IEC 61850 Certificate Level A[1]

No. 84000155-OPE/INC 17-2420

Issued to:

Efacec Energia, Máquinas e Equipamentos
Eléctricos, S.A.
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Portugal

For the client system:

UC 500 Station Server
Software version: UC 500 9.0.0
Hardware version: MOXA Industrial Embedded
Computer DA-820
S/N: TAEBE1005691

The client system 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 Client Conformance Test Procedures version 1.0 with TPCL[2] 1.0_rev3 with product's protocol, model and technical issue implementation conformance statements: "Protocol Implementation Conformance Statement (PICS) for the IEC 61850 Ed.2 Client Interface UC 500, AS16001823, Rev. 01, July - 2017", "Model Implementation Conformance Statement (MICS) for the IEC 61850 Ed.2 Client Interface UC 500, AS17001025, Rev. 00, July - 2017" and "TISSUES Implementation Conformance Statement (TICS) for the IEC 61850 Ed.2 Client Interface UC 500, AS17001026, Rev. 00, July - 2017" and the extra information for testing: "Protocol Implementation eXtra Information for Testing (PIXIT) the IEC 61850 Ed.2 Client Interface UC 500, AS17001027, Rev. 00, July - 2017".

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 (19/24)		12a	Direct Control (4/9)
2	Data Sets (4/10)		12b	SBO Control (5/11)
4	Setting Group Selection (2/3)		12c	Enhanced Direct Control (4/9)
4+	Setting Group Definition (4/5)		12d	Enhanced SBO Control (5/11)
5	Unbuffered Reporting (17/23)		13	Time Synchronization (3/4)
6	Buffered Reporting (22/28)			

This certificate includes a summary of the test results as carried out at Efacec in Portugal with UniCA 61850 IED simulator 5.00.33.41 and UniCA 61850 Analyzer 5.31.00. This document has been issued for information purposes only, and the original paper copy of the DNV GL verification report No. 84000155-OPE/INC 17-2421 will prevail.

The test has been carried out on one single specimen of the product as referred above and submitted to DNV GL by Efacec. 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, July 20, 2017

P. Cioci
Business Director
Intelligent Networks and Communication

Issued by:

DNV·GL

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

Applicable Test Procedures from the UCA International Users Group Edition 2 Client Conformance Test Procedures version 1.0 with TPCL 1.0_rev3

Conformance Block	Mandatory	Conditional
1: Basic Exchange	cAss1, cAss2, cAss3, cAssN1, cAssN4, cAssN5, cAssN6	cAssN7, cSrv5, cSrv6, cSrv7, cSrv8, cSrv9, cSrv10, cSrvN2, cSrvN3, cSrvN4, cSrvN5, cSrvN6
2: Data Sets		cDs2, cDs5, cDs6, cDsN1b
4: Setting Group	cSg2, cSgN1	
4+: Setting Group Definition	cSg11, cSg14	cSg10, cSg12
5: Unbuffered Reporting	cRp3, cRp4, cRp5, cRp8, cRp9, cRp10, cRp11, cRp13a, cRp14, cRp15, cRpN2, cRpN5, cRpN6	cRp2, cRp7, cRp16, cRp18
6: Buffered Reporting	cBr3, cBr4, cBr5, cBr8, cBr9, cBr10, cBr11, cBr13a, cBr14, cBr15, cBr30, cBr31, cBrN2, cBrN5, cBrN6, cBrN20	cBr2, cBr7, cBr16, cBr18, cBr32, cBr33
12a: Direct Control	cCtl4, cCtl5, cDOns1, cDOns2	
12b: SBO Control	cCtl4, cCtl5, cSBOns1, cSBOns2, cSBOns3	
12c: Enhanced Direct Control	cCtl4, cCtl5, cDOes1, cDOes2	
12d: Enhanced SBO Control	cCtl4, cCtl5, cSBOes1, cSBOes2, cSBOes3	
13: Time Synchronization	cTm1, cTmN1	cTm2