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**Technical Document**

**GSM PROTOCOL STACK**

**GPF**

**TCGEN – TEST CASE GENERATOR**

**DEVELOPER DESCRIPTION**

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## 0 Document Control

### 0.1 Change History

Date	Changed by	Approved by	Version	Status	Notes
2002-May-13	RK et al.		0.1		1
2003-May-20	XINTEGRA		0.2	Draft	
2003-Aug-18	RK		0.3	Draft	2

#### Notes:

1. Initial version
2. New Document ID introduced

### 0.2 List of Figures and Tables

### 0.3 List of References

[GSM 2.30]	ETS 300 511: July 1995 (GSM 02.30 version 4.13.0) Man-Machine Interface (MMI) of the Mobile Station (MS), ETSI
[PCO2_UG]	06-03-35-UDO, PCO2 – Tracing Environment (pco_userguide.doc)
[PCO2_D]	06-03-35-SLL, PCO2 – Tracing Environment (pco_description.doc)
[TCGEN_UG]	06-03-32-UDO, TCGen – TestCase Generator (tcgen_userguide.doc)
[TCGEN_I]	TCGen – Introduction (tcgen_intro.pps)
[TCGEN_DIPL]	TCGen – Diploma Thesis (tcgen_diploma_thesis.pdf)
[XM]	06-03-55-UDO, XM –GUI-frontend for GPF m.bat (xm_userguide.doc)
[MOAN]	06-03-53-UDO, MoanBtn – Instant GUI-problem Informer (mbtn_userguide.doc)

## 0.4 Abbreviations

ACI	Application Control Interface (AT Commands)
G23	The Condat implementation of Layers 2 and 3 of the GSM Protocol Stack
G23 Target System	Hardware which executes G23
LCD	Liquid Crystal Display
MM	Mobility Management
MMI	Man Machine Interface
MOC	Mobile Originated Call
MTC	Mobile Terminated Call
PC	Personal Computer
PCO	Point of Control and Observation
PIN	Personal Identification Number
RS232	Serial Communication Standard
Target System	Shortened form of 'G23 Target System'
TCGEN	TestCase Generator

## 0.5 Terms

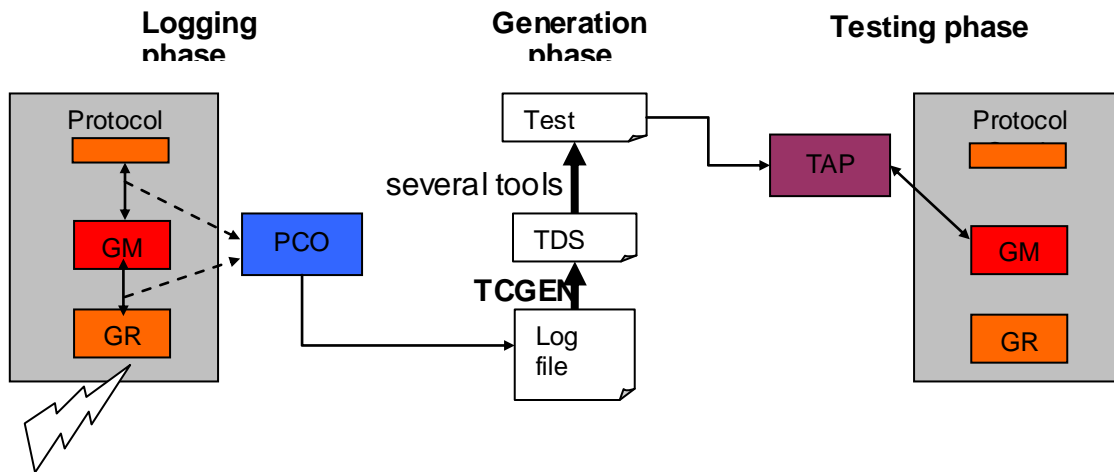
Entity	Program which executes the functions of a layer
Message	A message is a data unit which is transferred between the entities of the same layer (peer-to-peer) of the mobile and infrastructure side. Message is used as a synonym to protocol data unit (PDU). A message may contain several information elements.
Primitive	A primitive is a data unit which is transferred between layers on one component (mobile station or infrastructure). The primitive has an operation code which identifies the primitive and its parameters.
Service Access Point	A Service Access Point is a data interface between two layers on one component (mobile station or infrastructure).

# 1 Introduction:

With the tool PCO2 (see [PCO2\_UG] and [PCO2\_D]) it is possible to log traffic of primitives inside a running protocol stack, especially during a field test. On the other hand the tool TAP (see [TAP]) can send and receive specified primitives to/from a PS and therefore simulate a specific test situation.

TCGen is a tool for automatically test case generation from PCO log files. It can be used to e.g. rerun field tests within a debugging environment on a PC. It parses a log file containing all crucial primitives sent from/to the entities under test and creates a TDS-file which can be transformed to a test case DLL-file in the usual way.

The following graphic gives an overview about the general process:



This documentation is dedicated to interested developers. For user/customer specific documentation see [TCGEN\_UG].

See [TCGEN\_DIPL] for another detailed description of the internals of TCGen.

## 2 Solution

### 2.1 General Procedure

#### 2.1.1 Environment

To use TCGen some environmental constraints have to be taken into account.

For use under Windows:

At first you'll have to make sure that several DLL/EXE-files are available to the system. In the Condat development directory structure you can find them in „<View>/GPF/Bin” :

- Frame-DLLs (frame.dll, tif.dll, misc.dll)
- CCD-DLLs (ccddata\_load.dll, ccddata-DLL)
- VCMS-DLL (CMS.dll)
- Testinterface of the Frame (tst.exe)

So just make sure „<View>/GPF/Bin” is in your PATH-variable.

That means if you start “tcgen.exe” from „<View>/GPF/Bin” everything will be fine.

#### 2.1.2 Build process

MS Developer Studio 5.0 must be installed and it's bin-directory has to be in the PATH. (CONDAT internal you should use /GPF/initvars.bat)

ClearCase : make sure all project dependencies are solved by your config spec (see /GPF/assist/readme\_tcgen.txt)

no ClearCase : make sure that you get all files on which tcgen depends (see /GPF/assist/readme\_tcgen.txt)

Change to tcgen directory and call 'gnumake' (or 'gnumake help' for more options).

Hint: remove error.log before running make if you want to track current ClearCase errors.

### 2.2 Detailed Descriptions - under construction -

#### 2.2.1 The Generator

### 2.3 Test

To run several default tests use “mall -test”.

## 3 Interface specifications

The next paragraphs contain specific informations about used and provided interfaces.

### 3.1 ... - under construction -



## **4 Known problems and future tasks**

This paragraph is meant to show which bugs are already found (but not removed yet) and to provide an impression of future plans concerning this product.

### **4.1 Known bugs**

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### **4.2 „Soon implemented“**

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### **4.3 „Nice to have “**

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## Appendices

### A. Acronyms

<b>DS-WCDMA</b>	Direct Sequence/Spread Wideband Code Division Multiple Access
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### B. Glossary

<b>International Mobile Telecommunication 2000 (IMT-2000/ITU-2000)</b>	Formerly referred to as FPLMTS (Future Public Land-Mobile Telephone System), this is the ITU's specification/family of standards for 3G. This initiative provides a global infrastructure through both satellite and terrestrial systems, for fixed and mobile phone users. The family of standards is a framework comprising a mix/blend of systems providing global roaming. <URL: <a href="http://www.imt-2000.org/">http://www.imt-2000.org/</a> >
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