

IEC 61850 Certificate Level A¹

No. 23TC200993

Issued to:

DAEWOONG ELECTRIC Co, Ltd.
Hwanggeumro 127beon-gil 10, Yangchon-eup,
Gimpo-si, Gyeonggi-do, 10048,
Republic of Korea

For the server product:

PROTECTION IED
SPiN-IMCU
Hardware version: 1.00
Software version: 2.00
S/N: DWE-SNIMCU2301

Issued by:

Korea Electrotechnology Research Institute
111, Hanggaul-ro, Sangrok-gu, Ansan-si, Gyeonggi-do, 15588, Republic of Korea

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: "Protocol Implementation Conformance Statement for the IEC 61850 interface in <<SPiN-IMCU_PICS v.1.0>>", "Model Implementation Conformance Statement for the IEC 61850 interface in <<SPiN-IMCU_MICS v.1.0>>", "TISSUES Implementation Conformance Statement for the IEC 61850 interface in <<SPiN-IMCU_TICS v.1.0>>" and product's extra information for testing: "Protocol Implementation eXtra Information for Testing for the IEC 61850 interface in <<SPiN-IMCUD_PIXIT v.1.0>>".

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) | 9a | GOOSE Publish (10/13) |
| 2 | Data Sets (4/7) | 9b | GOOSE Subscribe (21/21) |
| 2+ | Data Set Definition (24/24) | 12a | Direct Control (8/19) |
| 4 | Setting Group Selection (4/4) | 12d | Enhanced SBO Control (16/29) |
| 5 | Unbuffered Reporting (22/23) | 13 | Time Synchronization (4/7) |
| 6 | Buffered Reporting (32/33) | 14 | File Transfer (5/8) |
| | | 15 | Service Tracking (6/17) |

This certificate includes a summary of the test results as carried out at KERI in Republic of Korea with UniGrid v.2.2.1 with test suite Ed2_Server_TP2.0.5_AmdTP1.1_v220 and UniCA Analyzer v.6.41.00. This document has been issued for information purposes only, and the original paper copy of the KERI report: No. 23TC200993 will prevail.

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

Republic of Korea, December 14, 2023



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¹ Level A - Independent Test lab with certified ISO/IEC 17025 Quality System
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Applicable Test Procedures from the UCA International Users Group Edition 2 Server 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, sSrvN1abcdf, sSrvN4 | sAssN6, sSrv6, sSrv12, sSrv13, sSrvN1e, sSrvN2, sSrvN3 |
| 2: Data Sets | sDs1, sDs10a, sDsN1ae | sDs15 |
| 2+: Data Set Definition | sDs2, sDs3, sDs4, sDs5, sDs6, sDs7, sDs8, sDs9, sDs13, sDs14, sDsN1cd, sDsN2, sDsN3, sDsN4, sDsN5, sDsN6, sDsN7, sDsN8, sDsN9, sDsN10 | sDs11, sDs12, sDsN11, sDsN12 |
| 4: Setting Group Selection | sSg1, sSg3, sSgN1 | sSg11 |
| 5: Unbuffered Reporting | sRp1, sRp2, sRp3, sRp4, sRp5, sRp9, sRp14, sRp16, sRpN1, sRpN2, sRpN3, sRpN4, sRpN8 | sRp6, sRp7, sRp8, sRp10, sRp11, sRp12, sRp13, 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 | sBr6, sBr7, sBr8, sBr10, sBr11, sBr12, sBr13, sBr15, sBr23, sBr24 |
| 9a: GOOSE publish | sGop2a, sGop3, sGop4, sGop9, sGop10, sGop11, sGop12 | sGop1, sGop2b, sGop5 |
| 9b: GOOSE subscribe | sGos1, sGos2, sGos3, sGos5, sGos6a, sGos7, sGos8, sGos9, sGos10, sGos11, sGos12, sGos23, sGosN1, sGosN2, sGosN3, sGosN4, sGosN5, sGosN6 | sGos4, sGos6b, sGos13 |
| 12a Direct control | sCtl5, sCtl10, sDOns1, sDOns2 | sCtl7, sCtl13, sCtl15, sCtl16 |
| 12d Enhanced SBO control | sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOes1, sSBOes2, sSBOes6, sSBOes8 | sCtl4, sCtl7, sCtl15, sCtl16, sCtl20, sCtl26 |
| 13 Time sync | sTm1, sTm2, sTmN1 | sTmN2 |
| 14 File transfer | sFt1, sFt2ab, sFt4, sFt5, sFtN1ab | |
| 15 Service tracking | | sTrk1, sTrk2, sTrk8, sTrk9, sTrk10, sTrk11 |

