

No. 74108094-OPE/INC 16-0008

Issued to:

GE Multilin
650 Markland St.
Markham, ON L6C 0M1
Canada

For the server product:

F650 Digital Bay Controller
Software version: 7.20
S/N: 82.600.301

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 1.0.2 with product's protocol, model and technical issue implementation conformance statements: "Protocol Implementation Conformance Statement for the IEC 61850 interface in: F650 Bay Controller, V1.1", "Model Implementation Conformance Statement for the IEC 61850 interface in F650 Bay Controller, V1.00" and "TISSUES Implementation Conformance Statement for the IEC 61850 Ed2 interface in: F650 Bay Controller, V1.0", and the extra information for testing: "Protocol Implementation eXtra Information for Testing (PIXIT) for the IEC 61850 interface in: F650 Bay Controller, V1.3".

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 (19/26)	12a Direct Control (7/18)
2 Data Sets (4/7)	12b SBO Control (13/27)
4 Setting Group Selection (4/4)	12c Enhanced Direct Control (8/20)
4+ Setting Group Definition (11/13)	12d Enhanced SBO Control (13/28)
5 Unbuffered Reporting (17/20)	13 Time Synchronization (4/7)
6 Buffered Reporting (24/29)	14 File Transfer (5/8)
9a GOOSE Publish (11/13)	
9b GOOSE Subscribe (13/14)	

This certificate includes a summary of the test results as carried out at DNV GL in The Netherlands with UniCA 61850 Client simulator 4.29.03 with test suite Ed2 3.29.05 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. 74108094-OPE/INC 16-0009 will prevail.

The test has been carried out on one single specimen of the product as referred above and submitted to DNV GL by GE Multilin. 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, December 9, 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 1.0.2

Conformance Block	Mandatory	Conditional
1: Basic Exchange	sAss1, sAss2, sAss3, sAssN2, sAssN3, sAssN4, sAssN5, sSrv1, sSrv2, sSrv3, sSrv4, sSrv5, sSrvN1abcd, sSrvN4	sSrv6, sSrv8, sSrvN1e, sSrvN1f, sSrvN3
2: Data Sets	sDs1, sDs10a, sDsN1ae	sDs15
4: Setting Group Selection	sSg1, sSg3, sSgN1	sSg11
4+: Setting Group Definition	sSg2, sSg4, sSg7, sSg8, 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	sGos4
12a: Direct control	sCtl5, sCtl10, sDOns1, sDOns2	sCtl2, sCtl13, sCtl16
12b: SBO control	sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOns1, sSBOns2, sSBOns6	sCtl2, sCtl6, sCtl16, sCtl27
12c: Enhanced Direct Control	sCtl5, sCtl10, sCtl14, sDOes1, sDOes2	sCtl2, sCtl13, sCtl16
12d: Enhanced SBO Control	sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOes1, sSBOes2, sSBOes6, sSBOes8	sCtl2, sCtl6, sCtl16
13: Time sync	sTm1, sTm2, sTmN1	sTm3
14: File transfer	sFt1, sFt2ab, sFt4, sFt5, sFtN1ab	