



C E R T I F I C A T E

Certificate registration number: : G3.1504.034.1.A

Certificate holder: Renesas Electronics Corporation

Platform designation: REL-G3PLC-CPX2,  
Hardware version UPD809508K8-711-BAA-A, Firmware version CENELEC A 2.0.3

Certification date: April 24<sup>th</sup>, 2015

This certificate indicates the above mentioned platform successfully completed certification testing with regards to the reference specification ITU G.9903 (02-2014) plus the changes listed in the annex to this certificate. The optional feature coherent mode of the G3-PLC protocol is also covered by this certification.

The certificate applies to certification profile Metering 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 March 2015. The results and remarks can be found in the complete test report.

| Applied tests  | Performed by           | Document evidence              |
|--|------------------------|--------------------------------|
| Conformance and interoperability testing according to the test specification referenced by the test report | TÜV Rheinland<br>Japan | Test report # 5002 5423<br>001 |

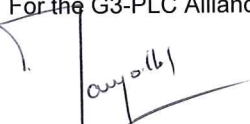
The device tested is a G3-PLC platform: a solution providing an implementation of the G3-PLC specification. This certificate is valid from April 24<sup>th</sup>, 2015.

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. The certificate may only be reproduced in full.

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, April 24<sup>th</sup>, 2015

For the G3-PLC Alliance:

  
**Marc Boillot**  
Chairman



**Madeleine Francillard**  
Chair Certification Program





## Annex 1: Reference Version for Certification

The reference version for this certificate is published in 'Narrowband OFDM PLC specifications for G3-PLC network, October 2014'.

The reference version for this certification is:

ITU-T G.9903 (02-2014)

- + CCTT #24-25-30: Implementation of MAC security (anti-replay) solution F1
- + CCTT #61 : ADPM-Buffer behavior clarification
- + CCTT #143: AC Phase Detection v2
- + CCTT #144: Hop Limit usage during route repair v3
- + CCTT #145: Value of RCoord when the node is at adpMaxHops hops from the coordinator
- + CCTT #146: Pilot tone generation
- + CCTT #147: Link-cost computation for Path discovery v2
- + CCTT #148: Path discovery frame routing v3
- + CCTT #152: Scrambler reset
- + CCTT #154: Clarification of PANCount and PANDescriptor
- + CCTT #156: Clarification of ADPM-NETWORK-STATUS.indication
- + CCTT #157: Interleaver Equation v2
- + CCTT #158: Unicast Routing Process
- + CCTT #159: Correct the windowing function description
- + CCTT #160: Clarify 16QAM quantisation and optionality
- + CCTT #161: Correct aMaxFrameSize and aMinFrameSize for FCC/ARIB bandplans
- + CCTT #162: Interleaver co-prime number clarification v2
- + CCTT #163: CRC5 and CRC8 packing order
- + CCTT #164: Route Repair v2
- + CCTT #165: Clarification Neighbour Table v2
- + CCTT #167: HOP COUNT metric identifier v2
- + CCTT #169: Clarification on PLME\_GET v4
- + CCTT #170: Clarification to Frame Counter Handling Mechanism v2
- + CCTT #173: Clarification of LOADng mechanism used to detect bidirectional links





## Annex 2: Protocol Implementation Conformance Statement (PICS)

### Feature implementation statement

| Name                        | Value     | Description   |
|-----------------------------|-----------|---|
| BAND_PLAN                   | CENELEC A | Indicate the band-plan supported by the device.   |
| FEATURE_PAN_COORDINATOR     | TRUE      | 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          | TRUE      | Indicate if an EAP-PASK server is implemented by the DUT.<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.<br>Possible values are: F1, F2.                          |
| FEATURE_ACTIVE_SCAN         | TRUE      | Indicate if the active scan process is done by the IUT after power-up                                     |

## Annex 3: Copy of test report cover sheet

Produkte  
Products



|   |   |  |                      |                                       |                                  |
|---|---|--|----------------------|---------------------------------------|----------------------------------|
| <b>Prüfbericht - Nr.:</b><br>Test Report No.  | <b>5002 5423 001</b>  | Seite<br>Page  | 1<br>of              | von<br>of                             | 24                               |
| <b>Auftraggeber:</b><br>Client:   | <b>Renesas Electronics Corporation</b><br>1753 Shimonumabe, Nakahara-Ku, Kawasaki, Kanagawa 211-8668, Japan   |  |                      |                                       |                                  |
| <b>Gegenstand der Prüfung:</b><br>Test item:  | <b>REL-G3PLC-CPX2</b>   |  |                      |                                       |                                  |
| <b>Bezeichnung:</b><br>Identification:  | <b>REL-G3PLC-CPX2</b>   | <b>Serien-Nr.:</b><br>Serial No.   | <b>0200124</b>       |                                       |                                  |
| <b>Wareneingangs-Nr.:</b><br>Receipt No.:   | <b>A000169525</b>   | <b>Eingangsdatum:</b><br>Date of receipt:  | <b>2015-03-02</b>    |                                       |                                  |
| <b>Zustand des Prüfgegenstandes bei Anlieferung:</b><br>Condition of test item at delivery:   | <b>Test item complete and undamaged</b>   |  |                      |                                       |                                  |
| <b>Prüfört:</b><br>Testing location:  | <b>TÜV Rheinland Japan Ltd.</b><br>Global Technology Assessment Center 4-25-2 Kita-Yamata, Tsuzuki-ku Yokohama 224-0021, Japan  |  |                      |                                       |                                  |
| <b>Prüfgrundlage:</b><br>Test specification:  | <b>G3-PLC Conformance L1-L2 Tests Suite Specification v0.14</b><br><b>G3-PLC 1-to-1 Interoperability Tests Suite Specification v0.6</b><br><b>G3-PLC Certification Test Procedures v1.3</b> |  |                      |                                       |                                  |
| <b>Prüfergebnis:</b><br>Test Result:  | <b>Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n).</b><br><i>The test item passed the test specification(s).</i>   |  |                      |                                       |                                  |
| <b>Prüflaboratorium:</b><br>Testing Laboratory:   | <b>TÜV Rheinland Japan Ltd.</b><br>Global Technology Assessment Center 4-25-2 Kita-Yamata, Tsuzuki-ku Yokohama 224-0021, Japan  |  |                      |                                       |                                  |
| <b>geprüft/ tested by:</b>  |   | <b>kontrolliert/ reviewed by:</b>  |                      |                                       |                                  |
| <b>2015-04-21</b>   | <b>Olga Kozoruk</b>   |  | <b>2015-04-21</b>    | <b>Tran Thanh Tam</b>                 |                                  |
| <b>Datum</b><br>Date  | <b>Name/Stellung</b><br>Name/Position   | <b>Unterschrift</b><br>Signature   | <b>Datum</b><br>Date | <b>Name/Stellung</b><br>Name/Position | <b>Unterschrift</b><br>Signature |
| <b>Sonstiges / Other Aspects:</b>   |   |  |                      |                                       |                                  |
| <b>Abkürzungen:</b><br>OK, Pass = entspricht Prüfgrundlage<br>Fail = entspricht nicht Prüfgrundlage<br>NA = nicht anwendbar   |   | <b>Abkürzungen:</b><br>OK, Pass = passed<br>Fail = failed<br>NA = not applicable |                      |                                       |                                  |
| <b>Dieser Prüfbericht bezieht sich nur auf den o.g. Prüfgegenstand und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b><br><b>This test report relates to the a. m. test item. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark on this or similar products.</b> |   |  |                      |                                       |                                  |