

No. 10010221-OPE/INC 15-2723

Issued to:

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

For the server product:

REF611 Feeder Protection and Control Relay
Product version: 2.0
Software version: 2.0
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 TPCL² 1.0 with product's protocol, model and technical issue implementation conformance statements: "Protocol Implementation Conformance Statement for the IEC 61850 interface in 611 series revision B", "IEC 61850 ED2 Model Implementation Conformance Statement (MICS) for 611 SERIES, revision A" and "TISSUES Implementation Conformance Statement for the IEC61850 Ed2 interface in 611 Series, revision A" and the extra information for testing: "Protocol Implementation extra Information for Testing (PIXIT) for the IEC 61850 interface in 611 series, revision B".

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 (22/26)	9a GOOSE Publish (11/13)
2 Data Sets (4/7)	9b GOOSE Subscribe (12/14)
4 Setting Group Selection (4/4)	12a Direct Control (9/19)
4+ Setting Group Definition (12/13)	12d Enhanced SBO Control (15/28)
5 Unbuffered Reporting (17/20)	13 Time Synchronization (6/7)
6 Buffered Reporting (24/29)	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 Unigrd SA 1.0.238 with test suite 1.0.0 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 verification report No. 10010221-OPE/INC 15-2722 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, November 6, 2015



M. Adriaensen
Head of Department
Operational Excellence

Issued by:



DNV KEMA is now DNV GL



R. Schimmel
Verification Manager

¹ Level A - Independent test lab with certified ISO 9001 Quality System

² 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 Exchange	sAss1, sAss2, sAss3, sAssN2, sAssN3, sAssN4, sAssN5, sSrv1, sSrv2, sSrv3, sSrv4, sSrv5, sSrvN1abcd, sSrvN4	sSrv6, sSrv8, sSrv12, sSrv13, sSrvN1e, sSrvN1f, sSrvN2, sSrvN3
2: Data Sets	sDs1, sDs10a, sDs15, sDsN1ae	
4: Setting Group Selection	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, sRp10, 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, sBr10, sBr11, sBr12
9a: GOOSE publish	sGop2a, sGop3, sGop4, sGop7, sGop9, sGop10, sGop11	sGop1, sGop6, sGopN1, sGopN2
9b: GOOSE subscribe	sGos1, sGos2, sGos3, sGos5, sGos6a, sGos7, sGosN1, sGosN2, sGosN3, sGosN4, sGosN5, sGosN6	
12a: Direct control	sCtl5, sCtl10, sCtl14, sDOns1, sDOns2	sCtl13, sCtl15, sCtl16, sCtl17
12d: Enhanced SBO Control	sCtl5, sCtl6, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOes1, sSBOes2, sSBOes6, sSBOes8	sCtl4, sCtl15, sCtl16, sCtl17
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:

- REB611 Busbar Protection and Control Relay
- REM611 Motor Protection and Control Relay
- REU611 Voltage Protection and Control Relay