

No. 74105701-OPE/INC 15-1136 Rev. 1

**Issued to:**

ABB Oy  
Medium Voltage Products  
Muottitie 2  
FI-65101 Vaasa  
Finland

**For the server product:**

REF615 Feeder Protection and Relay Control  
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<sup>2</sup> 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 (12/13) | 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 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 Rev.3 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. 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 (revised January 27, 2016)



**M. Adriaensen**  
Head of Department  
Operational Excellence

**Issued by:**



DNV KEMA is now DNV GL



**R. Schimmel**  
Certification Manager

<sup>1</sup> Level A - Independent test lab with certified ISO 9001 Quality System

<sup>2</sup> TPCL - Test procedures change list

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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   | sSg6   |
| 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