# UCA International Users Group

# IEC 61850 Certificate Level A[1]

No. 74105701-OPE/INC 15-1136

**Issued to:**
ABB Oy
Medium Voltage Products
Muottitie 2
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 Edition 2 Parts 6, 7-1, 7-2, 7-3, 7-4 and 8-1

### Communication networks and systems for power utility automation

The conformance test has been performed according to IEC 61850-10 Edition 2, the UCA International Users Group Edition 2 Server Test Procedures version 1.0 with TPCL[2] 1.0 with product's protocol, model and technical issue implementation conformance statements and the extra information for testing: "Protocol Implementation Conformance Statement for the IEC 61850 interface in 615 series - Revision H", "IEC 61850 Ed2 Model Implementation Conformance Statement (MICS) for 615 series - Revision B", "TISSUES Implementation Conformance Statement for the IEC61850 Ed2 interface in 615 series - Revision B" and "Protocol Implementation extra Information for Testing (PIXIT) for the IEC 61850 interface in 615 series - Revision L".
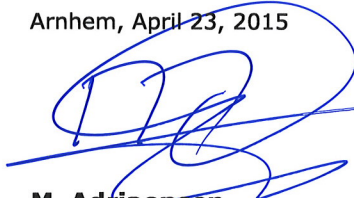
The following IEC 61850 conformance blocks have been tested with a positive result (number of relevant and executed test cases / total number of test cases):

| | | | | |
|---|---|---|---|---|
| 1 | Basic Exchange (20/26) | | 9a | GOOSE Publish (11/13) |
| 2 | Data Sets (4/7) | | 9b | GOOSE Subscribe (12/14) |
| 4 | Setting Group Selection (4/4) | | 12a | Direct Control (6/18) |
| 4+ | Setting Group Definition (11/13) | | 12d | Enhanced SBO Control (14/28) |
| 5 | Unbuffered Reporting (16/20) | | 13 | Time Synchronization (6/7) |
| 6 | Buffered Reporting (23/29) | | 14 | File Transfer (7/8) |

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 Ed2 3.29.02 and UniCA 61850 Analyzer 5.28.03. This document has been issued for information purposes only, and the original paper copy of the DNV GL report No. 74105701-OPE/INC 15-1135 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 certificate does not imply that DNV GL has approved any product other than the specimen tested.

Arnhem, April 23, 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

KEMA Nederland B.V. Utrechtseweg 310, 6812 AR Arnhem, P.O. Box 9035, 6800 ET Arnhem, the Netherlands
T +31 26 356 2025  F +331 26 351 36 83  salesdesk@dnvgl.com  www.dnvgl.com

Page 1/2

Applicable Test Procedures from the UCA International Users Group Edition 2 Server Test Procedures version 1.0 with TPCL 1.0

| Conformance Block | Mandatory | Conditional |
|---|---|---|
| 1: Basic | sAss1, sAss2, sAss3, sAssN2, sAssN3, sAssN4, sAssN5, sSrv1, sSrv2, sSrv3, sSrv4, sSrv5, sSrvN1abcd, sSrvN4 | sSrv6, sSrv8, sSrv13, sSrvN1e, sSrvN1f, sSrvN3 |
| 2: Datasets | sDs1, sDs10a, sDs15, sDsN1ae | |
| 4: Setting Group | sSg1, sSg3, sSg11, sSgN1 | |
| 4+: Setting Group Definition | sSg2, sSg4, sSg7, sSg8, sSg9, sSg10, sSg12, sSgN2, sSgN3, sSgN4, sSgN5 | |
| 5: Unbuffered Reporting | sRp1, sRp2, sRp3, sRp4, sRp9, sRp14, sRpN1, sRpN2, sRpN3, sRpN4, sRpN8 | sRp5, sRp8, sRp11, sRp12, sRpN5 |
| 6: Buffered Reporting | sBr1, sBr2, sBr3, sBr4, sBr9, sBr14, sBr20, sBr21, sBr22, sBr25, sBr26, sBr27, sBr28, sBrN1, sBrN2, sBrN3, sBrN4, sBrN5, sBrN8 | sBr5, sBr8, sBr11, sBr12 |
| 9a: GOOSE Publish | sGop2a, sGop3, sGop4, sGop7, sGop9, sGop10, sGop11 | sGop1, sGop5, sGop6, sGopN1 |
| 9b: GOOSE Subscribe | sGos1, sGos2, sGos3, sGos5, sGos6a, sGos7, sGosN1, sGosN2, sGosN3, sGosN4, sGosN5, sGosN6 | |
| 12a: Direct Control | sCtl5, sCtl10, sCtl14, sDOns1, sDOns2 | sCtl26 |
| 12d: Enhanced SBO Control | sCtl5, sCtl6, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOes1, sSBOes2, sSBOes6, sSBOes8 | sCtl4, sCtl16, sCtl26 |
| 13: Time Sync | sTm1, sTm2, sTmN1 | sTm3, sTm4, sTm5 |
| 14: File Transfer | sFt1, sFt2ab, sFt4, sFt5, sFtN1ab | sFt2c, sFtN1c |

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.

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