IEC 61850 Certificate Level A[1]

Issued to:

Delta Electronics, Inc.

No. 16, Tungyuan Road, Zhongli District, Taoyuan

City 320, Taiwan

For the client:

Delta Grid

Version: V1.1.0

Issued by:

Taiwan Testing and Certification Center

No.8, Ln. 29, Wenming Rd., Guishan Dist., Taoyuan

City 333, Taiwan (R.O.C.)

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 for 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 1.1.1 with product's protocol, model and technical issue implementation conformance statements: "Protocol Implementation Conformance Statement (PICS) for the IEC 61850 interface in Delta Grid, version V1.1.1", "Model Implementation Conformance Statement (MICS) for the IEC 61850 Client interface in Delta Grid, version V1.1.1", "Tissue Conformance Statement (TICS) for the IEC 61850 Client interface in Delta Grid, version V1.1.1" and product's extra information for testing: "Protocol Implementation eXtra Information for Testing (PIXIT) for the IEC 61850 Client interface in Delta Grid, version V1.1.1".

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 (23/24)	12a	Direct Control (7/9)
2	Data Sets (5/10)	12b	SBO Control (9/11)
2+	Data Set Definition (8/8)	12c	Enhanced Direct Control (7/9)
5	Unbuffered Reporting (23/24)	12d	Enhanced SBO Control (9/11)
6	Buffered Reporting (27/28)	13	Time Synchronization (3/4)
9	GOOSE Control Block (2/2)	14	File Transfer (8/8)

This Certificate includes a summary of the test results as carried out at Taiwan Testing and Certification Center, Taoyuan City in Taiwan(R.O.C.) with Triangle MicroWorks Anvil 3.8.0.0 and Wireshark version 3.2.6. This document has been issued for information purposes only, and the original paper copy of the ETC report: No. 21-03- CAV-020-01a will prevail.

The test has been carried out on one single specimen of the product as referred above and submitted to Taiwan Testing and Certification Center by Delta Electronics. The manufacturer's production process has not been assessed. This certificate does not imply that Taiwan Testing and Certification Center has certified or approved any product other than the specimen tested.

Taoyuan, Sep 8 2021

Hsi-Hsun Yeh

Hsi-Hsun Yeh
Technical Certifier

Cheng-Hsien Lin

Cheng-Hsien Lin
Test Engineer

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

Taiwan Testing and Certification Center No.8, Ln. 29, Wenming Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

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Applicable Test Procedures from the UCA International Users Group Edition 2 Client Test Procedures version 1.1.1

Conformance Block	Mandatory	Conditional
1: Basic Exchange	cAss1, cAss2, cAss3, cAssN1, cAssN4, cAssN5, cAssN6	cAssN7 cSrv1, cSrv2, cSrv3, cSrv4, cSrv5, cSrv6, cSrv7, cSrv8, cSrv9, cSrv10, cSrvN2, cSrvN3, cSrvN4, cSrvN5, cSrvN6
2: Data Sets		cDs1, cDs2, cDs3, cDs6, cDsN1c
2+: Data Set Definition		cDs10, cDs11, cDs12, cDs13, cDs14, cDsN10a, cDsN10b, cDsN11
5: Unbuffered Reporting	cRp3, cRp4, cRp5, cRp8, cRp9, cRp10, cRp11, cRp13a, cRp14, cRp15, cRp19, cRpN2, cRpN5, cRpN6	cRp1, cRp2, cRp6, cRp7, Rp12, cRp13b, cRp17, cRp18, 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, cBr13b, cBr17, cBr18, cBr32, cBr33, cBrN1
9: GOOSE Control Block		cGcb1, cGcb2
12a: Direct Control	cCtl4, cCtl5 cDOns1, cDOns2	cCtl1, cCtl2, cCtl3
12b: SBO Control	cCtl4, cCtl5 cSBOns1, cSBOns2, cSBOns3	cCtl1, cCtl2, cCtl3, cSBOns4
12c: Enhanced Direct Control	cCtl4, cCtl5 cDOes1, cDOes2	cCtl1, cCtl2, cCtl3
12d: Enhanced SBO Control	cCtl4, cCtl5 cSBOes1, cSBOes2, cSBOes3	cCtl1, cCtl2, cCtl3 cSBOes4
13: Time sync	cTm1, cTmN1	cTm2
14: File Transfer	cFt1, cFt3, cFtN1	cFt2, cFt4, cFt5, cFtN2, cFtN3

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