

IEC 61850 Certificate Level A¹

Issued to:

LS Cable & System Ltd.
13th-17th Fl. LS Tower, 127 LS-ro,
Dongan-gu, Anyang-si,
Gyeonggi-do, Republic of Korea

For the server product:

Superconductivity IED
Model Name : ZEN-LS001
Software Version 1.0
HW : Alderamin Pico MK4, WIPC07003400
OS : GNU/Linux armv71 ver.4.1.18
S/N : Z230901-01

Issued by: **Korea Testing Laboratory**

**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 2.0.6 with product's protocol, model and technical issue implementation conformance statements: "PICS for the IEC 61850 interface in Superconductivity IED v1.0", "MICS for the IEC 61850 interface in Superconductivity IED v1.0", "TICS for the IEC 61850 interface in Superconductivity IED v1.0" and the extra information for testing: "PIXIT for the IEC 61850 interface in Superconductivity IED 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):

1	Basic Exchange (23/26)	12a	Direct Control (5/19)
2	Data Sets (4/7)	12d	Enhanced SBO Control (11/29)
5	Unbuffered Reporting (19/23)	13	Time Sync (4/7)
6	Buffered Reporting (27/33)	14	File Transfer (5/8)

This Certificate includes a summary of the test results as carried out at Korea Testing Laboratory in Republic of Korea with IEC 61850 Ed2 KTL Testing Tool 1.0 with test suite IEC 61850 Ed2 Server Conformance Test V.1.0 and IEC 61850 Ed2 KTL Trace Manager V.1.0. This document has been issued for information purposes only, and the original paper copy of the KTL report: No. TR-23-021355-01-1 will prevail.

The test has been carried out on one single specimen of the product as referred above and submitted to KTL by LS Cable & System Ltd. The manufacturer's production process has not been assessed. This certificate does not imply that KTL has certified or approved any product other than the specimen tested.

Seoul, Jul. 12, 2023

A. Han

Ah Han
Principal Engineer
IT Convergence Technology Center



HyunWoo Lee
Engineer
IT Convergence Technology Center

1 Level A - Independent Test lab with accredited ISO/IEC 17025 Quality System

Applicable Test Procedures from the UCA International Users Group Edition 2 Server Device Test Procedures version 2.0.6

Conformance Block	Mandatory	Conditional
1: Basic Exchange	sAss1, sAss2, sAss3, sAss4, sAssN2, sAssN3, sAssN4, sAssN5, sSrv1, sSrv2, sSrv3, sSrv4, sSrv5, sSrv8, sSrvN1abcd, sSrvN4	sAssN6, sSrv6, sSrv9, sSrv10, sSrvN1e, sSrvN2, sSrvN3
2: Data Sets	sDs1, sDs10a, sDsN1ae	sDs15
5: Unbuffered Reporting	sRp1, sRp2, sRp3, sRp4, sRp5, sRp9, sRp14, sRp16, sRpN1, sRpN2, sRpN3, sRpN4, sRpN8	sRp8, sRp10, sRp11, sRp12, sRp15, sRpN5
6: Buffered Reporting	sBr1, sBr2, sBr3, sBr4, sBr5, sBr9, sBr14, sBr16, sBr20, sBr21, sBr22, sBr25, sBr26, sBr27, sBr28, sBr29, sBrN1, sBrN2, sBrN3, sBrN4, sBrN5, sBrN8	sBr8, sBr10, sBr11, sBr12, sBr15
12a: Direct Control	sCtl5a, sCtl10a, sDOns1, sDOns2	sCtl2a
12d: Enhanced SBO Control	sCtl5d, sCtl8d, sCtl9d, sCtl10d, sCtl11d, sCtl25d, sSBOes1, sSBOes2, sSBOes6, sSBOes8	sCtl2d
13: Time Sync	sTm1, sTm2, sTmN1	sTmN2
14: File Transfer	sFt1, sFt2ab, sFt4, sFt5, sFtN1ab	