

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

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No. 23-066318-01-1

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 client system:  
Superconductivity Gateway  
ZEN-LS002  
Software Version 1.0  
HW : HP Z2 Tower G5 Workstation  
OS : Windows Server 2019 Standard  
S/N : Z230901-02

Issued by: **KOREA TESTING LABORATORY**

**The CLIENT 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 in power utility automation**

The conformance test has been performed according to IEC 61850-10 Edition 2, the UCA International Users Group Edition 2 Client Test Procedures version 1.2 with product's protocol, model and technical issue implementation conformance statements: "LS Cable&System\_ZEN-LS002\_PICS\_v.1", "LS Cable&System\_ZEN-LS002\_MICS\_v.1", "LS Cable&System\_ZEN-LS002\_TICS\_v.1" and product's extra information for testing: "LS Cable&System\_ZEN-LS002\_PIXIT\_v.1".

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)	12b	SBO Control (9/11)
2	Data Sets (6/10)	12c	Enhanced Direct Control (7/9)
5	Unbuffered Reporting (21/24)	12d	Enhanced SBO Control (9/11)
6	Buffered Reporting (25/28)	13	Time Sync (4/4)
12a	Direct Control (7/9)	14	File Transfer (5/8)

This certificate includes a summary of the test results as carried out at Seoul in the Republic of Korea with IEC 61850 Ed2 Virtual Server version 1 with test suite IEC 61850 Ed2 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-23-066318-01-1 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, Oct. 25, 2023

*A. Han*

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Principal Engineer  
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Assistant Research Engineer  
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1 Level A - Independent Test lab with accredited ISO/IEC 17025 Quality System

Applicable Test Procedures from the UCA International Users Group Edition 2 Client Test Procedures version 1.2

Conformance Block	Mandatory	Conditional
1: Basic Exchange	cAss1, cAss2, cAss3, cAssN1, cAssN4, cAssN5, cAssN6	cAssN7, cSrv1, cSrv2, cSrv3, cSrv4, cSrv5, cSrv6, cSrv7, cSrv8, cSrvN1, cSrvN2, cSrvN3, cSrvN4, cSrvN5, cSrvN6
2: Data Sets		cDs1, cDs2, cDs5, cDs6, cDsN1a, cDsN1b
5: Unbuffered Reporting	cRp3, cRp4, cRp5, cRp8, cRp9, cRp10, cRp11, cRp13a, cRp14, cRp15, cRp19, cRpN2, cRpN5, cRpN6	cRp1, cRp2, cRp6, cRp7, cRp16, cRp17, cRpN1
6: Buffered Reporting	cBr3, cBr4, cBr5, cBr8, cBr9, cBr10, cBr11, cBr13a, cBr14, cBr15, cBr19, cBr30, cBr31, cBrN2, cBrN5, cBrN6	cBr1, cBr2, cBr6, cBr7, cBr12, cBr16, cBr17, cBr32, cBr33, cBrN1
12a: Direct Control	cCtl4a, cCtl5a, cDOs1, cDOs2	cCtl1a, cCtl2a, cCtl3a
12b: SBO Control	cCtl4b, cCtl5b, cSBOs1, cSBOs2, cSBOs3	cCtl1b, cCtl2b, cCtl3b, cSBOs4
12c: Enhanced Direct Control	cCtl4c, cCtl5c, cDOes1, cDOes2	cCtl1c, cCtl2c, cCtl3c
12d: Enhanced SBO Control	cCtl4d, cCtl5d, cSBOes1, cSBOes2, cSBOes3	cCtl1d, cCtl2d, cCtl3d, cSBOes4
13: Time Sync	cTm1, cTmN1	cTm2, cTmN2
14: File Transfer	cFt1, cFt3, cFtN1	cFt2, cFtN2