DECT WORLD 2026

DECT NR+ Certification Tester

A concept for repeatable, standards-aligned testing

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CONCEPT PRESENTATION | DEVELOPMENT IN PROGRESS

From implementation to confidence

The need

A consistent way to test DECT NR+ devices, according to ETSI TS 104 047-1/2 Conformance Test Specification, for physical and protocol layers.

The solution

A modular tester combining TTCN-3 controlled RF interaction with equipment under test (EUT) and communication with Lab Equipment

The outcome

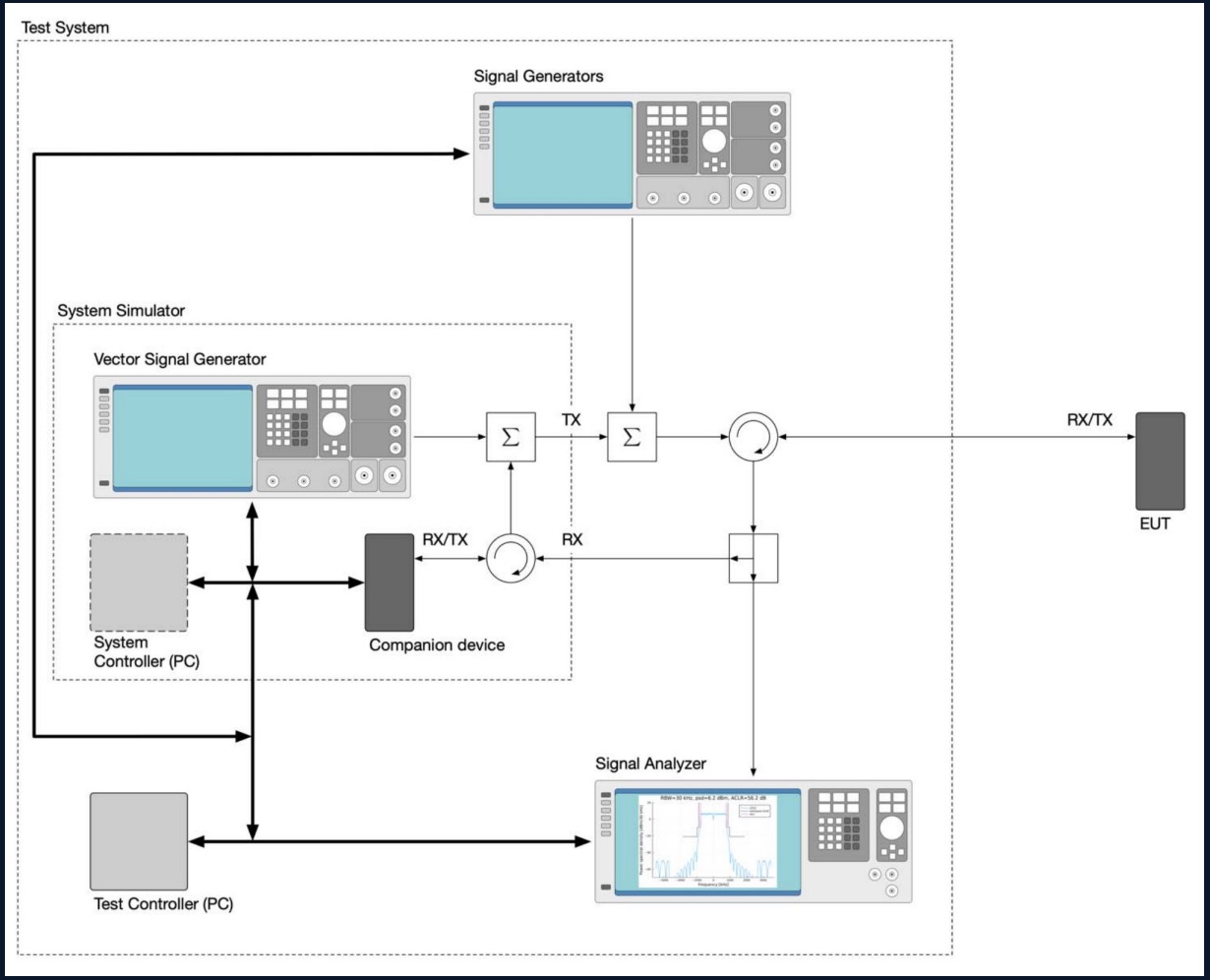
More repeatable development testing and a foundation for a future certification workflow, ensuring interoperability between devices.

The tester, used with appropriate Lab equipment, will guarantee conformance of new DECT NR+ devices to the standard

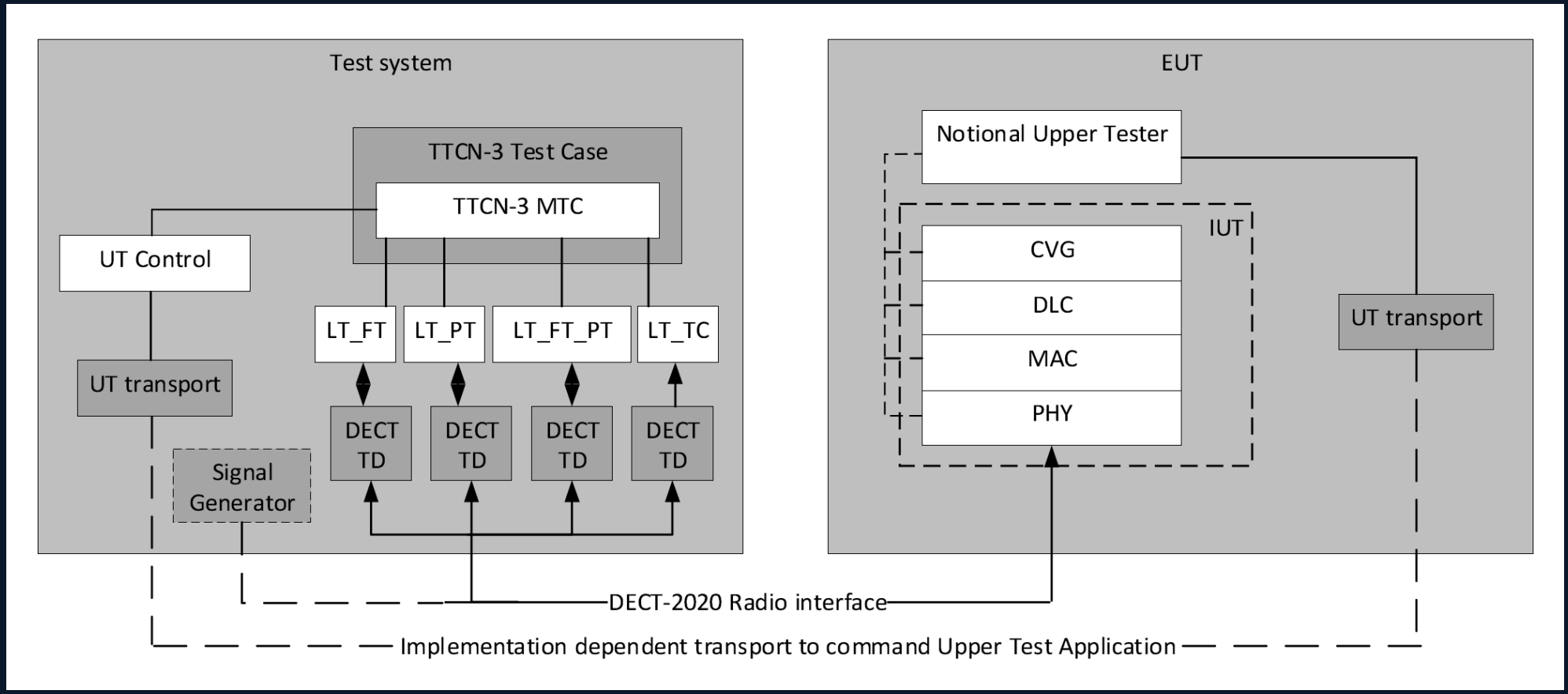
Physical Layer Testing (TS 104 047-1)

A companion device is required to send and receive data to / from the EUT, while the Lab equipment generates and measures RF signals for conformance testing

The companion device and Lab equipment are controlled by a PC

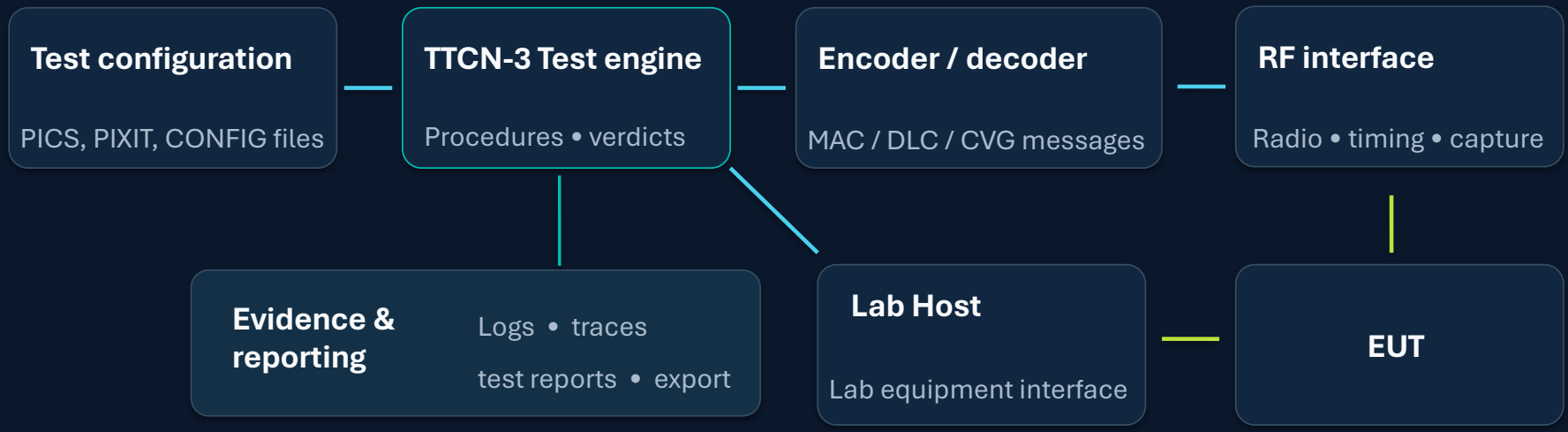


Protocol Layers Testing (TS 104 047-2)



A modular tester architecture

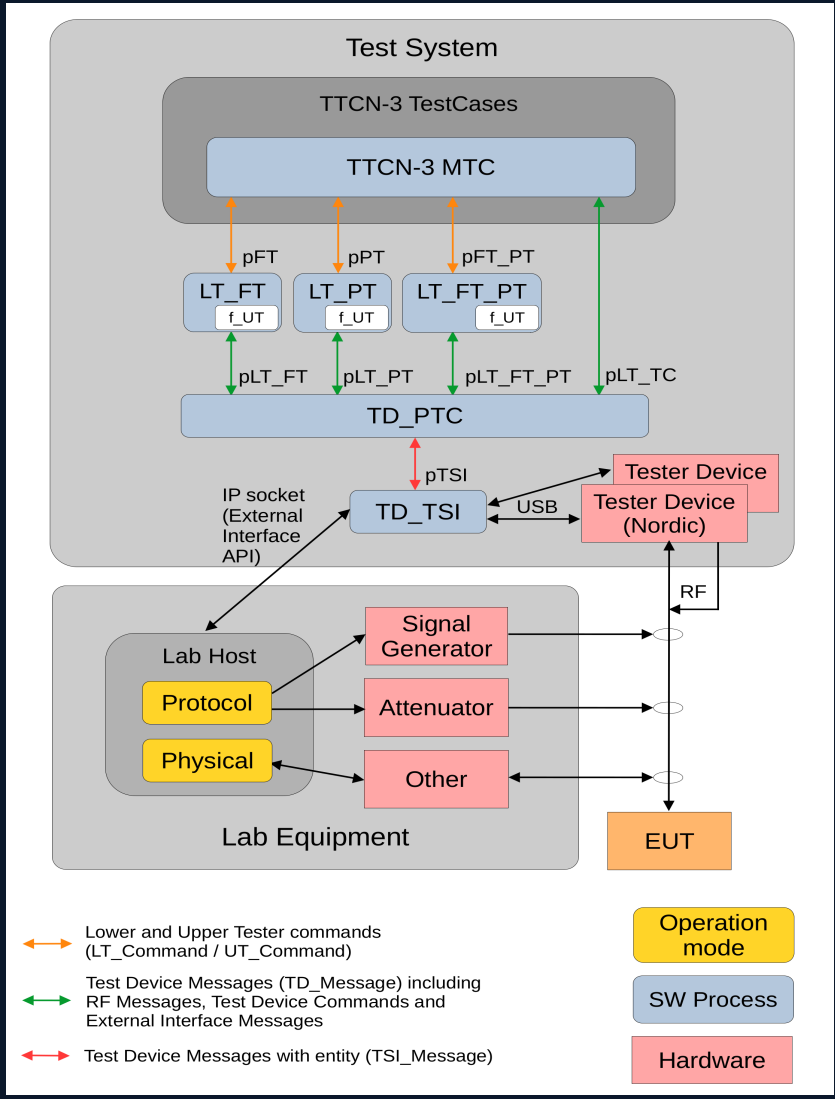
To simplify deployment in different certification Labs



Design principle: keep test logic, protocol encoding/decoding and hardware adaptation separable.

Tester Arquitecture

- TTCN-3 language implementing protocol test cases, running on a PC
- Parallel SW processes to handle protocols for multiple device types simultaneously
- Test System controls one or more Tester Devices (connected over USB) for RF communication with EUT
- Separate Lab Host program (running in the same or other PC) communicates over IP socket with Test System
- Unified interface (External Interface) for both physical and protocol layers (with two separate operation modes)
- Lab Host must be developed by certification Lab to control all RF equipment with appropriate communication protocols



External Interface over IP socket

From Tester to Lab Host

TST_CONFIG	// Mode(1)
TST_ATTENUATION	// Id(1), Attenuation(1)
TST_INTERFERENCE	// Frequency(4), Bandwidth(4), Power(1), Duty(1)
TST_TEST_CONTROL_CONNECT	// None
TST_ACTIVATE_MEASUREMENT_MODE_COMPLETE	// Status(1)
TST_REPORT_MEASUREMENT_MODE_A	// RSSI_1(1)
TST_REPORT_MEASUREMENT_MODE_B	// RSSI_2(1), SNR(1), Count(4)
TST_ACTIVATE_TX_LOOP_MODE_COMPLETE	// Status(1)
TST_ACTIVATE_RX_LOOP_MODE_COMPLETE	// Status(1)
TST_REPORT_TX_LOOP_MODE	// Status(1), Count(4)
TST_REPORT_RX_LOOP_MODE	// Status(1), RSSI_2(1), SNR(1), Count(4)
TST_RX_LOOP_MODE_DATA_REPONSE	// RSSI_2(1), SNR(1), 0s or PN15 Random data

From Lab Host to Tester

TST_ACTIVATE_MEASUREMENT_MODE	// Mode(1), Channel(2), Start(1)
TST_DEACTIVATE_MEASUREMENT_MODE	// None
TST_ACTIVATE_TX_LOOP_MODE	// Mode(1), Channel(2), Start(1), Period(1), Duration(1), PlcfType(1), Plcf(5/10)
TST_ACTIVATE_RX_LOOP_MODE	// Mode(1), Channel(2), Start(1), RespDelay(1), PlcfType(1), Plcf(5/10)
TST_DEACTIVATE_LOOP_MODE	// None

Unified interface to operate as companion device, during physical tests, controlled by the Lab Host and to control attenuation and interference generators, through the Lab Host, during protocol tests

A repeatable test campaign

The journey from EUT setup to evidence-backed results.

01

Configure

Select PICS, PIXIT, EUT configuration parameters and test suite

02

Execute

Run controlled test procedures

03

Evaluate

Apply explicit verdict criteria

04

Report

Export results and evidence

Evidence to retain Test version • EUT identity • configuration • raw logs / traces • verdict rationale • report timestamp

Build confidence in stages

Test System development plan

PHASE 1

Requirements

Scope, normative mapping, interfaces

Exit: approved requirements

PHASE 2

Prototype

Core architecture, first end-to-end tests

Exit: repeatable demo

PHASE 3

Coverage

Expand cases, automation and reporting

Exit: agreed coverage target

PHASE 4

Validation

Cross-check, usability, test EUTs from different manufacturers

Exit: release criteria met

Target milestones Requirements [July 2026] • Prototype [November 2026] • Coverage [March 2027] • Release [May 2027]

Align the development with Certification Labs

- Agree on the Lab Host architecture.
- Identify test equipment interfaces and RF requirements.
- Review the proposed External Interface.
- Perform validation tests with test equipment and EUTs.

LET'S DISCUSS

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Proposed next step: [find interested parties / technical review / pilot programme]

Thank you

Questions & discussion



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