

IEC 61850 Certificate Level A¹

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No. 23-039257-01-1

Issued to:
PNC Technologies Co., Ltd.
62, Jeonpa-ro 104beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14042,
Republic of Korea

For the server product:
FTU-R200i
Software Version : 6.0.2
HW : FTU-R200i
OS : SYS/BIOS 6.42.1.20 (Ti)
S/N : FTU-R200i-2306-0001

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: "PNCTech_FTU-R200i_PICS_v.1", "PNCTech_FTU-R200i_MICS_v.1", "PNCTech_FTU-R200i_TICS_v.1" and the extra information for testing: "PNCTech_FTU-R200i_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):

| | | | |
|----|----------------------------------|-----|---------------------------------|
| 1 | Basic Exchange (26/26) | 9a | GOOSE Publish (12/13) |
| 2 | Data Sets (4/7) | 9b | GOOSE Subscribe (19/20) |
| 2+ | Data Set Definition (24/24) | 12a | Direct Control (9/19) |
| 3 | Substitution (3/3) | 12b | SBO Control (16/28) |
| 4 | Setting Group Selection (4/4) | 12c | Enhanced Direct Control (10/21) |
| 4+ | Setting Group Definition (12/13) | 12d | Enhanced SBO Control (16/29) |
| 5 | Unbuffered Reporting (22/23) | 13 | Time Sync (4/7) |
| 6 | Buffered Reporting (30/33) | 14 | File Transfer (7/8) |

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-23-039257-01-1 will prevail.

The test has been carried out on one single specimen of the product as referred above and submitted to KTL by PNC Technologies Co.,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, July 11, 2023

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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 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, sSrv11, 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 |
| 3: Substitution | sSub1, sSub2, sSub3 | |
| 4: Setting Group Selection | sSg1, sSg3, sSgN1 | sSg11 |
| 4+: Setting Group Definition | sSg2, sSg4, sSg6, sSg7, sSg8, sSg10, sSg12, sSgN2, sSgN3, sSgN4, sSgN5 | sSg9 |
| 5: Unbuffered Reporting | sRp1, sRp2, sRp3, sRp4, sRp5, sRp9, sRp14, sRp16, sRpN1, sRpN2, sRpN3, sRpN4, sRpN8 | sRp6, sRp7, sRp8, sRp10, sRp11, sRp12, sRp15, sRp17, 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, sBr15, sBr17 |
| 9a: GOOSE Publish | sGop2a, sGop3, sGop4, sGop9, sGop10, sGop11, sGop12 | sGop1, sGop2b, sGop6, sGopN1, sGopN2 |
| 9b: GOOSE Subscribe | sGos1, sGos2, sGos3, sGos5, sGos6a, sGos7, sGos8, sGos9, sGos10, sGos11, sGos12, sGos23, sGosN1, sGosN2, sGosN3, sGosN4, sGosN5, sGosN6 | sGos4 |
| 12a: Direct Control | sCtl5a, sCtl10a, sDOs1, sDOs2 | sCtl2a, sCtl7a, sCtl13a, sCtl15a, sCtl16a |
| 12b: SBO Control | sCtl5b, sCtl8b, sCtl9b, sCtl10b, sCtl11b, sCtl25b, sSBOs1, sSBOs2, sSBOs6 | sCtl2b, sCtl4b, sCtl6b, sCtl7b, sCtl15b, sCtl16b, sCtl27b |
| 12c: Enhanced Direct Control | sCtl5c, sCtl10c, sDOes1, sDOes2 | sCtl2c, sCtl7c, sCtl13c, sCtl14c, sCtl15c, sCtl16c |
| 12d: Enhanced SBO Control | sCtl5d, sCtl8d, sCtl9d, sCtl10d, sCtl11d, sCtl25d, sSBOes1, sSBOes2, sSBOes6, sSBOes8 | sCtl2d, sCtl4d, sCtl6d, sCtl7d, sCtl15d, sCtl16d |
| 13: Time Sync | sTm1, sTm2, sTmN1 | sTmN2 |
| 14: File Transfer | sFt1, sFt2ab, sFt4, sFt5, sFtN1ab | sFt2c, sFtN1c |