

COMPRION

COMPRION SIMfony Family – Conformance for the UICC Interface of Mobile Devices



5G, Mobile IoT (CAT M1, NB-IoT), LTE, 3G & 2G

COMPRION SIMfony Family at a Glance

Most Popular Conformance Test Platform for the UICC Interface of Mobile Devices

- Based on COMPRION UICC simulators:
 - UT³ Platform (conformance)
 - Prove 2 and IT³ Prove! (pre-conformance)
- Integrated network simulators for 2G, 3G, LTE, Cat M1, NB-IoT, and 5G
- Validated at GCF and PTCRB
- Biggest GCF & PTCRB test coverage for UICC-related device testing
- All test procedures controlled by one GUI:
 - Convenient test case management
 - Easy-to-use log file handling
- Automated test procedures

Who Needs It ?

- Chipset & device vendors
- Test houses
- M(V)NOs
- Players in automotive



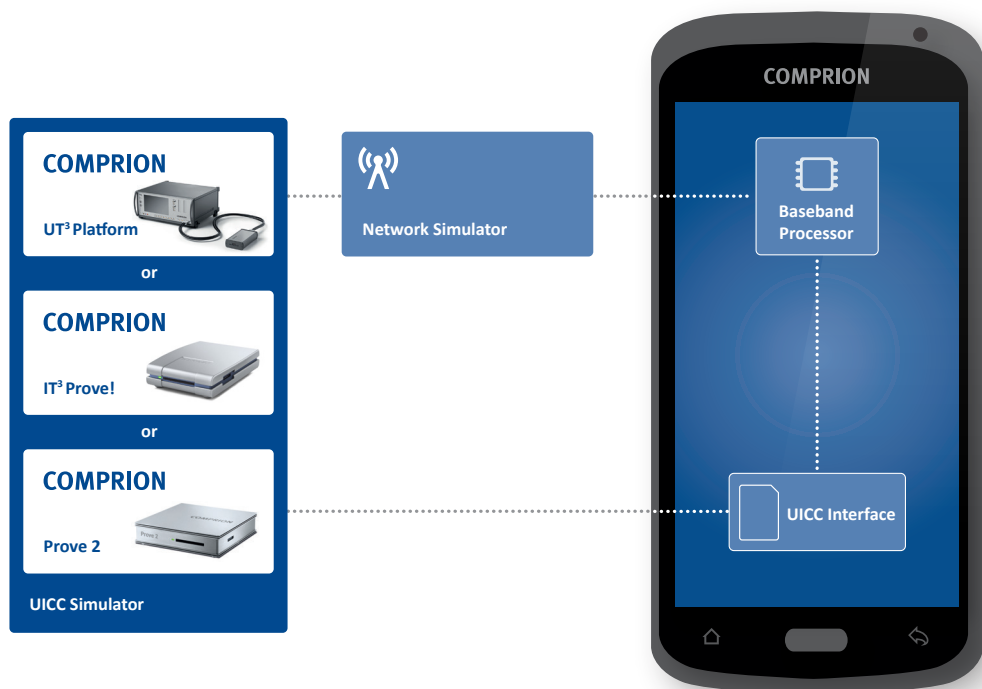
Ensuring that the latest smartphones and mobile devices work correctly with the UICC

Today, in mobile communication the UICC plays a central role because it offers a secure way to authenticate mobile devices to the network. As the complexity of new mobile devices in combination with the UICC and new network technologies is growing, testing the UICC interface before the market launch is essential. To assure interoperability, GCF/PTCRB have identified which tests are required for conformance testing. This way manufacturers ensure that the latest smartphones and mobile devices work correctly with the UICC and the respective network. Furthermore, large mobile network operators like Verizon have issued their own testing standards for device compliance within their network. The purpose of all these tests is to prove conformance and to guarantee the proper functioning of devices in the field. This consequently avoids high follow-up costs, ensures seamless connectivity and improves user experience.

How does COMPRION help to address the growing diversity in mobile device testing?

COMPRION SIMfony family – our solution for combined mobile device testing – enables you to test the UICC interface of the device in a lab environment. While our out-of-the-box-solution covers all requirements of GCF/PTCRB, our customer-specific solutions – as the one for Verizon Wireless – meet additional requirements. As most of these tests involve a network simulator, COMPRION makes sure, that the most popular network simulators are integrated smoothly into the SIMfony setup. The complete SIMfony solution consists of a network simulator and a COMPRION UICC simulator.


Figure 1: Overview of the COMPRION SIMfony setup



Which One to Use?

Depending on the purpose, you can use UT³ Platform for GCF and PTCRB conformance testing, whereas Prove 2 is the best choice for pre-conformance testing. Like IT³ Prove!, Prove 2 will soon serve as a cost-efficient alternative to UT³ Platform for running VZW (Verizon Wireless)-specific test benches.


Conformance Testing Platforms



UT³ Platform

- Validated conformance test platform
- Registered at GCF and PTCRB for (U)SIM and (U)SAT testing according to ETSI/3GPP standards for certification
- Used for VZW-specific certification

Pre-Conformance & Development Testing Platforms



Prove 2 or **IT³ Prove for VZW**

- Cover the same complete range of (U)SIM and (U)SAT tests as the UT³ Platform
- Cost-effective pre-conformance testing
- Used for VZW-specific certification

COMPRION SIMfony can be used for two types of tests: 1. Tests without a network simulator, so-called stand-alone tests. 2. Tests, that need a network simulator, known as combined tests. For combined tests, the available network simulators for GSM, W-CDMA, CDMA2000, LTE, Cat M1, NB-IoT, and 5G networks are listed in the table below.

Our COMPRION SIMfony Family Portrait – Combined Mobile Device Testing for All Network Technologies

COMPRION SIMfony	Covered Radio Access Technology	Conformance Test Platform	Pre-Conformance Test Platform	Network Simulator
MT8000A	<ul style="list-style-type: none"> 5G SA 	<ul style="list-style-type: none"> UT³ Platform 	<ul style="list-style-type: none"> Prove 2 	<ul style="list-style-type: none"> Anritsu MT8000A
CMX500/ CMW500	<ul style="list-style-type: none"> 5G SA 	<ul style="list-style-type: none"> UT³ Platform 	<ul style="list-style-type: none"> Prove 2 	<ul style="list-style-type: none"> R&S CMX500 & R&S CMW500
CMW500	<ul style="list-style-type: none"> W-CDMA (3G) LTE/Cat M1/NB-IoT 	<ul style="list-style-type: none"> UT³ Platform 	<ul style="list-style-type: none"> Prove 2 	<ul style="list-style-type: none"> R&S CMW500
MD8475B/ MD8475A	<ul style="list-style-type: none"> GSM (2G) W-CDMA (3G) LTE (4G) 	<ul style="list-style-type: none"> UT³ Platform 	<ul style="list-style-type: none"> Prove 2 	<ul style="list-style-type: none"> Anritsu MD8475B Anritsu MD8475A
Verizon	<ul style="list-style-type: none"> LTE (4G), CDMA2000 	<ul style="list-style-type: none"> UT³ Platform IT³ Prove! Prove 2 		<ul style="list-style-type: none"> R&S CMW500 Spirent AirAccess C2K
Spirent AirAccess C2K	<ul style="list-style-type: none"> CDMA2000 		<ul style="list-style-type: none"> UT³ Platform IT³ Prove! 	<ul style="list-style-type: none"> Spirent AirAccess C2K

Test Case Packages for All Requirements

	GCF-WI	PTCRB-RFT	Test Cases
5G SA	WI-508-NR WI-509-NR	RFT 508 RFT 509*	3GPP TS 31.121 USIM 3GPP TS 31.124 USAT
NB-IoT	WI-266, WI-301-NB	RFT 147	3GPP TS 31.121 USIM 3GPP TS 31.124 USAT
LTE/CAT M1	WI-125, WI-125-M, WI-301-M, WI-137, WI-230	RFT 085, RFT 104,	3GPP TS 31.121 USIM
	WI-137-M, WI-30-M, WI-301-M	RFT 092, RFT 102	3GPP TS 31.124 USAT
W-CDMA	WI-010, WI-013, WI-035, WI-104, WI-230	RFT 029	3GPP TS 31.121 USIM
	WI-035, WI-104, WI-230	RFT 058, RFT 083, RFT 092, RFT 102, RFT 108	3GPP TS 31.124 USAT
GSM	WI-005	-	3GPP TS 51.010-1 SIM
	WI-008	-	3GPP TS 51.010-4
GSMA TS.27 NFC Handset Test Book	WI-176, WI-197, WI-214, WI-249	RFT 123	GSMA TS.27 BIP TB GSMA TS.27 Remote Management
Standalone tests applicable for multiple device types	WI-160, WI-125	RFT 029, RFT 085	3GPP TS 31.121 USIM
	WI-035	RFT 058	3GPP TS 31.124 USAT
	WI-263	RFT 029	ETSI TS 102 230-1 UICC

* in preparation

SIMfony also offers test cases in accordance with network operator requirements

Network Operator	Radio Access Technology	Compliance Test Plans
Verizon Wireless	LTE, Cat M1 and CDMA2000	VZW LTE Device-UICC (USIM/ISIM) Interaction (incl. IMS tests)
		VZW LTE Device-SIM Application Interaction (OTA)
		VZW LTE Device-UICC USIM-ISIM Interaction for Band 4
		VZW LTE Multi-Mode Device-UICC CSIM Interaction

What Else Does SIMfony Offer?

Easy Testing with a Convenient User Interface (UI)

The whole test setup is synchronized and controlled by the respective COMPRION UICC simulation tool. If you work with UT³ Platform or Prove 2, you are able to handle test plan management, monitoring, and test result analysis with the all-in-one testing software Device Test Center.

User-Friendly Test Case Management

All test platforms offer a convenient user interface to configure the PICS/PIXIT parameters of the implementation under test. It is even possible to configure the parameters for the network side and identify tests that are relevant for the device under test. Hence, a test plan can be created that includes only

those test cases that are actually applicable to your testing requirements.

Convenient Log File Handling

The verdicts produced by the network simulator are merged with the UICC simulator verdicts, which results in an overall test verdict. The network simulator log files are automatically transferred to the UICC simulator. Both simulator log files then are available in the corresponding viewer right in the COMPRION test system.

Efficiently Working in Batch Mode

COMPRION SIMfony can run all stand-alone and combined tests in batch mode. The operator only has to select the desired test cases and to start the batch run.

Automate Your Mobile Device Testing

How to Save Time & Money

In today's fast moving world reducing the time-to-market for mobile devices is a crucial competitive factor. However, comprehensive mobile device testing is labor- and cost-intensive. COMPRION terminal automation helps you to get rid of manual interaction like power on/off or messages that have to be checked on the display. This frees your testing team to focus on what they do best: analyzing the results.

Without COMPRION SIMfony

Smart card simulator, network simulator, and the device under test must be operated manually.

With COMPRION SIMfony

The operator only needs to interact with the smart card simulator and the device under test.

With COMPRION SIMfony + Additional Device Automation

The operator only needs to start the test(s).

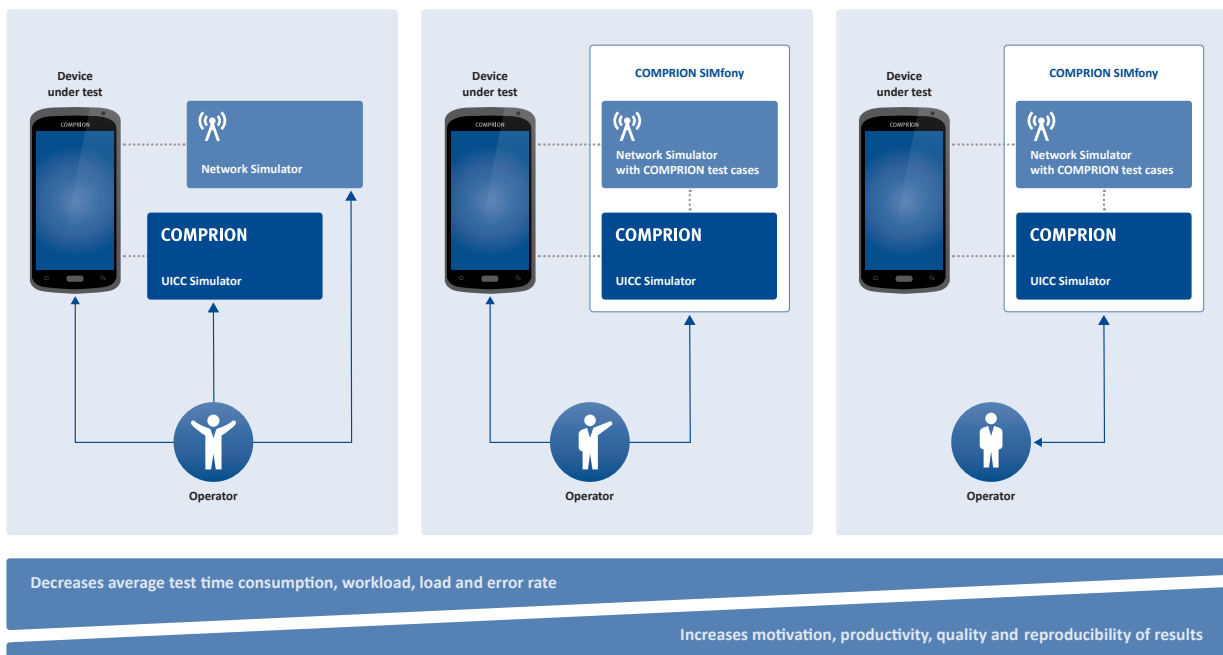


Figure 2: Efficient test case execution: manual vs. combined vs. combined and automated mobile device testing.

The core of the automation system is COMPRION Terminal Automation Provider (TAP). This software can be installed either on the test platform itself or on any host PC dedicated to run the control software of the device under test. With COMPRION TAP, you need to adapt your equipment only once. Then, you can easily execute COMPRION SIMfony tests, whether combined or stand-alone, in full automation mode over and over again. This is especially useful for regression testing.



Work with the Remote Interface

To further ease the control of the test setup, you can use the remote function. Combined with the COMPRION Terminal Automation, you can run regression tests fully automated overnight.

Integration into an Existing Test Case Management System

If you use your own test management system, COMPRION SIMfony can be integrated via the remote interface. In that event, your test case management system only has to start the tests and manage the results. Combining the remote interface and TAP gives you a fully automated testing experience.

Error Debugging

Of course, with terminal automation mode, you will get the same deep and proven level of debugging information as without.



COMPRION Terminal Automation – Typical Use Cases

- Regression tests
- Overnight tests of GCF/PTCRB-relevant tests

COMPRION Terminal Automation – Key Benefits at a Glance

- No handling errors caused by a human test operator
- Helps you to get rid of routine test tasks e. g. frequent regression tests
- Saves time by speeding up testing
- Efficient batch mode processing
- Highly reliable and repeatable results



COMPRION GmbH

Lise-Meitner-Str. 3
33104 Paderborn
Germany

Phone: +49 5251 6859 0
E-mail: info@comprion.com
www.comprion.com

IMPRINT

Editor: COMPRION | Graphic-Design: markt8.de (Paderborn) | Photos: markt8.de (Paderborn),
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