# G3-PLC CERTIFIED CEN A

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

**Certificate registration number:** G3.1904.283.1.A4

**Certificate holder:** Microchip Technology

**Platform designation:** PL360G55CF,
Hardware version PL360G55CF-EK v1, Firmware version G3_v.1.4.0

**Certification date:** April 25th, 2019

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

The certificate applies to certification profile CENELEC A and the device was configured as a PAN-Device.

Test cases have been performed as described in the test report referred to below. This certificate is granted on account of tests conducted by Laboratoire des Applications Numériques (LAN) in Tauxigny, France in March – April 2019. 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 | Laboratoire des Applications Numériques (LAN) | LAN19AF024 |

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 April 25th, 2019.

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, April 25th, 2019

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. |
| FEATURE_PAN_COORDINATOR | FALSE | 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 | FALSE | 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. 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 |
|---|---|---|---|
| PHY_007_SNR | -2,5 | dB | Indicate the SNR level that can be supported by the DUT so PHY header (FCH) are correctly decoded (with less than 10% of loss) |
| PHY_008_SIGNAL_LEVEL | 35 | dBµV | Indicate the signal level of a frame that can be received correctly by the DUT (with FER<10%) |
| PHY_009_LQI_MIN_RANGE | 40 | - | Lower value of LQI to be tested during test PHY_009 |
| PHY_009_LQI_MAX_RANGE | 100 | - | Higher value of LQI to be tested during test PHY_009 |
| BOOTSTRAP_001_DURATION | 45 | ms | Duration needed for the DUT to reply to bootstrap messages EAP-PSK #1 and #3. Apply only if FEATURE_DEVICE_TYPE = PAN-Device |
| BOOTSTRAP_002_DURATION | n/a | ms | Duration needed for the DUT to reply to bootstrap messages joining, EAP-PSK #2 and #4. Apply only if FEATURE_EAP_SERVER is true |
| BOOTSTRAP_003_DURATION | 73 | ms | Duration needed for the DUT to relay bootstrap messages. Apply only if FEATURE_DEVICE_TYPE = PAN-Device |
| TONE_MAP_001_FER | 0 | % | The Frame Error Rate that can be expected when applying the tone-map configuration provided by the DUT |
| TONE_MAP_002_DATARATE_1 | 5100 | bits/s | The data-rate that can be expected when applying the tone-map configuration provided by the DUT in situation #1 |
| TONE_MAP_002_DATARATE_2 | 5500 | bits/s | The data-rate that can be expected when applying the tone-map configuration provided by the DUT in situation #2 |
| TONE_MAP_002_DATARATE_3 | 4800 | bits/s | The data-rate that can be expected when applying the tone-map configuration provided by the DUT in situation #3 |
| TONE_MAP_002_DATARATE_4 | 5500 | bits/s | The data-rate that can be expected when applying the tone-map configuration provided by the DUT in situation #4 |
| MESH_ROUTING_001_DURATION | 86 | ms | Duration needed for the DUT to relay short mesh routed data frames |
| MESH_ROUTING_002_DURATION | 83 | ms | Duration needed for the DUT to relay maximum size mesh routed data frames |

# Annex 3:
# Copy of test report cover sheet



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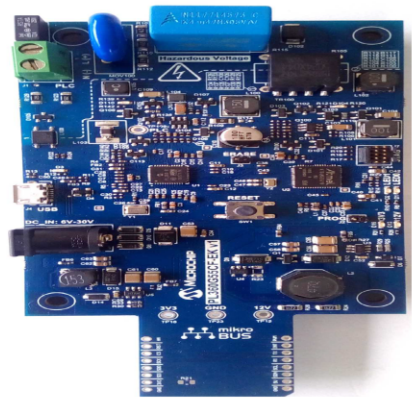
## G3-PLC Platform Certification Test Report

| | |
|---|---|
| Vendor Name | Microchip Technology |
| Model Name | PL360G55CF |
| Serial N° | **190121110003** |
| HW version | **PL360G55CF-EK v1** |
| FW version | **G3_v.1.4.0** |
| Test Report # | **TR_LAN19AF024 Ed.00** |
| Date | **April 19, 2019** |

| | | |
|---|---|---|
| CONF Tests Specification | **version 0.30.** | **03/12/2018** |
| CONF Tests Suite | **version 2.9.** | **03/2019** |
| IOT Tests Specification | **version 0.13.** | **28/12/2018** |
| IOT Tests Suite | **version 2.6.** | **03/2019** |
| PERF Tests Specification | **version 0.27.** | **05/03/2019** |
| PERF Tests Suite | **version 2.9.** | **03/2019** |
| Test Tool | **version 2.3** | |
| Tester Modem | **version 2.0** | |
| Certification Test Procedures | **version 1.13** | **03/06/2019** |

| | |
|---|---|
| Certification Profile | **A (CENELEC A)** |
| Role | **PAN Device** |
| Overall Verdict | **PASS** |



| Initiation | Date | Description of modification | Ed. |
|---|---|---|---|
| Omar DIOUF | April 19, 2019 | Creation | 00 |
| | | | |

| | Realised by | Checked by | Approved by |
|---|---|---|---|
| Name | Omar DIOUF | Vincent BUCHOUX | Thierry DOLIGEZ |
| Date | April 19, 2019 | April 19, 2019 | April 19, 2019 |
| Sign | | | |


The current report and the test results produced in this current are given for information only and must not be relied on by any third person for any reason.

This report contains an assessment of the apparatus carried out on samples submitted to the laboratory. The results in this report relate only to the items tested and were obtained in the period between the initial receipt of samples and the issue of the report. It should be noted that technical hardware or software modifications on the apparatus may impact the results reported in this document.

# Annex 4: Additional details of the certified platform

| | | |
|---|---|---|
| **Platform model name:** | PL360G55CF | |
| **Platform hardware version:** | PL360G55CF-EK v1 | |
| **Platform firmware version:** | G3_v.1.4.0 | |
| **Exact part number of all the chips running G3-PLC stack in the certified platform:** | Chip #1: PL360B | Chip #2: ATSAMG55J19-MU |
| **What each part number runs: lower MAC (incl. CSMA/CA) or PHY or other parts of the stack:** | PHY + Lower MAC | MAC & 6LowPAN |
| **Hardware version of this chip:** | B | B |
| **Software version running on this chip:** | 36.01.04 | G3_v.1.4.0 |
| **Internal CPU frequency:** | 216 MHz | 120 MHz |