

UT³ Platform

Conformance Platform for All Interfaces



UT³ Platform is an outstanding universal GCF, PTCRB, EMVCo, and NFC Forum conformance test platform. In one single device, it provides everything needed to test the relevant interfaces in mobile phones, contactless terminals, chipsets, and NFC devices. The solution comprises NFC, EMVCo, and UICC simulation, a digital storage oscilloscope, and a spy tool allowing monitoring and analysis of the data exchanged over the UICC and the contactless interface.

COMPRION's user-friendly Device Test Center software provides comprehensive access to all functionalities of UT³ Platform.

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COMPRION SIMfony synchronizes UT³ Platform with network simulators. It is used as the most popular validated conformance test platform for combined handset testing in 2G, 3G, and LTE environments.

Main Capabilities

- One single platform for synchronized testing of all UICC and NFC interfaces
- Stand-alone operation and synchronization with network simulators (COMPRION SIMfony)
- GCF, PTCRB, EMVCo, and NFC Forum conformance platform
- Wide range of conformance test cases for USIM, USAT, CSIM, CCAT, SWP, HCI, NFC and EMV
- Test and simulation of NFC-enabled devices and tags
- Powerful analyzers for timing measurements and error identification
- Synchronized tracing of the contactless and the UICC interface
- Integrated oscilloscope

Use Cases

- Conformance and regression testing of mobile phones
- Interoperability testing of terminals and smart cards
- Development/debugging of
 - Mobile phones and chipsets
 - Contactless terminals/readers
 - Banking terminals
 - NFC-enabled devices
 - Contactless frontends (CLFs)
 - M2M devices

Compliance Validation

- GCF/PTCRB
- NFC Forum
- EMVCo

Specification

CAPABILITIES

UICC Interface Testing

ISO/IEC 7816 1-4 interface testing

- Validated conformance platform at GCF/PTCRB
- Adjustable electrical and logical protocol and application parameters
- Simulation modules for multiple applications
- Error simulation
- Smart card simulation according to ISO/IEC 7816 1-4
- Supported ISO/IEC 7816 protocols: T=0, T=1

SWP/HCI interface testing

- Validated conformance platform at GCF/PTCRB
- Adjustable electrical and logical protocol and application parameters
- Error simulation
- S1/S2-signal at C6 contact
 - Adjustable current value for S2
 - Measurement of voltage (S1) and current (S2)
- Advanced SWP test features
 - Extended bit duration
 - Support for selective reject s-frame (SREJ)

IC-USB interface testing

- Smart Card simulation according to ETSI TS 102 600 (IC-USB – Interchip-USB)
- Supported IC-USB modes: ICCD, Ethernet Emulation Module, Mass Storage

NFC Interface Testing

- Supported NFC modes: Card Emulation, Reader/Writer, Peer-to-Peer
- Simulation of NFC Forum Poller and Listener for NFC-A, NFC-B, NFC-F
- Simulation of PICCs and PCDs as per ISO/IEC 14443, types A and B
- Support for higher bit rates (up to fc/16; 848 kbit/s)
- Hardware supporting Waiting Time Extension (WTX) request
- Configurable protocol/timing parameters
- Simulation of NFC Forum tag types 1-4

NFC DC Measurement

- External trigger input and trigger out signal
- LEDs to indicate active channel, selected

- Two measurement channels
 - Sample rate 100 MHz
 - Resolution 14 bit
 - Input impedance:
 - BNC 1 M Ω /15 pF; MCX 10 M Ω /10 pF
 - Input measurement range: ± 2.50 V up to ± 25 V
- Input range, hardware status

Monitoring and Analysis

Display and analysis of communication

- During test case execution
- Between devices, tags and cards
- On physical, protocol, transport, logical link, and application layer

ISO/IEC 7816 Monitoring

- Translator modules for multiple applications e.g. OTA Remote Management Translator
- Structured view of the terminal profile

SWP/HCI Monitoring

- Based on ETSI TS 102 613 / ETSI TS 102 622
- Simplified High Level Data Link Control (SHDLC)
- Contactless tunneling (CLT)

IC-USB Monitoring

- Based on ETSI TS 102 600
- Advanced EEM interpretation mass storage: SCSI command interpretation
- Monitor of bytes, frames and bus states

Contactless Monitoring

- NFC Forum digital protocol and activity, LLCPP
- NFC Forum application protocol: NDEF, RTD
- NFC Forum tag types
 - Based on ISO/IEC 14443 (A/B)
 - Based on ISO/IEC 18092
- Proprietary contactless protocols B', MIFARE, and FeliCa
- Decoding of carrier and subcarrier
- Timing measurements of frame delay and waiting time
- Monitoring of bit rates from 106 kbit/s up to 848 kbit/s

TEST SUITES

Test Benches GSM (digital 850/1900 and 900/1800)

- 3GPP TS 51.010-1 SIM
- 3GPP TS 51.010-4 SAT
- MNC (only GSM 850/1900)

Test Benches W-CDMA (digital)

- 3GPP TS 31.121 USIM
- 3GPP TS 31.124 USAT
- ETSI TS 102 230
- IOT for 3G terminals

Test Benches LTE (digital)

- 3GPP 31.121 USIM
- 3GPP 31.124 USAT
- VZW LTE Testplan for USIM/USAT/ISIM

Test Benches CDMA2000 (digital)

- CCAT stand-alone
- R-UIM 3GPP2 C.S0048-0
- Open Market Handset (OMH) test plan
- VZW Testplan for CSIM/CCAT

Test Benches GSM/W-CDMA/CDMA 2000 (analog)

- ETSI TS 102 230
- GSM 3GPP TS 51.010-1
- CDMA2000 3GPP2 C.S0048-0

EMVCo Test Benches

- EMVCo PICC L1 Analog*
(separate brochure available)
- EMVCo PCD L1 Analog*
(separate brochure available)
- EMVCo Terminal L1 Electrical
(separate brochure available)

SWP/HCI Test Benches

- ETSI TS 102 384 CAT SWP HCI Testbench
- ETSI TS 102 694-1 SWP
- ETSI TS 102 695-1 and TS 102 695-3 HCI

NFC Forum Test Benches

- NFC Forum Digital Protocol
- NFC Forum Tag Operation
- NFC Forum LLCP
- NFC Forum SNEP
- NFC Forum RF Analog*

GSMA TS.27 Test Benches

- GSMA TS.27 Android Specific
- GSMA TS.27 BIP
- GSMA TS.27 Card Emulation
- GSMA TS.27 General Device Support
- GSMA TS.27
Multiple Card Emulation Environment
- GSMA TS.27 NFC Tags
- GSMA TS.27 SEAC
- GSMA TS.27 SWP Stress
- GSMA TS.27 UI Application Triggering

SIMalliance Test Bench

- SIMalliance OMAPI

Global Platform Test Bench

- GlobalPlatform SEAC Device Test

Other Test Benches

- ETSI TS 102 922-1 IC-USB

* COMPRION Safety Cell with robot required

GENERAL FEATURES

- Supported smart card voltage: 1.2 V/1.8 V/3 V/5 V
- Time measurement performance
 - Resolution (contactless): up to 1/(8fc)
 - Resolution (contact-based): 10 ns
- Measurement units: etu, second, CLK cycle
- Time-synchronization interfaces
 - High-speed COMPRION SyncBus
 - Trigger out: connection between Analog Scope and external oscilloscope (1 V signal level at 50 Ω)
- PCD output
 - P_{max} 1 W into 50 Ω impedance
 - Frequency range 13.56 MHz ± 3.75 MHz
 - Frequency resolution < 24 mHz
- Ambient temperature range: 20°C - 26°C
- Required relative humidity of 40% ±20%
- High operating convenience
 - Integrated touch screen
 - Multiple connections: DVI, VGA, LAN, USB, RS 232

OPTIONS

Universal Telecom Simulation Package

- Simulators for SIM, UICC/USIM, CSIM, CDMA 2000 R-UIM, SCWS and ISIM
- Editors for SAT, USAT and CCAT
- Translators for GSM, W-CDMA, CDMA 2000 and WiBroTM (incl. SAT, USAT, and CCAT Monitors)

COMPRION MoVie

- Stand-alone viewing software for log files traced with COMPRION test tools (free of charge)

Analog Scope

- Integrated digital storage oscilloscopes
 - Contact-based operation: configurable sample rate of up to 100 MHz
 - Contactless operation mode: configurable sample rate of up to 4fc
- Detailed timing and value measurements
- Analog voltage measurements on contacts VCC, RST, CLK, I/O, and SWP
- Analog current measurements on contacts VCC and SWP
- 2-stage cascading trigger definition
- Retriggering: multiple recording of samples initiated by defined trigger condition
- Configurable sample rate: up to 14 bit resolution per sample
- Sample depth
 - Contact-based operation mode: up to 128 M samples
 - Contactless operation mode: up to 32 M samples

COMPRION SIMfony

(separate brochure available)

- Comprehensive test systems for combined handset testing integrating a network simulator

COMPRION Safety Cell

- Compact cabinet including 6-axis industrial robot for automated, fast, robust and highly accurate testing

Analog Scope Viewer

- Visualization of analog signals (for example modulated carrier amplitude, envelope signal)
- Display of up to 8 digital channels in contactless and up to 16 digital / 4 analog channels in contact-based operation mode
- Signal/frequency analysis
- Quick measurements
 - Modulation index
 - Waveform characteristics
 - Frequency spectrum
 - Fall/rise times
 - Peak-to-peak
 - Top/bottom
 - Duty cycles
 - Overshoot, undershoot
 - Low level, mid level, high level

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DIMENSIONS

- W x D x H: 450 x 375 x 175 mm
- Weight: 14 kg

SCOPE OF DELIVERY

- UT³ Platform
- Device Test Center
- USB stick for system recovery
- Keyboard/mouse, power cords (EU or US)
- Accessories according to test bench requirements, like antennas, Flex Probes or Analog Probe (optional)



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