About

Provide general information regarding the described test objective.

Test objective name	OLTCTransformer
Author / organization	OCT
Short description	The test is an adaptation of the Erigrid 2.0 test case #01 "Control of voltage with an on-load tap change controller"
Present use / development status	V1.0

Scope and goal

What is the test objective, i.e. what is the purpose of carrying out the test? Try to formulate the objective within one of the following three categories:

1. *Characterization: a measure is given without specific requirements for passing the test. Examples: understanding the behaviour of a system, developing a mathematical model of a component.*

2. *Validation: a requirement and abstract measure is provided, but the results are subject to interpretation, i.e. passing a test depends on a qualitative evaluation by an expert or user of the system. These tests seek to answer the question are we building the right system? Example: Is the mathematical model good enough?*

3. *Verification: acceptance of a test result depends on the direct evaluation against fixed and formalized assessment criteria. These criteria can be formulated as quantitative measures with a set/range of acceptable values of these measures, i.e. quantitative tests. These tests seek to answer the question are we building the system right? Example: Testing whether a component conforms to a standard.*

4. *Optimization: optimization is the selection of a best element (regarding a defined criterion) from some set of available alternatives. These tests seek to answer the question on how to build the right system? Example: Sizing of a component*

Test objective	☐ characterization ☐ validation ☒ verification ☐ optimization
Description incl. justification	The aim of this test case is to prove that an on-load tap changer controller "OLTC" is able to regulate the voltage level of the LV network within acceptable standards. The test focuses on the transformer regulation in response to voltage variation introduced by network components and does not consider external anomalies (e.g. weather).

System configuration *To which system configuration does this test apply?*	JRA1-EO-LT
Use case *To which use case does this test apply?*	n/a

Identification of test components

This section provides information about the system under test, object under investigation and function under investigation.

System Under Test *Which subset of the entire system configuration needs to be simulated to achieve the test objective?*	The entire system
Object Under Investigation *Which are the components of the System Under Test that are to be characterized or validated?*	OLTC Transformer
Function Under Investigation *which of the system behavior defined in the use case is to be characterized, validated or verified?*	Capability of the OLTC transformer to correct and compensate voltage oscillations within the system

Test criteria

This section provides information about the criteria to evaluate the test results.

Objective Function / Target Metrics *Optimization studies: Define the objective function (OF), which specifies how the measured parameters are used to evaluate the optimization target. **Refer to OF and KPI description forms** (separate forms).* *Other studies: Define the target metrics, which specifies how the measured parameters are used to*	• Voltage at the secondary side of the OLTC transformer • Current in the windings of the OLTC transformer

evaluate the test objective in terms of KPIs. **If available, refer to KPI description forms** *(separate forms).*	
Acceptable test result *Applicable for validation and verification test cases.* *Define quality attributes for assessing an acceptable test result. For validation tests an abstract measure to enable a qualitative assessment is stated. For verification tests, the acceptance threshold (worst case for passing the test) is stated.*	The voltage at the secondary (LV) side of the OLTC transformer remains within acceptable bounds in response to normal system operation and load disconnection