IEC 61850 Certificate Level A[1]

Issued to:

Dowoo Digitech
537, Dunchon-daero, Jungwon-gu, Seongnam-si, Gyeonggi-do, Korea

For the client system:

DOWOO IEC61850 Client
Software:v1.0
Hardware: HP Z820 Workstation with Windows 7

Issued by: **KOREA TESTING LABORATORY**

The client system has not shown to be non-conforming to:

IEC 61850 First Edition Parts 6, 7-1, 7-2, 7-3, 7-4 and 8-1
Communication networks and systems in substations

The conformance test has been performed according to IEC 61850-10 and UCA IUG Conformance Test Procedures for Client System with IEC 61850-8-1 interface, revision 1.1 with TPCL[2] version 1.2.2 with client system's protocol, model and technical issue implementation conformance statements: "Dowoo-IEC61850-Client-PICS-V1.0", "Dowoo-IEC61850-Client-MICS-V1.0", "Dowoo-IEC61850-Client-TICS-V1.0" and product's extra information for testing: "Dowoo-IEC61850-Client-PIXIT-V1.0".

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 (21/22)		12a	Direct Control (6/7)	
2	Data Sets (7/9)		12b	SBO Control (8/9)	
2+	Data Set Definition (4/4)		12c	Enhanced Direct Control (6/7)	
4	Setting Group Selection (4/4)		12d	Enhanced SBO Control (8/9)	
4+	Setting Group Definition (2/2)		13	Time Synchronization (3/4)	
5	Unbuffered Reporting (16/18)		14	File Transfer (5/8)	
6	Buffered Reporting (20/22)				

This certificate includes a summary of the test results as carried out at KTL in the Republic of Korea with IEC 61850 Virtual Server with test suite IEC 61850 Client Conformance Verifier1.0 and KEPCO ANALYZER 1.0. This document has been issued for information purposes only, and the original paper copy of KTL report: No. 14-044345-01 will prevail.

The test has been carried out on one single specimen of the client system as referred above and submitted to KTL by Dowoo Digitech. The manufacturer's production process has not been assessed. This attestation does not imply that KTL has approved any product other than the specimen tested.

Seoul, Oct. 06, 2014

DONGJIN KIM
Test Engineer

Seogjin KIM
Director of Digital Convergence Technology Center

1 Level A - Independent Test lab with accredited ISO/IEC 17025 Quality System
2 TPCL – test procedure change list

Applicable Test Procedures from the UCA IUG Conformance Test Procedures for Client System with IEC 61850-8-1 interface, revision 1.1 with TPCL version 1.2.2

Conformance Block	Mandatory	Conditional
1: Basic Exchange	cAss1, cAss2, cAss3, cAss4, cAssN1, cAssN4, cAssN5, cAssN6	cAssN7 cSrv1, cSrv2, cSrv3, cSrv4, cSrv5, cSrv6, cSrv7, cSrvN1, cSrvN3, cSrvN4, cSrvN5, cSrvN6
2: Data Sets		cDs1, cDs2, cDs3, cDs5, cDsN1a, cDsN1b, cDsN2
2+: Data Set Definition	cDs6, cDsN4	cDs7, cDsN5
4 Setting Group Selection	cSg2, cSgN1	cSg1, cSg3
4+ Setting Group Definition	cSg3, cSg4	
5: Unbuffered Reporting	cRp3, cRp4, cRp5, cRp8, cRp9, cRp10, cRpN2, cRpN3, cRpN7, cRpN8	cRp1, cRp2, cRp6, cRp7, cRpN1, cRpN4
6: Buffered Reporting	cBr3, cBr4, cBr5, cBr8, cBr9, cBr10, cBr11, cBr12, cBrN2, cBrN3, cBrN7, cBrN8, cBrN9	cBr1, cBr2, cBrN1 cBr6, cBr7, cBr13, cBrN4
12a: Direct control	cCtl4, cCtlN1 cDOns1, cDOns2	cCtl1, cCtl2
12b: SBO control	cCtl4, cCtlN1 cSBOns1, cSBOns2, cSBOns3	cCtl1, cCtl2 cSBOns4
12c: Enhanced Direct Control	cCtl4, cCtlN1 cDOes1, cDOes2	cCtl1, cCtl2
12d: Enhanced SBO control	cCtl4, cCtlN1, cSBOes1, cSBOes2, cSBOes3	cCtl1, cCtl2 cSBOes4
13: Time sync	cTm1	cTm2, cTmN1
14: File transfer	cFt1, cFt2, cFt3, cFtN1, cFtN2	