifically this brochure will seek to promote the use of consistent units of measurement for SF₆ content, humidity and decomposition products; to clarify the interpretation of dew point versus frost point; to clarify the fundamental relationship between humidity, temperature and pressure; to explain the adsorption/desorption phenomenon present in a sealed gas compartment and to examine the use of the historic frost point of -5 °C as the limit value for SF₆ humidity.</p> <p>Scope:</p> <ul style="list-style-type: none"> • Provide a list of the appropriate units for SF₆ content, humidity and decomposition products and their definitions, • Provide a summary of the measurement techniques, while also addressing such issues as – <ul style="list-style-type: none"> ○ Integrity of pipework – types of material, fittings, volume of gas in pipework, connection points for sampling, flushing of pipes and gas recovery systems, ○ Explain current Standards for calibration procedures, measurement uncertainty (accuracy) and traceability (GUM / ISO17025), ○ To provide guidelines for the calibration with respect to the specific needs for different measurements techniques used in the analysis of SF₆. ○ Summarise these issues into an overall guide for measurement • To explain the condensation of water vapour and the difference between dew and frost points, • Explain the physical phenomenon regarding humidity content in a sealed gas compartment - adsorption/desorption from insulating material, external and operational conditions • Discussion on limit values for humidity in SF₆. <p>Deliverables:</p> <p>CIGRE Technical Brochure and Electra article</p> <p>Reference material:</p> <ul style="list-style-type: none"> • IEEE C 37.122.5 Guide for Moisture Measurement and Control in SF₆ GIS. 	

Time Schedule: start: April 2014

Final report: End 2016

Comments from Chairmen of SCs concerned:

Approval by Technical Committee Chairman :

Date : 17/06/2014

A handwritten signature in black ink, appearing to read "M. Wald", written over a light grey grid background.

⁽¹⁾ or Joint Working Group (JWG) - ⁽²⁾ See attached table 1 – ⁽³⁾ See attached table 2

⁽⁴⁾ Delete as appropriate

Table 1: Technical Issues of the TC project “Strategic Directions 2010-2020 Network of the Future; Direction 2 Making the Best Use of the Existing System” (cf. Electra 256 June 2011)

1	Management and efficient use of assets: Equipment life extension, very often connected to condition monitoring and maintenance methodologies. Decision analysis methods for power system planning and development including implementation of new technology and principles in the existing system.
2	Improvement of system operation, system stability and recovery (e.g. demand side management, congestion management).
3	Best use of the existing rights of way by use of new conductors, increasing voltage, DC links, replacement of AC by DC transmission.
4	Active Distribution Networks resulting in bidirectional flows within distribution level and to the upstream network.

Table 2: Strategic directions of the TC (cf. Electra 249 April 2010)

1	The electrical power system of the future
2	Making the best use of the existing system
3	Focus on the environment and sustainability
4	Preparation of material readable for non technical audience