



C E R T I F I C A T E

Certificate registration number: G3.2404.606.1.C7

Certificate holder: Hi-Trend Technology (Shanghai) Co., Ltd.

Platform designation: HT8922,
Hardware version HT8922_RFDX_VER.13.01_0913,
Firmware version V2.4.04

Certification date: April 30th 2024

This certificate indicates the above-mentioned platform successfully completed certification testing with regards to the G3-Alliance reference specification ITU G.9903 (08-2017) including Amendment 1 (05/21), Amendment 2 (03/23) and Corrigendum 1 (03/23), as published on <https://www.itu.int/rec/T-REC-G.9903>, plus the three changes listed in Annex 1.

The device is certified for both G3-PLC and G3-Hybrid. The optional feature of the G3 protocol coherent mode is also covered by this certification. This certificate applies to certification profile FCC Multipurpose Worldwide 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 April 2024. 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 | JP244MP7 001 |

The device tested is a G3-Hybrid PLC+RF platform: a solution providing an implementation of the G3 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 30th 2024.

The certificate is only applicable to the platform described above and permits the use of the G3-Hybrid logo as laid down in the G3-Alliance 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-Hybrid. 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 30th 2024

For the G3-Alliance:


Marc Delandre
Chairman



Madeleine Francillard
Chair Certification Program



Annex 1: Reference Version for Certification

The reference version for this certificate is ITU G.9903 (08-2017) including Amendment 1 (05/21), Amendment 2 (03/23) and Corrigendum 1 (03/23), as published on <https://www.itu.int/rec/T-REC-G.9903>, plus the following three changes:

- HYB_C_067: Clarification on Media Probing for PLC with valid tone-map
- HYB_C_068: Guard time for broadcast and slot alignment
- HYB_C_069: 802.15.4 Cor1 Reference

Annex 2: Protocol Implementation Conformance Statement (PICS)

Feature implementation statement

| Name | Value | Description |
|--|---|--|
| BAND_PLAN | FCC | Indicates the band-plan supported by the device |
| BAND_PLAN_RF | 863_Mode#1 / 863_Mode#2 866_Mode#1 / 866_Mode#2 870_Mode#1 / 870_Mode#2 | Indicates the RF band plan(s) supported by the device |
| FEATURE_PAN_COORDINATOR | TRUE | Indicates whether the device is a PAN-Coordinator (true) or a normal device (false) |
| FEATURE_COHERENT_MODULATION | TRUE | Indicates whether coherent modulation is supported |
| FEATURE_D8PSK_MODULATION | TRUE | Indicates whether D8PSK modulation is supported |
| FEATURE_EAP_SERVER | TRUE | Indicates whether an EAP-PASK server is implemented by the DUT. Applies only if FEATURE_PAN_COORDINATOR = true. |
| FEATURE_ROUTING | TRUE | Indicates whether the routing is implemented by the IUT |
| FEATURE_SECURITY | F1 | Indicates the security implemented by the device. Possible values are: F1, F2 |
| FEATURE_ACTIVE_SCAN | TRUE | Indicates whether the active scan process is done by the IUT after power-up |
| FEATURE_PREAMBLE_COEXISTENCE_MECHANISM | FALSE | Indicates whether the preamble-based coexistence mechanism is used by the IUT |
| FEATURE_HYBRID_RF | TRUE | Indicates whether Hybrid PLC&RF feature is supported |
| FEATURE_FREQUENCY_HOPPING | FALSE | Indicates whether the Frequency Hopping mechanism is supported |
| FEATURE_PREAMBLE_12_SY_NCP | FALSE | Indicates whether the device supports the transmission and reception of frames with preamble of 12 SYNCP symbols |

[Handwritten signatures]



Annex 3: Protocol Implementation Conformance Statement (PICS)

PICS related to PLC performance

The device tested is a G3-Hybrid PLC+RF FCC platform. Testing was performed on phase 1. Operating voltage applied for certification testing was AC220V/50Hz .

| Name | Value | Unit | Description |
|---|-------|------|-------------|
| <i>PICS related to performance are available through manufacturer only.</i> | | | |



Annex 3: Protocol Implementation Conformance Statement (PICS)

PICS related to RF performance

The device tested is a G3-Hybrid PLC+RF FCC platform.
Operating voltage applied for certification testing was AC220V / 50Hz.

| Name | Value | Unit | Description |
|---|-------|------|-------------|
| <i>PICS related to performance are available through manufacturer only.</i> | | | |

Annex 4: Copy of test report cover sheet

| Test Report – Products Prüfbericht - Produkte | | TÜVRheinland® | |
|---|---|---|--------------------------------|
| Test report no.: Prüfbericht-Nr.: | JP244MP7 001 | Order No.: Auftragsnr.: | 150284968 10 |
| | | | Page 1 of 71 Seite 1 von 71 |
| Client reference no.: Kunden-Referenz-Nr.: | HT8922 | Order date: Auftragsdatum: | 2023-12-05 |
| Client: Auftraggeber: | Hi-Trend Technology (Shanghai) Co., Ltd., Building No.16, No.1388, Zhangdong Road, Shanghai, 201203, China | | |
| Test item: Prüfgegenstand: | G3-Hybrid Platform (FCC) | | |
| Identification / Type no.: Bezeichnung / Typ-Nr.: | HT8922 | | |
| Order content: Auftrags-Inhalt: | G3 Certification Test | | |
| Test specification Prüfgrundlage: | Certification Test Procedures for G3-Alliance Certification - v7.2 G3 Conformance Tests Suite Specification - v0.39 G3 PLC 1-to-1 Interoperability Tests Suite Specification - v0.15 Performance test suite for G3 device certification - v0.28 Hybrid PLC+RF - Conformance Tests Suite Specification - v0.13 G3-Hybrid RF 1-to-1 Interoperability Tests Suite Specification version - v0.8 Performance test suite for G3-Hybrid PLC&RF device certification - v0.4 | | |
| Date of sample receipt: Wareneingangsdatum: | 2024-01-22 | | |
| Test sample no.: Prüfmuster-Nr.: | A003648561-005 | | |
| Testing period: Prüfzeitraum: | 2024-04-18 – 2024-04-25 | | |
| Place of testing: Ort der Prüfung: | 4-25-2 Kita-Yamata, Tsuzuki-ku Yokohama 224-0021, Japan | | |
| Testing laboratory: Prüflaboratorium: | TÜV Rheinland Japan Ltd. | | |
| Test result*: Prüfergebnis*: | Pass | | |
| tested by: geprüft von: | | authorized by: genehmigt von: | |
| Date: 2024-04-26 Datum: | Rajib Tamang | Issue date: 2024-04-26 Ausstellungsdatum: | Martin Zietz |
| Position / Stellung: | Tester | Position / Stellung: | Authorizer |
| Other: Sonstiges: | | | |
| Condition of the test item at delivery: Zustand des Prüfgegenstandes bei Anlieferung: | Test item complete and undamaged Prüfmuster vollständig und unbeschädigt | | |
| * Legend: P(pass) = passed a.m. test specification(s) F(fail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested * Legende: P(pass) = entspricht o.g. Prüfgrundlage(n) F(fail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet | | | |
| This test report only relates to the above mentioned test sample. 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. Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. | | | |
| TÜV Rheinland Japan Ltd., Global Technology Assessment Center 4-25-2 Kita-Yamata, Tsuzuki-ku Yokohama 224-0021, Japan Mail: g3plc@tuv.com · Web: www.tuv.com/ | | | |



Annex 5: Additional details of the certified platform

| | | |
|--|--------------------------------|----------------------|
| Platform model name: | HT8922 | |
| Platform hardware version: | HT8922_RFDX_VER.13.01_0913 | |
| Platform firmware version: | V2.4.04 | |
| Exact part number of all the chips running G3 stack in the certified platform: | Chip #1: HT8922 | Chip #1: CMT2310A |
| What each part number runs: lower MAC (incl. CSMA/CA) or PHY or other parts of the stack: | PLC PHY/PLC MAC/RF MAC/6LoWPAN | RF PHY |
| Hardware version of this chip: | 0x035886_8922_01 | A |
| Software version running on this chip: | V2.4.04 | C0 |
| Internal CPU frequency: | 24 MHz | 32 MHz |

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