

IEEE/PES Transformers Committee
WG C57.127- IEEE Guide for the Detection, Location and Interpretation of
Sources of Acoustic Emissions from Electrical Discharges in Power Transformers
and Power Reactors

Unapproved Meeting Minutes
Vancouver, October 25th 2016
Room: Port Alberni

Meeting Attendance

The working group met at 11:00 AM. 74 persons were in the room and 20 members out of 22 were present. Quorum requirement was met. Complete attendance record is available in the AM System.

Discussions

The meeting started with the unanimous approval of the agenda (motion by Gregorio Lobo, second by Mike Franchek. The minutes from the Atlanta meeting were also unanimously approved (motion by Hemchandra Shertukde, second by Mike Franchek).

During call for patents potentially essential to the implementation of the proposed guide, Hemchandra Shertukde, Ph.D., declared his patent number US6178386. Subsequent review of the US Patent Office website indicates that this patent was recorded January 24, 2001 and expired February 18, 2013. Unless there is further information to the contrary, this patent will not be included in the Guide.

A presentation was given to the group about certain acoustic principles that will be added to the guide. Details were given about the way the mechanical energy from the partial discharges disperses in a spherical way. The energy drops with the square of the distance. It was also mentioned that oil temperature will have an effect on the propagation speed which will affect the precision of the location results if not compensated.

Different examples of wave shapes were presented with characteristics corresponding to the direct path to the sensor (oil only) and to the combined oil-steel propagation path. Internal structure of the transformer will sometimes prevent direct propagation of the waves to the tank wall. In some case, the waves will propagate through channels that will guide the waves to an exit point from where normal propagation can take place. In these cases, localisation results will change when changing the sensors position on the tank. Having the schematics of the transformer is a great advantage for identifying the possible propagation paths.

Raja Kuppaswamy mentioned that there are calculations on the waves that can be used to extract the time of arrival. Although this is usually a process correctly done manually by the users, Arturo Nunez mentioned that it can be of great use when acoustic is used in a monitoring perspective.

Two additions to chapter 6 were shown to the group highlighting differences from factory test to field test regarding power frequency and available sensors to acquire electrical signal.

A call was made to the group to gather examples of documented localisation cases for potential inclusion in the guide. The cases would ideally represent different contexts of localisation and highlight the procedures that led to successful results.

The group will meet again in New Orleans for the spring 2017 meeting.

Adjournment

The meeting was adjourned at 12:10 PM.

David Larochelle