Prepared (also subject responsible if other)		No.		
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LLC (V7.1.0) Protocol Modules for TTCN-3 Toolset with TITAN, User Guide

Contents

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1 Introduction

1.1 Revision history

Date	Rev	Characteristics	Prepared
2008-01-22	PA1	First draft version	ETHEKR
2008-01-23	PA2	Updated after inspection	ETHEKR

1.2 About this Document

1.2.1 How to Read this Document

This is the User Guide for the LLC protocol module. The LLC protocol module is developed for the TTCN-3 Toolset with TITAN. This document should be read together with Product Revision Information [3] and Function Specification [4].

1.2.2 Presumed Knowledge

To use this protocol module the knowledge of the TTCN-3 language [1] and TITAN Test Executor [2] is essential.

1.2.3 References

[1] ETSI ES 201 873-1 v.3.2.1 (2007-02)
The Testing and Test Control Notation version 3. Part 1: Core Language

[2] 1/198 17-CRL 113 200/3 Uen
User Guide for the TITAN TTCN-3 Test Executor

[3] 109 21-CNL 113 577-1 Uen
LLC (V7.1.0) Protocol Modules for TTCN-3 Toolset with TITAN, Product Revision Information

[4] 155 17- CNL 113 577 Uen
LLC (V7.1.0) Protocol Modules for TTCN-3 Toolset with TITAN, Function Specification

[5] 2/198 17-CRL 113 200/3 Uen
Programmer's Technical Reference for the TITAN TTCN-3 Test Executor

[6] 1/1531-CRL 113 200/3 Uen
Installation Guide for the TITAN TTCN-3 Test Executor

1.2.4 Abbreviations

TTCN-3 Testing and Test Control Notation version 3

LLC Logical Link Control

BSSGP Base Station System GPRS Protocol

1.2.5 Terminology

No specific terminology is used.

1.3 System Requirements

Protocol modules are a set of TTCN-3 source code files that can be used as part of TTCN-3 test suites only. Hence, protocol modules alone do not put specific requirements on the system used. However in order to compile and execute a TTCN-3 test suite using the set of protocol modules the following system requirements must be satisfied:

- TITAN TTCN-3 Test Executor R7A (1.7.pl0) or higher installed. For installation guide see [6]. Please note: This version of the protocol module is not compatible with TITAN releases earlier than R7A.

2 Protocol Modules

2.1 Overview

Protocol modules implement the messages structure of the related protocol in a formalized way, using the standard specification language TTCN-3. This allows defining of test data (templates) in the TTCN-3 language [1] and correctly encoding/decoding messages when executing test suites using the Titan TTCN-3 test environment [2].

Protocol modules are using Titan's RAW encoding attributes [5] and hence are usable with the Titan test toolset only.

The encoding function changes the XID parameter length format to the long length format in case the transmitted TTCN-3 template uses the short length format but the actual length value calculated by the RAW encoder makes the long length format necessary. (The XID parameter appears in the U frames when XID, SABM or UA format is selected.)

The encoding function automatically calculates the FCS field when the FCS field is set to ‘000000’O or when it is omitted, otherwise its TTCN-3 value is sent out.

The decoder checks the FCS field of the received frame. If the FCS is OK, the value ‘000000’O is set, otherwise the received value is returned to TTCN-3.

The N202 parameter is defined as 4 in the beginning of the encoder function. The tester needs to edit this in the encoder if the value has to be changed. (For UI frames transmitted in unprotected mode the FCS is calculated over the frame header and N202 octets of the information.)

2.2 Installation

The set of protocol modules can be used in developing TTCN-3 test suites using any text editor. However to make the work more efficient a TTCN-3-enabled text editor is recommended (e.g. nedit, xemacs). Since the LLC protocol is used as a part of a TTCN-3 test suite, this requires TTCN-3 Test Executor be installed before the module can be compiled and executed together with other parts of the test suite. For more details on the installation of TTCN-3 Test Executor see the relevant section of [6].

2.3 Configuration

None.