UCA
International Users Group

IEC 61850 Certificate Level A[1]

No. 74105701-OPE/INC 15-1145

Issued to:
ABB Oy
Medium Voltage Products
Muottitie 2 A
FI-65101 Vaasa
Finland

For the server product:
REF615 Protection and Control Relay
Product version: 5.0 FP1
Software version: 5.1
Hardware version: G

The server product has not been shown to be non-conforming to:

IEC 61850 First Edition Parts 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, the UCA International Users Group Server Device Test Procedures version 2.3 with TPCL2 version 1.7, the product's protocol, model and technical issue implementation conformance statements: "Protocol Implementation Conformance Statement for the IEC 61850 interface in 615 series - Revision H", "IEC 61850 Ed1 Model Implementation Conformance Statement (MICS) for 615 series - Revision J", and "TISSUES Implementation Conformance Statement for the IEC61850 interface in 615 series - Revision H", and the extra information for testing: "Protocol Implementation eXtra Information for Testing (PIXIT) for the IEC 61850 interface in 615 series - Revision L".

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):

1	Basic Exchange (21/24)		9a	GOOSE Publish (11/13)
2	Data Sets (3/6)		9b	GOOSE Subscribe (11/11)
4	Setting Group Selection (3/3)		12a	Direct Control (7/12)
4+	Setting Group Definition (7/7)		12d	Enhanced SBO Control (12/19)
5	Unbuffered Reporting (17/19)		13	Time Synchronization (4/5)
6	Buffered Reporting (19/21)		14	File Transfer (6/7)

This certificate includes a summary of the test results as carried out at ABB Oy in Finland with UniCA 61850 Client Simulator 4.29.03 with test suite 3.29.01 and UniCA 61850 Analyzer 5.29.02. This document has been issued for information purposes only, and the original paper copy of the DNV GL report No. 15-1144 will prevail.

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

Arnhem, April 20, 2015

M. Adriaensen
Head of Department
Operational Excellence

Issued by:

DNV·GL
DNV KEMA is now DNV GL

R. Schimmel
Certification Manager

[1] Level A - Independent test lab with certified ISO 9001 Quality System
[2] TPCL - Test procedures change list

Applicable Test Procedures from the UCA International Users Group Server Device Test Procedures version 2.3 with TPCL 1.7

Conformance Block	Mandatory	Conditional
1: Basic Exchange	Ass1, Ass2, Ass3, AssN2, AssN3, AssN4, AssN5 Srv1, Srv2, Srv3, Srv4, Srv5, SrvN1abcd, SrvN4	Srv6, Srv7, Srv8, SrvN1e, SrvN1f, SrvN2, SrvN3
2: Data Sets	Dset1, Dset10a, DsetN1ae	
4: Setting Group Selection	Sg1, Sg3, SgN1a	
4+: Setting Group Definition	Sg2, Sg4, SgN1b, SgN2, SgN3, SgN4, SgN5	
5: Unbuffered Reporting	Rp1, Rp2, Rp3, Rp4, Rp7, Rp10, Rp12, RpN1, RpN2, RpN3, RpN4	Rp5, Rp8, Rp9, Rp11, RpN5, RpN6
6: Buffered Reporting	Br1, Br2, Br3, Br4, Br7, Br8, Br9, Br12, Br14, BrN1, BrN2, BrN3, BrN4, BrN5	Br5, Br10, Br11, Br13, BrN6
9a: GOOSE Publish	Gop2, Gop3, Gop4, Gop7, Gop9, Gop10a	Gop1, Gop5, Gop6, Gop10b, GopN1
9b: GOOSE Subscribe	Gos1a, Gos2, Gos3, GosN1, GosN2, GosN3, GosN4, GosN5, GosN6	Gos1b, Gos4
12a: Direct Control	CtlN3, CtlN8, DOns1	Ctl2, CtlN10, CtlN11, DOns3
12d: Enhanced SBO Control	Ctl3, CtlN1, CtlN2, CtlN3, CtlN4, CtlN9, SBOes1, SBOes2, SBOes3	Ctl2, CtlN10, CtlN11
13: Time Sync	Tm1, Tm2, TmN1	Tm3
14: File Transfer	Ft1, Ft2ab, Ft4, FtN1ab	Ft2c, FtN1c

All configuration file and data model tests have been successfully performed for the product variants using the same communication hardware and software version: RED615, REG615, REM615, RET615, REU615 and REV615.