# **A green and blue circles with white outline on it Description automatically generated**Annex H Server Certificate Template

|  |  |  |
| --- | --- | --- |
| **IEC 61850 Certificate Level A/B1** | | No. << certificate number>> |
| Issued to: | For the server product: | |
| <TEST INITIATOR>  <FULL ADDRESS> | <PRODUCT ID and NAME>  <IEC 61850 software/firmware version: <VERSION>> [Hardware version: xxxxx and/or  S/N: xxxx, yyyy(in case of multiple samples)]  [SV publish: F4000S1I4U4, F4800S2I12U4, etc.]  [SV subscribe: F4800S1I4U4, F4800S2I4U4, etc]  [Tested as Virtual IED] | |

Issued by: <<test lab>>

**The server product has not been shown to be non-conforming to:**

IEC 61850 Edition 2 with Amendment 1 Parts 6, 7-1, 7-2, 7-3, 7-4, 8-1 [, 9-2

and IEC 61869 First Edition Part 9], [and IEC 61850 Edition 2 Part 7-420]

**Communication networks and systems for power utility automation**

The conformance test has been performed according to IEC 61850-10, name space definition 7-4:2007B5 [and 7-420:2019A4], the UCA International Users Group Edition 2 with Amendment 1 Server Test Procedures version 1.3 (“UCATestProcedureServer61850-8-1Ed2Amd1\_Rev1p3.pdf”) with product’s protocol, model and tissues implementation conformance statements: “<<PICS>>”, “<<MICS>>, <<TICS>>” and product’s extra information for testing: “<<PIXIT>>”.

The following IEC 61850 conformance blocks have been tested with a positive result (number of relevant and executed test cases / total number of test):

|  |  |
| --- | --- |
| 1a Basic Exchange (../31)  1b Associate with IPv6 (../12)  2 Data Sets (../7)  2+ Data Set Definition (../24)  3 Substitution (../3)  4 Setting Group Selection (../5)  4+ Setting Group Definition (../14)  5 Unbuffered Reporting (../26)  6 Buffered Reporting (../36)  7 Logging (../14)  9a GOOSE Publish (../14)  9b GOOSE Subscribe (../29) | 9c GOOSE management (…/3)  11a SV publish (../22)  11b SV subscribe (../24)  12a Direct Control (../19)  12b SBO Control (../29)  12c Enhanced Direct Control (../21)  12d Enhanced SBO Control (../29)  13a Time Synchronization with SNTP(../8)  13b Time Synchronization with PTP (../4)  14 File Transfer (../8)  15 Service Tracking (../19) |

This certificate includes a summary of the test results as carried out at <<CITY>> in <<COUNTRY>> with <<CLIENT SIMULATOR> <<VERSION>> with test suite <<VERSION>> and <<ANALYZER>> <<VERSION>>. This document has been issued for information purposes only, and the original [paper/archived] copy of the <<TESTLAB>> report: No. <<TESTREPORT NUMBER>> will prevail.

The test has been carried out on the specimen[s] of the product as referred above and submitted to <<TESTLAB>> by <<TEST INITIATOR>>. The manufacturer’s production process has not been assessed. This certificate does not imply that <<TESTLAB>> has certified or approved any product other than the specimen tested.

<<CITY>>, <<DATE>>

<<Manager NAME>> <<Tester NAME>>

<<JOB TITLE>> <<JOB TITLE>>

UCA International Users Group P.O. Box 315, Shell Knob, Mo 65747 USA

1 Level A - Independent Test lab with certified [ISO 9001] [ISO/IEC 17025] Quality System

Level B - Test lab [at least following ISO 9001] [with certified ISO 9001] [with certified ISO/IEC 17025]

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Applicable Server Test Procedures from the UCA International Users

Group Edition 2 Amendment 1 Server Test Procedures version 1.3

| **Conformance Block** | **Mandatory** | **Conditional** |
| --- | --- | --- |
| 1a: Basic Exchange | sAss1, sAss2, sAss3, sAss4, sAssN2, sAssN3, sAssN4, sAssN5, sSrv1, sSrv2, sSrv3, sSrv4, sSrv5, sSrv6, sSrv8, sSrvN1abcdf, sSrvN4 | sAss5, sAssN6, sAssN7, sSrv9, sSrv10, sSrv11, sSrv12, sSrv13, sSrv15, sSrv16, sSrv17, sSrvN1e, sSrvN2, sSrvN3 |
| 1b: Associate with IPv6 | sAss61, sAss62, sAss63, sAss64, sAss66, sAss6N2, sAss6N3, sAss6N4, sAss6N5 | sAss65, sAss6N6, sAss6N7 |
| 2: Data Sets | sDs1, sDs10a, sDsN1ae | sDs10b, sDs15, sDsN1b, sDsN13 |
| 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, sSg13 |
| 4+: Setting Group Definition | sSg2, sSg4, sSg6, sSg7, sSg8, sSg10, sSg12, sSgN2, sSgN3, sSgN4, sSgN5 | sSg5, sSg9, sSg14 |
| 5: Unbuffered Reporting | sRp1, sRp2, sRp3, sRp4, sRp5, sRp9, sRp14, sRp16, sRp23, sRpN1, sRpN2, sRpN3, sRpN4, sRpN5, sRpN7, sRpN8, sRpN9 | sRp6, sRp7, sRp8, sRp10, sRp11, sRp12, sRp13, sRp15, sRp17 |
| 6: Buffered Reporting | sBr1, sBr2, sBr3, sBr4, sBr5, sBr9, sBr14, sBr16, sBr20, sBr21, sBr22, sBr23, sBr24, sBr25, sBr26, sBr27, sBr28, sBr29, sBrN1, sBrN2, sBrN3, sBrN4, sBrN5, sBrN7, sBrN8, sBrN9, sBrN10 | sBr6, sBr7, sBr8, sBr10, sBr11, sBr12, sBr13, sBr15, sBr17 |
| 7: Logging | sLog2, sLog3, sLog4, sLog5, sLog6, sLog7, sLog8, sLog9, sLog11, sLog12, sLog13, sLogN1, sLogN2 | sLog10 |
| 9a: GOOSE publish | sGop2a, sGop3, sGop4, sGop9, sGop10, sGop11, sGop12, sGop13 | sGop1, sGop2b, sGop5, sGop6, sGopN1, sGopN2 |
| 9b: GOOSE subscribe | sGos1, sGos2, sGos3, sGos5, sGos6a, sGos7, sGos8, sGos9, sGos10, sGos11, sGos12, sGos14, sGos15, sGos16, sGos17, sGos20, sGos21, sGos22, sGos23, sGosN1, sGosN2, sGosN3, sGosN4, sGosN5, sGosN6, sGosN7 | sGos4, sGos6b, sGos13 |
| 9c: GOOSE mngt | sGom1, sGom2, sGomN1 |  |
| 11a: Sampled Values publish | sSvp1, sSvp2, sSvp3, sSvp4, sSvp5, sSvp6, sSvp7, sSvp8, sSvp14, sSvp18 | sSvp9, sSvp10, sSvp11, sSvp12, sSvp13, sSvp15, sSvp16, sSvp17, sSvp20, sSvp21, sSvp22, sSvp23 |
| 11b: Sampled Values subscribe | sSvs1, sSvs2, sSvs3, sSvs4, sSvs5, sSvs6, sSvs7, sSvs8, sSvs9, sSvs10, sSvs11, sSvs14, sSvs15, sSvs16, sSvs17, sSvs18, sSvsN1, sSvsN2, sSvsN3, sSvsN4, sSvsN5, sSvsN6 | sSvs12, sSvs13 |
| 12a Direct control | sCtl5, sCtl10, sDOns1, sDOns2 | sCtl2, sCtl3, sCtl7, sCtl13, sCtl15, sCtl16, sCtl17, sCtl18, sCtl21, sCtl23, sCtl24, sCtl28, sCtl29, sDOns4, sDOns5 |
| 12b SBO control | sCtl4, sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOns1, sSBOns2, sSBOns6, sSBOns8 | sCtl2, sCtl3, sCtl6, sCtl7, sCtl15, sCtl16, sCtl17, sCtl18, sCtl20, sCtl21, sCtl23, sCtl24, sCtl27, sCtl28, sCtl29, sSBOns4, SBOns5, sSBOns7 |
| 12c Enhanced Direct Control | sCtl5, sCtl10, sDOes1, sDOes2 | sCtl2, sCtl3, sCtl7, sCtl13, sCtl14, sCtl15, sCtl16, sCtl17, sCtl18, sCtl21, sCtl23, sCtl24, sCtl26, sCtl28, sCtl29, sDOes4, sDOes5 |
| 12d Enhanced SBO control | sCtl4, sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOes1, sSBOes2, sSBOes6, sSBOes8 | sCtl2, sCtl3, sCtl6, sCtl7, sCtl15, sCtl16, sCtl17, sCtl18, sCtl20, sCtl21, sCtl23, sCtl24, sCtl26, sCtl28, sCtl29, sSBOes4, sSBOes5, sSBOes7 |
| 13a Time sync SNTP | sTm1, sTm2, sTm7, sTmN1 | sTm3, sTm4, sTm5, sTmN2 |
| 13b Time sync PTP | sTmP1, sTmP2, sTmPN1 | sTmP5 |
| 14 File transfer | sFt1, sFt2ab, sFt4, sFt5, sFtN1ab | sFt2c, sFt3, sFtN1c |
| 15 Service tracking |  | sTrk1, sTrk2, sTrk3, sTrk4a, sTrk4b, sTrk5a, sTrk5b, sTrk6, sTrk7, sTrk8, sTrk9, sTrk10, sTrk11, sTrk12, sTrk13, sTrk14, sTrk15, sTrk16, sTrk17 |

[ All configuration file and data model tests have been successfully performed for the product variants using the same communication hardware and software version:

* << ID and NAME of variant 1>>
* << ID and NAME of variant N>> ]

|  |  |
| --- | --- |
| Test case | Limitation or Comment |
|  |  |

|  |  |
| --- | --- |
| Virtual Testing Information | |
| Item | Value |
| Host Machine |  |
| Host Hardware : | manufacturer and model |
| Processor (CPU) : | manufacturer, model, number of processors |
| Network Interface Card: | manufacturer, model |
|  |  |
| Virtualization Technology |  |
| Hypervisor/Container Technology : | name and version |
| Type of hypervisor | Type 1, Type 2 or Container Engine |
| Host OS (if type 2) : | name and version |
| vIED Time Sync : | Sync in vIED or Provided by Virtualization Platform |
| Virtual ethernet networking technology : software-based technologies (e.g., SDN, OVN, vSwitch, eBPF) with hardware-accelerated features (e.g., ) | SDN, OVN, vSwitch, eBPF |
| Hardware Accelerated Features: | SR-IOV, PCI passthrough, DPDK |
| Virtual Machine/Component |  |
| Allocated Memory (RAM) : type and capacity |  |
| Number of Allocated CPU/Core |  |
|  |  |
| Virtual IED |  |
| OS: |  |
|  |  |
| Additional Specific Features |  |
|  |  |