![UCA International Users Group logo]

IEC 61850 Certificate Level A[1]

No. 84000079-OPE/INC 16-2376

Issued to:

iGrid T&D
Barcelona Advanced Industry Park,
C. Marie Curie, 8-14
08042 Barcelona
Spain

For the client system:

iGComms Substation Automation Server
Application software version: 2.104.0
IEC 61850 software version: 3.21.0
Hardware: ASUS A53E-SX1121V with Microsoft
Windows 10 Home

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 with product's protocol, model and technical issue implementation conformance statements: "Protocol Implementation Conformance Statement for the IEC 61850 interface in iGComms 2.104.0, 3 October 2016, version 2.0", "Model Implementation Conformance Statement for the IEC 61850 Client Interface in iGComms 2.104.0, 3 October 2016, version 2.0" and "TISSUES Implementation Conformance Statement for the IEC 61850 Edition 2 Server Interface in iGComms 2.104.0, 3 October 2016 version 2.0" and the extra information for testing: "Protocol Implementation eXtra Information for Testing (PIXIT) for the IEC 61850 Client Interface in iGComms 2.104.0, 3 October 2016, version 2.0".

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 (22/24)		12a	Direct Control (6/9)
2	Data Sets (6/10)		12b	SBO Control (7/11)
3	Substitution (3/3)		12c	Enhanced Direct Control (6/9)
4	Setting Group Selection (3/3)		12d	Enhanced SBO Control (7/11)
4+	Setting Group Definition (4/5)		13	Time Synchronization (3/4)
5	Unbuffered Reporting (19/23)		14	File Transfer (5/8)
6	Buffered Reporting (23/28)			

This certificate includes a summary of the test results as carried out at DNV GL in Spain with UniCA 61850 IED simulator 5.31.00 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. 84000079-OPE/INC 16-2375 will prevail.

The test has been carried out on one single specimen of the product as referred above and submitted to DNV GL by iGrid T&D. 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, October 4, 2016

P. Cioci
Global Service Line Leader
Operational Excellence of Power
Systems

Issued by:

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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

Conformance Block	Mandatory	Conditional
1: Basic Exchange	cAss1, cAss2, cAss3, cAssN1, cAssN4, cAssN5, cAssN6	cAssN7, cSrv1, cSrv2, cSrv3, cSrv4, cSrv5, cSrv6, cSrv7, cSrv9, cSrv10, cSrvN1, cSrvN3, cSrvN4, cSrvN5, cSrvN6
2: Data Sets		cDs1, cDs2, cDs5, cDs6, cDsN1a, cDsN1b
3: Substitution	cSub1	cSub2, cSub3
4: Setting Group	cSg2, cSgN1	cSg1
4+: Setting Group Definition	cSg11, cSg14	cSg10, cSg12
5: Unbuffered Reporting	cRp3, cRp4, cRp5, cRp8, cRp9, cRp10, cRp11, cRp13a, cRp14, cRp15, cRpN2, cRpN5, cRpN6	cRp1, cRp2, cRp7, cRp16, cRp18, cRpN1
6: Buffered Reporting	cBr3, cBr4, cBr5, cBr8, cBr9, cBr10, cBr11, cBr13a, cBr14, cBr15, cBr30, cBr31, cBrN2, cBrN5, cBrN6, cBrN20	cBr1, cBr2, cBr7, cBr16, cBr18, cBr33, cBrN1
12a: Direct Control	cCtl4, cCtl5, cDOns1, cDOns2	cCtl1, cCtl2
12b: SBO Control	cCtl4, cCtl5, cSBOns1, cSBOns2, cSBOns3	cCtl1, cCtl2
12c: Enhanced Direct Control	cCtl4, cCtl5, cDOes1, cDOes2	cCtl1, cCtl2
12d: Enhanced SBO Control	cCtl4, cCtl5, cSBOes1, cSBOes2, cSBOes3	cCtl1, cCtl2
13: Time Synchronization	cTm1, cTmN1	cTm2
14: File Transfer	cFt1, cFt3, cFtN1	cFt2, cFtN2