# IEC 61850 Certificate Level B[1]

No. 50745.6841.803

**Issued to:**

GE Renewable Energy Ltd.
St. Leonards Building, Harry Kerr Drive
Stafford, ST16 1WT
United Kingdom

**For the server product:**

GE MiCOM Agile
P841 Multifunction Line Terminal IED
Software version: AAN
Hardware version: Q
S/N: 860460X

**Issued by:**

Grid Automation Laboratories, UK Grid Solutions Limited

## 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 (PICS) for the IEC 61850 Edition 2 server interface in MiCOM P40 Agile Px4x PICS Px4x-PC2-EN-J", "Model Implementation Conformance Statement (MICS) for the IEC 61850 Edition 2 server interface in MiCOM P40 Agile P841B MICS P841B-MC2-EN-AA-1", "Technical Issues Conformance Statement (TICS) for the IEC 61850 Edition 2 server interface in MiCOM P40 Agile P841A, P841B TICS P84-TC2-EN-1" and extra information for testing "Protocol Implementation eXtra Information for Testing (PIXIT) for the IEC 61850 Edition 2 server interface in MiCOM P40 Agile P841A, P841B PIXIT : P84-PX2-EN-2".

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 (24/26) | 12a | Direct Control (8/18) |
| 2 | Data Sets (4/7) | 12b | SBO Control (14/27) |
| 4 | Setting Group Selection (4/4) | 12c | Enhanced Direct Control (10/20) |
| 5 | Unbuffered Reporting (21/23) | 12d | Enhanced SBO Control (15/28) |
| 6 | Buffered Reporting (31/33) | 13 | Time Synchronization (4/7) |
| 9a | GOOSE Publish (12/13) | 14 | File Transfer (7/8) |
| 9b | GOOSE Subscribe (21/21) | | |

This certificate includes a summary of the test results as carried out at Stafford, United Kingdom with UniGrid SA version 2.2.1 with test suite Ed2_Server_TP2.0.6_AmdTP1.2_v2.2.1 and UniCA 61850 Analyzer version 6.40.05. This document has been issued for information purposes only, and the original paper copy of the Grid Automation Laboratories report: No. 50745.6841.303 will prevail.

The tests have been carried out on one single specimen of the product as referred and submitted to Grid Automation Laboratories by GE Renewable Energy Ltd.. The manufacturer's production process has not been assessed. This certificate does not imply that Grid Automation Laboratories at UK Grid Solutions Limited has certified or approved any other product other than the specimen tested.

Stafford, 12th January 2024

Allen Millard
**Grid Automation Laboratories Manager**

Hector Zhang
**Grid Automation Laboratories Test Engineer**

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Grid Automation Laboratories, UK Grid Solutions Limited, St. Leonards Building, Redhill Business Park, Stafford, ST16 1WT, United Kingdom, + 44 (0) 1785 236 808

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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, SrvN1abcdf, sSrvN4 | sAssN6, sSrv6, sSrv9, sSrv10, sSrv12, sSrv13, sSrvN1e, sSrvN3 |
| 2: Data Sets | sDs1, sDs10a, sDsN1ae | sDs15 |
| 4: Setting Group Selection | sSg1, sSg3, sSgN1 | sSg11 |
| 5: Unbuffered Reporting | sRp1, sRp2, sRp3, sRp4, sRp5, sRp9, sRp14, sRp16, sRpN1, sRpN2, sRpN3, sRpN4, sRpN8 | sRp8, sRp10, sRp11, sRp12, sRp13, sRp15, sRp17, RpN5 |
| 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, sBr13, sBr15, sBr17, sBr23, sBr24 |
| 9a: GOOSE publish | sGop2a, sGop3, sGop4, sGop9, sGop10, sGop11, sGop12 | sGop1, sGop5, 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, sGos6b, sGos13 |
| 12a: Direct control | sCtl5, sCtl10, sDOns1, sDOns2 | sCtl7, sCtl13, sCtl15, sCtl16 |
| 12b: SBO control | sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOns1, sSBOns2, sSBOns6 | sCtl6, sCtl7, sCtl15, sCtl16, sCtl27 |
| 12c: Enhanced Direct Control | sCtl5, sCtl10, sDOes1, sDOes2 | sCtl7, sCtl13, sCtl14, sCtl15, sCtl16, sCtl26 |
| 12d: Enhanced SBO control | sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOes1, sSBOes2, sSBOes6, sSBOes8 | sCtl6, sCtl7, sCtl15, sCtl16, sCtl26 |
| 13: Time sync | sTm1, sTm2, sTmN1 | sTm3 |
| 14: File transfer | sFt1, sFt2ab, sFt4, sFt5, sFtN1ab | sFt2c, sFtN1c |

All configuration file and data model tests have been succsessfully performed for the product variants using the same communication hardware and software version:
P443, P446, P543 and P546.