

# IEC 61850 Certificate Level A<sup>1</sup>

Issued to:  
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For the client product:  
Substation Automation Information Connecting Device  
LK\_SAICD  
Software Version 1.0  
HW : ADVANTECH ECU-4784  
OS : Windows Server 2016  
S/N : LKSA-ICD-2010001

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 version 1.2.3 with client system's protocol, model and technical issue implementation conformance statements: "LK11\_LK\_SAICD\_PICS\_v1.0", "LK11\_LK\_SAICD\_MICS\_v1.0", "LK11\_LK\_SAICD\_TICS\_v1.0" and the extra information for testing: "LK11\_LK\_SAICD\_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 (20/22)        | 12a | Direct Control (7/7)          |
| 2  | Data Sets (5/9)               | 12b | SBO Control (9/9)             |
| 2+ | Data Set Definition (6/6)     | 12c | Enhanced Direct Control (7/7) |
| 4  | Setting Group Selection (2/4) | 12d | Enhanced SBO Control (9/9)    |
| 5  | Unbuffered Reporting (16/18)  | 13  | Time Synchronization (4/4)    |
| 6  | Buffered Reporting (20/22)    | 14  | File Transfer (5/8)           |

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. TR-20-075828-02-5 will prevail.

Seoul, Sep. 15, 2021

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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 1.2.3

| Conformance Block            | Mandatory  | Conditional  |
|------------------------------|--|--|
| 1: Basic Exchange            | cAss1, cAss2, cAss3, cAss4,<br>cAssN1, cAssN4, cAssN5, cAssN6                              | cAssN7, cSrv1, cSrv2, cSrv3,<br>cSrv4, cSrv5, cSrv6, cSrvN1,<br>cSrvN3, cSrvN4, cSrvN5, cSrvN6 |
| 2: Data Sets                 |  | cDs1, cDs2, cDs5, cDsN1a,<br>cDsN1b  |
| 2+: Data Set Definition      | cDsN4  | cDs6a, cDs6b, cDs7a, cDs7b,<br>cDsN5   |
| 4: Setting Group Selection   | cSg2, cSgN1  |  |
| 5: Unbuffered Reporting      | cRp3, cRp4, cRp5, cRp8, cRp9,<br>cRp10, cRpN2, cRpN3, cRpN7,<br>cRpN8                      | cRp1, cRp2, cRp6, cRp7, cRpN1,<br>cRpN4  |
| 6: Buffered Reporting        | cBr3, cBr4, cBr5, cBr8, cBr9,<br>cBr10, cBr11, cBr12, cBrN2,<br>cBrN3, cBrN7, cBrN8, cBrN9 | cBr1, cBr2, cBr6, cBr7, cBr13,<br>cBrN1, cBrN4   |
| 12a: Direct control          | cCtl4, cCtlN1<br>cDOns1, cDOns2  | cCtl1, cCtl2, cCtl3  |
| 12b: SBO control             | cCtl4, cCtlN1<br>cSBOns1, cSBOns2, cSBOns3   | cCtl1, cCtl2, cCtl3,<br>cSBOns4  |
| 12c: Enhanced Direct Control | cCtl4, cCtlN1<br>cDOes1, cDOes2  | cCtl1, cCtl2, cCtl3  |
| 12d: Enhanced SBO control    | cCtl4, cCtlN1,<br>cSBOes1, cSBOes2, cSBOes3  | cCtl1, cCtl2, cCtl3,<br>cSBOes4  |
| 13: Time sync                | cTm1   | cTm2, cTmN1, cTmN2   |
| 14: File transfer            | cFt1, cFt2, cFt3, cFtN1, cFtN2   |  |