# G3-PLC CERTIFIED CEN A HYB

## C E R T I F I C A T E

**Certificate registration number:** G3.2107.447.1.A5

**Certificate holder:** Renesas Electronics Corporation

**Platform designation:** REL-G3PLC-CPX3+TRG,
Hardware version R9A06G037GNP+RAA604S002GNP,
Firmware version 3.05.00

**Certification date:** July 2nd,2021

This certificate indicates the above mentioned platform successfully completed certification testing with regards to the reference specification ITU G.9903 (08-2017). The optional features Hybrid PLC&RF and coherent mode of the G3-PLC protocol are also covered by this certification.

The reference version for the optional hybrid feature is the G3-PLC Hybrid PLC&RF companion specification v0.11 (31-07-2020). The certificate applies to certification profile CENELEC A and the device was configured as a PAN-Coordinator.

Test cases have been performed as described in the test report referred to below. This certificate is granted on account of tests conducted by TÜV Rheinland in Yokohama, Japan in June 2021. The results and remarks can be found in the complete test report.

| Applied tests | Performed by | Document evidence |
|---|---|---|
| Conformance, interoperability and performance testing according to the test specification referenced by the test report | TÜV Rheinland Japan | JP21G7Q4 002 |

The device tested is a G3-PLC platform: a solution providing an implementation of the G3-PLC specification. The Protocol Implementation Conformance Statement in the Annex includes the PICS related to performance and is an integral part of this certificate. This certificate is valid from July 2nd, 2021.
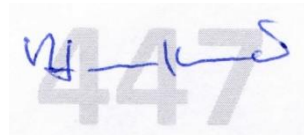
The certificate is only applicable to the platform described above and permits the use of the G3-PLC™ logo as laid down in the G3-PLC logo license agreement.

This certificate does not imply assessment of the production. This certificate shall not be defined, or used as a guarantee covering quality of a product which includes G3-PLC. The liability of the Alliance and the test laboratory or any of her representatives is excluded for any damages or losses of the certified company.

Paris, July 2nd 2021

For the G3-PLC Alliance:

**Marc Delandre**
Chairman

**Madeleine Francillard**
Chair Certification Program

## G3-PLC Alliance

# Annex 1: Protocol Implementation Conformance Statement (PICS)

## Feature implementation statement

| Name | Value | Description |
|---|---|---|
| BAND_PLAN | CENELEC A | Indicate the band-plan supported by the device. |
| BAND_PLAN_RF | 863-870 MHz, mode #1 | Indicate the RF band-plan. |
| FEATURE_HYBRID_RF | TRUE | Indicate if Hybrid PLC&RF feature is supported. |
| FEATURE_PAN_COORDINATOR | TUE | Indicate if the device is a PAN-Coordinator (true) or a normal device (false). |
| FEATURE_COHERENT_MODULATION | TRUE | Indicate if coherent modulation is supported. |
| FEATURE_EAP_SERVER | TUE | Indicate if an EAP-PASK server is implemented by the DUT.<br><br>Apply only if FEATURE_PAN_COORDINATOR = true. |
| FEATURE_D8PSK_MODULATION | TRUE | True / False |
| FEATURE_ROUTING | TRUE | Indicate if the routing is implemented by the IUT. |
| FEATURE_SECURITY | F1 | Indicate the security implemented by the device. Possible values are: F1, F2. |
| FEATURE_ACTIVE_SCAN | TRUE | Indicate if the active scan process is done by the IUT after power-up. |
| FEATURE_PREAMBLE_COEXISTENCE_MECHANISM | FALSE | Indicate if the preamble-based coexistence mechanism is used by the IUT. |

# Annex 2: Protocol Implementation Conformance Statement (PICS)

**PICS related to performance**

The device tested is a G3-PLC CENELEC A platform. Operating voltage applied for certification testing was 230V / 50Hz.

| Name | Value | Unit | Description |
|------|-------|------|-------------|
| | | | |

PICS related to performance are available through vendor only.

# Annex 3:
# Copy of test report cover sheet

**Prüfbericht - Produkte**
*Test Report - Products*

△ TÜVRheinland®

| | | | |
|---|---|---|---|
| **Prüfbericht-Nr.:**<br>*Test report no.:* | **JP21G7Q4 002** | **Auftrags-Nr.:**<br>*Order no.:*   150244017 10 | Seite 1 von 47<br>*Page 1 of 47* |

| | |
|---|---|
| **Kunden-Referenz-Nr.:**<br>*Client reference no.:* | IACS_AE_21_0006    **Auftragsdatum:**   2021-06-11<br>*Order date:* |
| **Auftraggeber:**<br>*Client:* | Renesas Electronics Corporation,<br>5-20-1,Josuihon-cho, Kodaira-shi, Tokyo, 187-8588, Japan |
| **Prüfgegenstand:**<br>*Test item:* | G3-PLC CENELEC-A Platform (PAN Coordinator) |
| **Bezeichnung / Typ-Nr.:**<br>*Identification / Type no.:* | REL-G3PLC-CPX3+TRG |
| **Auftrags-Inhalt:**<br>*Order content:* | G3-PLC Certification Test |
| **Prüfgrundlage:**<br>*Test specification:* | G3-PLC Conformance Tests Specification v0.32<br>G3-PLC 1-to-1 Interoperability Tests Specification v0.13<br>G3-PLC Performance Test Suite Specification v0.27<br>G3-PLC Certification Test Procedures v2.0<br>G3-PLC Hybrid PLC&RF Conformance Tests Specification v0.7<br>G3-PLC Hybrid RF 1 to 1 Interoperability Tests Specification v0.4 |

| | |
|---|---|
| **Wareneingangsdatum:**<br>*Date of sample receipt:* | 2021-06-15 |
| **Prüfmuster-Nr.:**<br>*Test sample no:* | A003071960 |
| **Prüfzeitraum:**<br>*Testing period:* | 2021-06-15 – 2021-06-19 |
| **Ort der Prüfung:**<br>*Place of testing:* | 4-25-2 Kita-Yamata,<br>Tsuzuki-ku Yokohama 224-0021, Japan |
| **Prüflaboratorium:**<br>*Testing laboratory:* | TÜV Rheinland Japan Ltd. |
| **Prüfergebnis*:**<br>*Test result*:* | Pass |

| **geprüft von:**<br>*tested by:* | **genehmigt von:**<br>*authorized by:* |
|---|---|
| **Datum:**<br>*Date:*   2021-06-28 | **Ausstellungsdatum:**<br>*Issue date:*   2021-06-28 |
| **Stellung** / Position:   Tester | **Stellung** / Position:   Reviewer |

**Sonstiges /** *Other:*

| **Zustand des Prüfgegenstandes bei Anlieferung:**<br>*Condition of the test item at delivery:* | Prüfmuster vollständig und unbeschädigt<br>*Test item complete and undamaged* |
|---|---|

* Legende:   P(ass) = entspricht o.g. Prüfgrundlage(n)    F(ail) = entspricht nicht o.g. Prüfgrundlage(n)    N/A = nicht anwendbar    N/T = nicht getestet
* Legend:   P(ass) = passed a.m. test specification(s)    F(ail) = failed a.m. test specification(s)    N/A = not applicable    N/T = not tested

TÜV Rheinland Japan Ltd., Global Technology Assessment Center 4-25-2 Kita-Yamata, Tsuzuki-ku Yokohama 224-0021, Japan<br>
Mail: g3plc@tuv.com · Web: www.tuv.com/

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# Annex 4: Additional details of the certified platform

| | | |
|---|---|---|
| **Platform model name:** | REL-G3PLC-CPX3+TRG | |
| **Platform hardware version:** | R9A06G037GNP+RAA604S002GNP | |
| **Platform firmware version:** | 3.05.00 | |
| **Exact part number of all the chips running G3-PLC stack in the certified platform:** | Chip #1: R9A06G037GNP#AA0 | Chip #2: RAA604S002GNP |
| **What each part number runs: lower MAC (incl. CSMA/CA) or PHY or other parts of the stack:** | PLC PHY, MAC and 6LowPAN | RF PHY |
| **Hardware version of this chip:** | R9A06G037GNP | RAA604S002GNP |
| **Software version running on this chip:** | v5.00 | n/a |
| **Internal CPU frequency:** | 138 MHz | n/a |