



IEC 61850 Certificate Level A¹

No. 30810022-Consulting 08-1269

Issued to:
ABB Oy
Distribution Automation
Muottitie 2 A
FI-65101 Vaasa
Finland

For the product:
REF 545 V3.5
With SPA-ZC 400 V2.1.2



The product has not shown to be non-conforming to:
IEC 61850-6, 7-1, 7-2, 7-3, 7-4 and 8-1
Communication networks and systems in substations

The conformance test has been performed according to IEC 61850-10 with product's protocol, model and technical issue implementation conformance statements: "IEC 61850 Conformance Statement for RE_54_ and SPA-ZC 400, version 1.0", "IEC 61850 Tissues Conformance Statement for RE_54_ and SPA-ZC 400, version 1.0" and product's extra information for testing: "IEC 61850 Protocol Implementation extra Information for Testing (PIXIT) for RE_54_ and SPA-ZC 400, version 1.0".

The following IEC 61850 conformance blocks have been tested with a positive result (number of relevant and executed test cases / total number of test cases as defined in the UCA International Users Group Device Test procedures v1.1):

1 Basic Exchange (15/23)	9b GOOSE Subscribe (9/9)
2 Data Sets (2/5)	12a Direct Control (5/11)
5 Unbuffered Reporting (10/13)	12d Enhanced SBO Control (10/17)
6 Buffered Reporting (13/15)	13 Time Synchronization (3/4)
9a GOOSE Publish (7/11)	14 File Transfer (5/6)

This Certificate includes a summary of the test results as carried out at ABB Oy in Finland with UniCASim 61850 version 3.17.01 with test suite 3.17.02 and UniCA 61850 analyzer 4.17.01. The test is based on the UCA International Users Group Device Test Procedures version 1.1. This document has been issued for information purposes only, and the original paper copy of the KEMA report: No. 30810022-Consulting 08-1268 will prevail.

The test has been carried out on one single specimen of the products as referred above and submitted to KEMA by ABB Oy. The manufacturer's production process has not been assessed. This Certificate does not imply that KEMA has certified or approved any product other than the specimen tested.

Arnhem, June 5, 2008

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Manager Intelligent Networks and Communication

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Test Engineer

1 Level A - Independent Test lab with certified ISO 9000 or ISO 17025 Quality System

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Applicable Test Procedures from the UCA International Users Group Device Test Procedures version 1.1

Conformance Block	Mandatory	Conditional
1: Basic Exchange	Ass1, Ass2, Ass3, AssN2, AssN3, AssN4, AssN5 Srv1, Srv2, Srv3, Srv4, Srv5, SrvN1abcd, SrvN4	Srv8
2: Data Sets	Dset1, DsetN1ae	
5: Unbuffered Reporting	Rp1, Rp2, Rp3, Rp4, Rp7 RpN1, RpN2, RpN3, RpN4	Rp5
6: Buffered Reporting	Br1, Br2, Br3, Br4, Br7, Br8*, Br9** BrN1, BrN2, BrN3, BrN4, BrN5	Br5
9a: GOOSE publish	Gop2, Gop3, Gop4, Gop7, Gop9	Gop1, Gop6, GopN1
9b: GOOSE subscribe	Gos1, Gos2, Gos3, GosN1, GosN2, GosN3, GosN4, GosN5, GosN6	
12a: Direct control	CltN3, CltN8 DOns1, DOns3	Ctl2
12d: Enhanced SBO control	Ctl3, CltN1, CltN2, CltN3, CltN4, CltN9 SBOes1, SBOes2, SBOes3	Ctl2
13: Time sync	Tm1, Tm2, TmN1	
14: File transfer	Ft1, Ft2ab, FtN1ab	FtN1c, Ft2c

* On buffer overflow, sequence number does not start at 0 (zero) when reporting is enabled.

** When setting entryID, sequence number does not start at 0 (zero) when reporting is enabled.