

		LOVAG DECISION SHEET (LDS)		N°LDS0198
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References	Standard(s) (incl. year)	IEC 60947-2: 2016		Subclauses(s): 8.3.2.6.4.3
	Subject	Tests on four-pole circuit-breakers	Submitted by: ABB	Date: 2018-02-08
Question	<p>The standard states:</p> <p><i>Additional sequences of operations on one or more new samples, in accordance with Table 10, shall be made on the fourth pole and its adjacent pole, according to sequences III or V, as applicable, and sequence IV if applicable. This requirement applies even when sequence III is replaced by sequence II ($I_{cu} = I_{cs}$) or sequence IV is replaced by sequence VI ($I_{cw} = I_{cs}$).</i></p> <p>Question: Do the above text mean that 4pole circuit-breaker declared as $I_{cu} = I_{cs}$ need to be tested in Sequence II but by an "O-CO" operation cycle only?</p>			
	<p>Taking into account the current LTI 60947-2 it seems not correct the above interpretation. 8.3.2.6.4.3 Test on four pole circuit breakers It's clarified that an additional sequence of operations on fourth pole is requested also if sequence III is replaced by sequence II.</p> <p>However, IEC SC121A/MT9 (breakers experts) has modified the text paragraph for the next standard edition (121A/177/CDV document, red text): <i>"Additional sequences of operations on one or more new samples, in accordance with Table 10, shall be made on the fourth pole and its adjacent pole, according to sequences III or V, as applicable, and sequence IV if applicable. This requirement applies even when sequence III is replaced by sequence II ($I_{cu} = I_{cs}$) or sequence IV is replaced by sequence VI ($I_{cw} = I_{cs}$), i.e., additional tests according to sequence III or V, and sequence IV, as applicable, are required."</i> Splitting the words "sequence of operation" and "additional tests" seems justify the original interpretation but not in a clear manner.</p> <p>Further analysis was submitted to the Italian SC121A/MT9 experts that give the following indication: -1st paragraph asks the sequence II requirements (O-CO operation cycle) -2nd paragraph confirms the same requirements in case of different declaration ($I_{cu}=I_{cs}$ or $I_{cu} \neq I_{cs}$) -the red text (121A/177/CDV) is a confirmation of 1st paragraph (this text doesn't reach the aim proposed to clarify the meaning; the IT experts will propose its deletion)</p>			
Decision	<p>ACAIE CT accepts the interpretation of Italian SC121A/MT9 IT experts and confirms that the Sequence II requirements have to be verified by an "O-CO" cycle operation only on fourth pole and its adjacent pole, also for circuit-breakers where $I_{cu}=I_{cs}$ is declared.</p>			
Date: 2019-05-17		Prepared by: Massimo Rota (ACAIE)		Approved by: ACAIE Technical Commission 2018-12-13