



C E R T I F I C A T E

Certificate registration number: G3.1709.165.1.C3

Certificate holder: Andrea Informatique

Platform designation: THUNDER,
Hardware version 2.2_NXP_TI, Firmware version 2.4.4F

Certification date: September 29th, 2017

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 an 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 FCC Multipurpose Worldwide 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 September 2017. 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	Laboratoire des Applications Numériques (LAN)	LAN17AF046


The device tested is a G3-PLC platform: a solution providing an implementation of the G3-PLC specification. This certificate is valid from September 29th, 2017.

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, September 29th, 2017

For the G3-PLC Alliance:


Bernard Lassus
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, March 2017'.

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 RCCoord 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 #172: Windowing in coherent mode

CCTT #173: Clarification of LOADng mechanism used to detect bidirectional links

CCTT #174: Avoiding duplicated MAC packets

CCTT #175: LOADng - subsequent RREP generation

CCTT #176: Link cost function of LQI v3

CCTT #177: Broadcast routing - filtering frames on the source

CCTT #178: Coexistence of G3-PLC with other PLC technologies v3

CCTT #179: RREP Filtering v3

CCTT #181: Route Repair v2

CCTT #182: Lowering the modulation order for transmission v3

CCTT #183: Destination Address Set v5

CCTT #186: TXGAIN / TXCOEF Definition

CCTT #187: Route Advertisement after Association v3

CCTT #188: Maximum CSMA Window for normal priority broadcast packets v2

CCTT #189: Updated default values of MAC and ADP attributes v2

CCTT #191: Phase detection and MAC repetitions v3

CCTT #192: Device network leave behaviour in case of LBP KICK failure v2

CCTT #193: Frame Counter Preservation after kick leave v2

CCTT #194: Limiting the output level v3

CCTT #195: Removing the S-FSK notching mechanism

CCTT #196: Destination Address Set (addendum)

CCTT #198: Convolutional Encoder clarification

CCTT #199: Route Repair mechanism clarification

CCTT #200: Neighbour table storing only device information issued from unicast communications v2

CCTT #201: Annex D title

CCTT #203/203R: Transferring the spectral flatness section from G.9901 to G.9903

CCTT #204/204R: Detecting and removing loops v3

CCTT #205: Remove Limit on RERR generation v2

CCTT #206: Reset of TMRValidTime after macMaxFrameRetries attempts v3

CCTT #207: Rounding definition for Link Cost v2

CCTT #208: Creation of a POS table v3

CCTT #209: Clarification of PN sequence for 2 RS Blocks



Annex 2: Protocol Implementation Conformance Statement (PICS)

Feature implementation statement

Name	Value	Description
BAND_PLAN	FCC	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. 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.

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Annex 3: Copy of test report cover sheet



G3-PLC Certification Test Report			
ANDREA	THUNDER HW:2.2_NXP_TI FW: 2.4.4F		
LAN17AF046	Ed.00	September 28, 2017	Page 1/25

G3-PLC Alliance
G3-PLC Platform Certification
Test Report

Vendor Name **ANDREA**
 Model Name **THUNDER**
 Serial N° **3375110738_020203F**
 HW version **2.2_NXP_TI**
 FW version **2.4.4F**

Test Report # **TR_LAN17AF046 Ed.00**
 Date **September 28, 2017**

CONF Tests Specification **version 0.24. 16/07/2017**
 CONF Tests Suite **version 2.5. 08/2017**
 IOT Tests Specification **version 0.10. 08/09/2017**
 IOT Tests Suite **version 2.3. 07/2017**

Test Tool **version 1.8**
 Tester Modem **version 1.10**
 Certification Test Procedures **version 1.11. 11/09/2017**

Certification Profile **C (FCC)**
 Role **PAN Device**
 Overall Verdict **PASS**



Initiation	Date	Description of modification	Ed.
Omar DIOUF	September 28, 2017	Creation	00

Name	Realised by	Checked by	Approved by
	Omar DIOUF	Vincent BUCHOUX	Thierry DOLIGEZ
Date	September 28, 2017	September 28, 2017	September 28, 2017
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.

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Annex 4: Additional details of the certified platform

Platform model name:	THUNDER
Platform hardware version:	2.2_NXP_TI
Platform firmware version:	2.4.4F
Exact part number of all the chips running G3-PLC stack in the certified platform:	PIMXRT1052DVL6A
What each part number runs: lower MAC (incl. CSMA/CA) or PHY or other parts of the stack:	PHY+MAC+ADP
Hardware version of this chip:	1.0
Software version running on this chip:	2.4.4F
Internal CPU frequency:	600 MHz

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