IEC 61850 Conformance Certificate Level B[1]

Issued to:
Hitachi Energy Ltd
Power Grids
CH-5400 Baden/Switzerland

For the server product:
FOX612 with TEGO1 IEC61850 interface
Firmware version R1A11
Teleprotection device

Issued by: Hitachi Energy Ltd, SVC Baden

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] version 1.2.5, the product's protocol, model and technical issue implementation conformance statements: "1KHW028686 FOX61x TEGO1 IEC61850 PICS", "1KHW028685 FOX61x TEGO1 IEC61850 MICS","1KHW028688 FOX61x TEGO1 IEC61850 TICS" and the extra information for testing: "1KHW028687 FOX61x TEGO1 IEC61850 PIXIT".

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 (18/26)		9a	GOOSE publish (9/13)
2	Data Sets (4/7)		9b	GOOSE subscribe (12/14)
5	Unbuffered Reporting (18/21)		13	Time Synchronization (4/7)
6	Buffered Reporting (26/30)			

This Certificate includes a summary of the test results as carried out at the SVC Baden in Switzerland with UniCAsim Ver 4.29.03 with test suite based on 3.29.01 and UniCA Analyzer 5.28.03. This document has been issued for information purposes only, and the original paper copy of the SVC Baden report: No. 1KHL050116 will prevail.

The test has been carried out on one single specimen of the product as referred above and submitted to SVC Baden by Hitachi Energy Ltd. The manufacturer's production process has not been assessed. This certificate does not imply that SVC Baden has approved any product other than the specimen tested.

Baden, 2018-03-28

R.Lupu
SVC Lead

C. Zehnder
Test engineer

1 Level B - Tester with 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 version 1.2.5

Conformance Block		Mandatory	Conditional
1	Basic Exchange	sAss1, sAss2, sAss3, sAssN2, sAssN3, sAssN4, sAssN5 sSrv1, sSrv2, sSrv3, sSrv4, sSrv5, sSrvN1abcd, sSrvN4	sAssN6 sSrv8, sSrv12 sSrvN1f
2	Data Sets	sDs1, sDs10a, sDsN1ae	sDs15
5	Unbuffered Reporting	sRp1, sRp2, sRp3, sRp4, sRp5, sRp9, sRp14, sRp15, sRpN1, sRpN2, sRpN3, sRpN4, sRpN8	sRp8, sRp10, sRp11, sRp12, sRp13
6	Buffered Reporting	sBr1, sBr2, sBr3, sBr4, sBr5, sBr9, sBr14, sBr15, sBr20, sBr21, sBr22, sBr25, sBr26, sBr27, sBr28 sBrN1, sBrN2, sBrN3, sBrN4, sBrN5, sBrN8	sBr8, sBr10 sBr11, sBr12 ,sBr13
9a	GOOSE publish	sGop2a, sGop3, sGop4, sGop9, sGop10, sGop11	sGop1,sGop7, sGopN2
9b	GOOSE subscribe	sGos1, sGos2, sGos3, sGos5, sGos6a, sGos7, sGosN1, sGosN2, sGosN3, sGosN4, sGosN5, sGosN6	
13	Time Synchronization	sTm1, sTm2, sTmN1	sTmN2

All configuration file and data model tests have been successfully performed for the product variants using the same communication hardware and software version:
- FOX615

Hitachi Energy