Product Introduction

MX702500B

Log to Scenario Converter

MX702500B Log to Scenario Converter (LSC) Product Introduction

Version 3.0

Anritsu Corporation

Contents

Anritsu UE Test Solutions

Core Technology Development Tests

PTS
(Protocol Test)

MD8480C
(Baseband Test)

MS269xA/
MG3700A-
SA/SG
(RF Test)

R&D Coupling Tests

MD8470A
(Function Test-W/C2K)
(Reliability Test-MNS)
(Original Application Test)

MT8820C
(RF Parametric Test)

Conformance Tests

PCT/ME7832A
(Protocol CT)

ME7873/74F
(RF CT)

Operator Acceptance Tests

IOT Field Tests

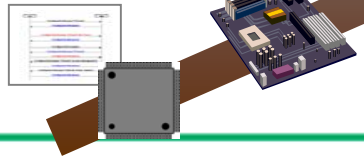
RTD
(IOT/UE Acceptance)

LSC &
MD8470A/
MD8480C
(FT Trouble-shooting)

MD8470A &
MATE
(Battery Test)

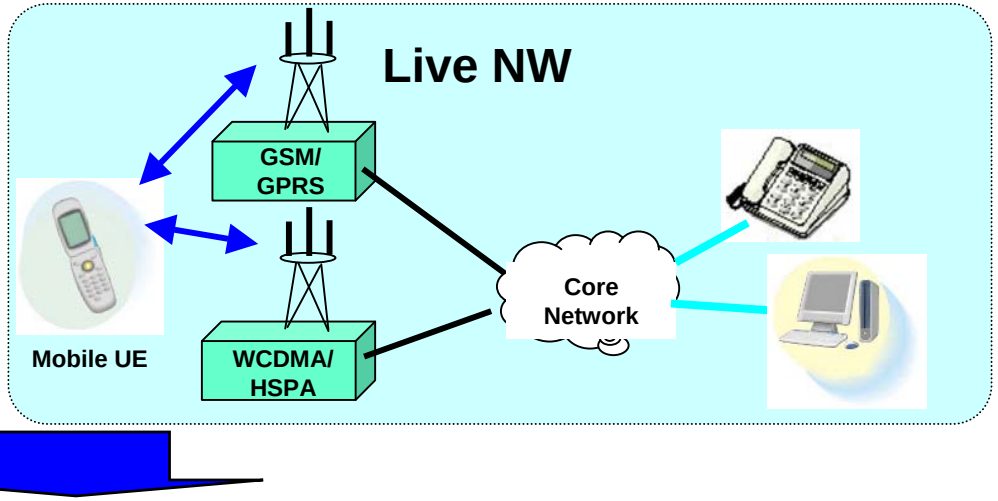
Production Line Tests

MT8820C
(RF Parametric Test)



Market Background of Field Tests (FT)

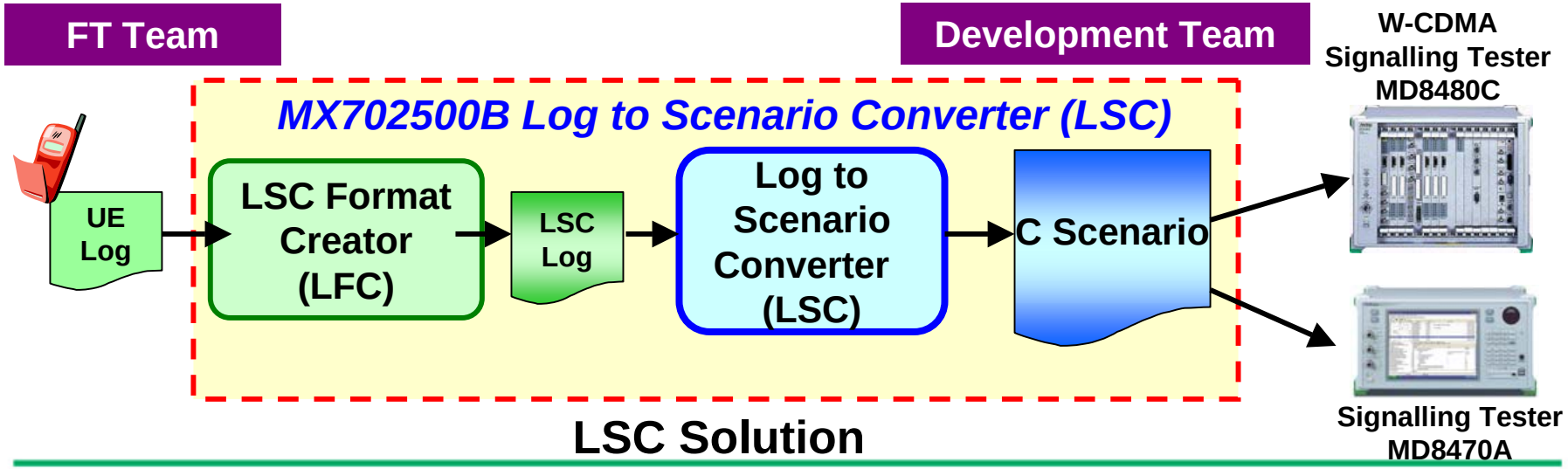
- Modern mobile networks have complex wireless systems and services, as well as more FT faults
- UE troubleshooting is:
  - Inefficient at finding faults from UE logs, and
  - Unable to reproduce FT faults easily



What if field faults could be reproduced easily at the lab bench?

General Introduction

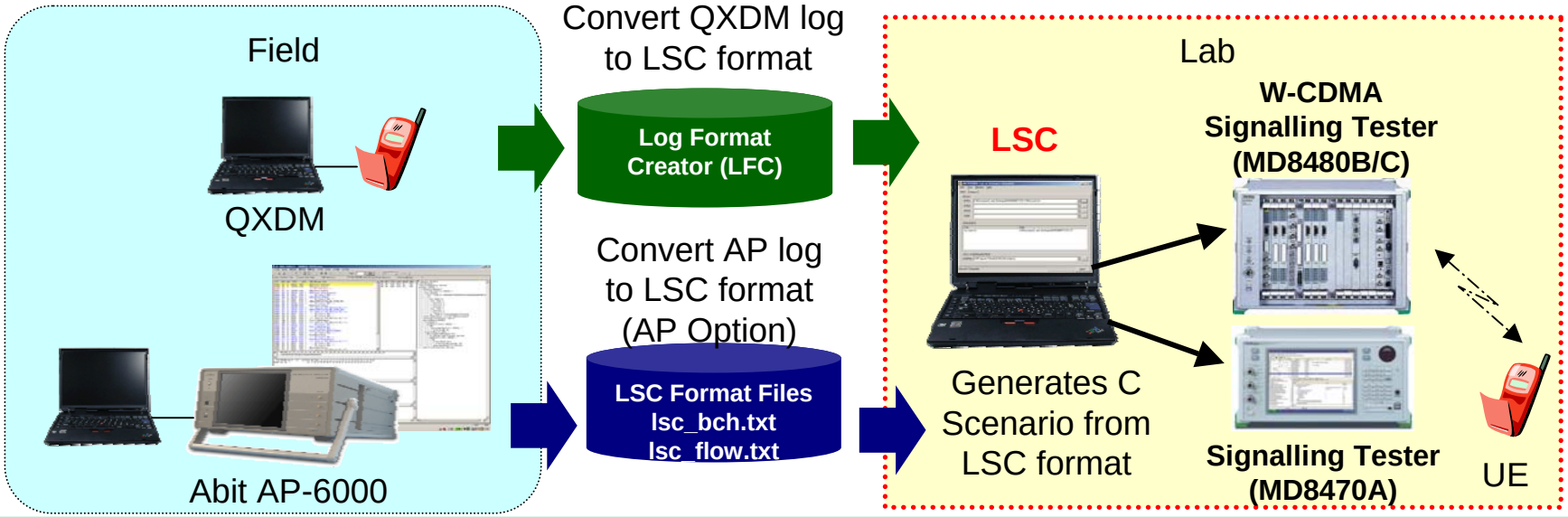
- The LSC is a tool for converting UE logs (Layer-3 messages) captured in real network environment to a file format for reproducing FT faults at the BTS simulator
- The LSC tool reproduces UE software faults at field tests



LSC Solution

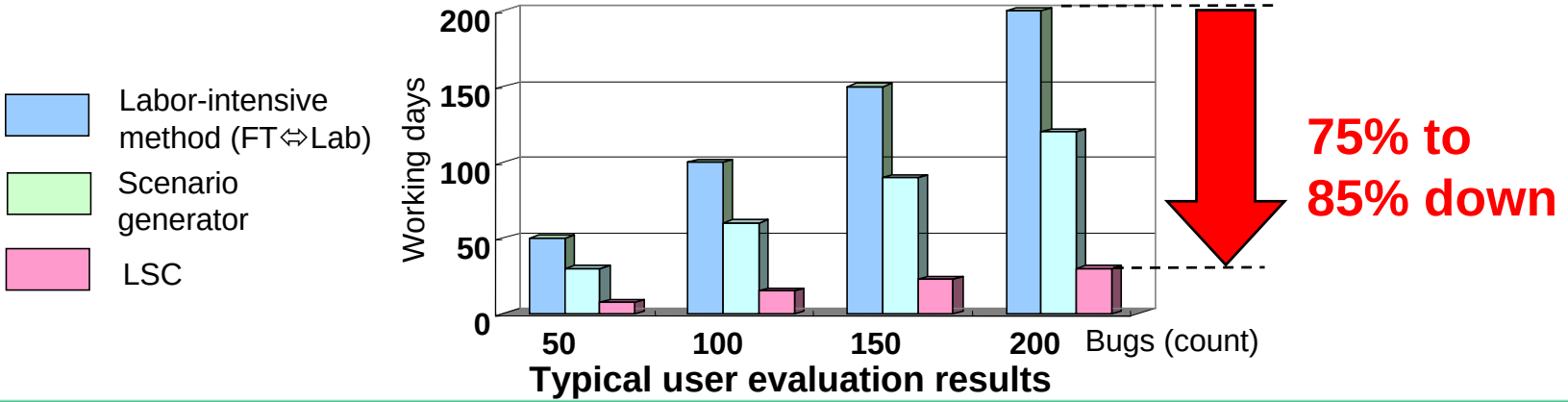
Application

- Reproduces FT fault at the lab
  - Generates test scenario from the UE or Air Monitor log
    - QXDM format log with Layer 3 message
      - MX702500B-011 Log Importing for QXDM
    - C-plane log of the Air Protocol Monitor
      - AP-4000 or AP-6000 + LSC format export function by Abit



Benefits of LSC

- Improves efficiency of FT fault analysis
  - Cuts UE software evaluation time and costs
    - Cuts troubleshooting downtime by up to 85% (with user evaluation results)
    - Supports parallel replay using multiple evaluation UEs
      - Generates scenario files that run on all signalling testers with one license
      - Finds infrequent errors
      - Improves quality through repeated tests



Benefits of LSC

- Improves efficiency of FT fault analysis
  - Excellent operability
    - Easy and convenient operation using GUI
      - Easy reproduction of software faults based on QXDM log
        - Log Importing for QXDM (MX702500B-011)*1
      - Graphical setting of downlink power control*2
        - LSC Format Creator (MX702500B-010)*3
  - Excellent flexibility
    - Easily change generated reproduction scenarios
      - Layer 3 message modification at fault isolation

*1: Log importing function for QXDM by format to LFC.
*2: Does not reproduce propagation environment, such as downlink power and fading status, in actual FT.
*3: The tool converts the UE log format to LSC log format with GUI setting of downlink signal power control and modified Layer 3 messages.

How to Convert from UE Log to Test Scenario

UE Log format to LSC Log format

STEP 1: Load UE log into LFC

1. Select format change engine
2. Change protocol sequence (if required)

STEP 2: Edit with LFC GUI

1. Easily modify Layer-3 message (if required)
2. Easily control downlink power with GUI

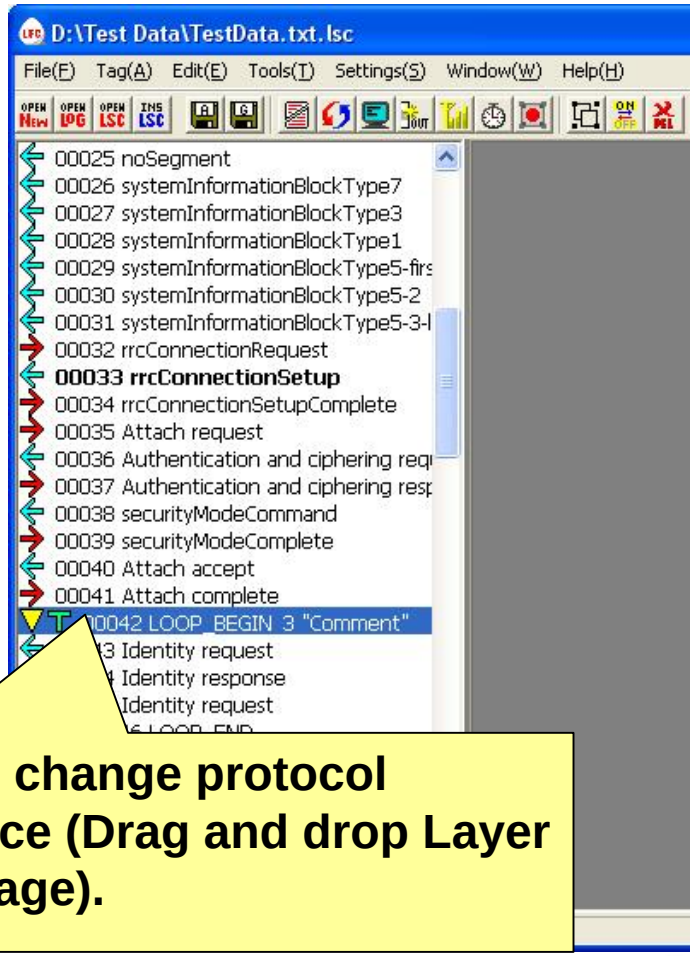
STEP 3: Save LSC format log

1. Save BCCH information log and protocol sequence log separately

How to Convert from UE Log to Test Scenario

Step 1: Load UE log into LFC

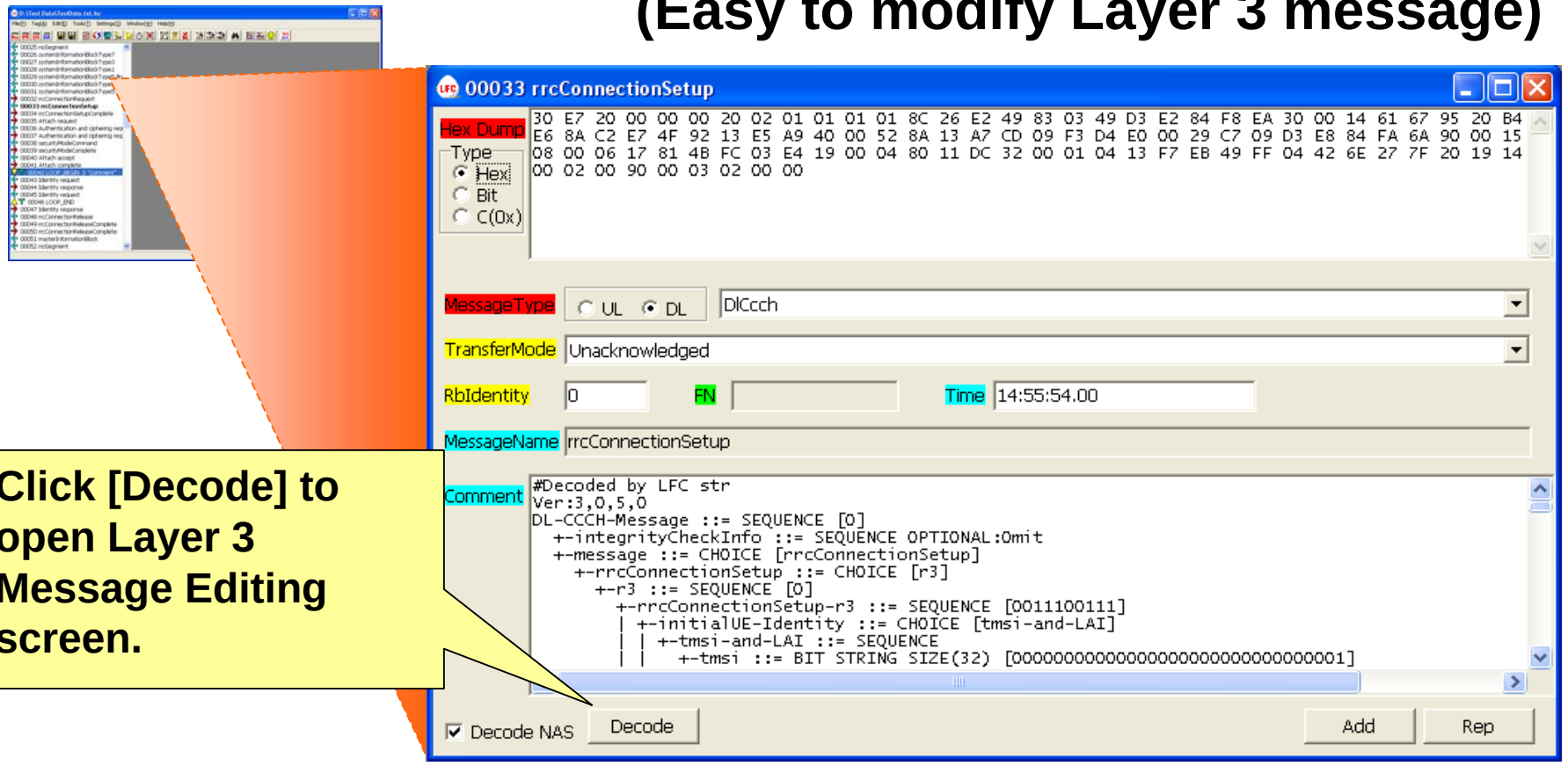
- Select format change engine
- Load UE log into LFC to create protocol sequence on LFC GUI
- ‘Log Importing for QXDM’ loads QXDM logs



How to Convert from UE Log to Test Scenario

Step 2: Edit with LFC GUI

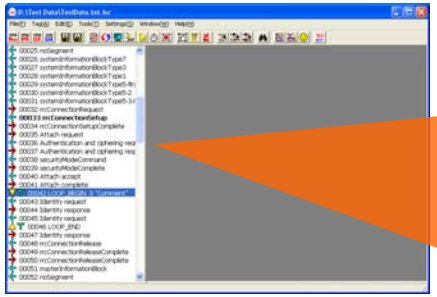
(Easy to modify Layer 3 message)

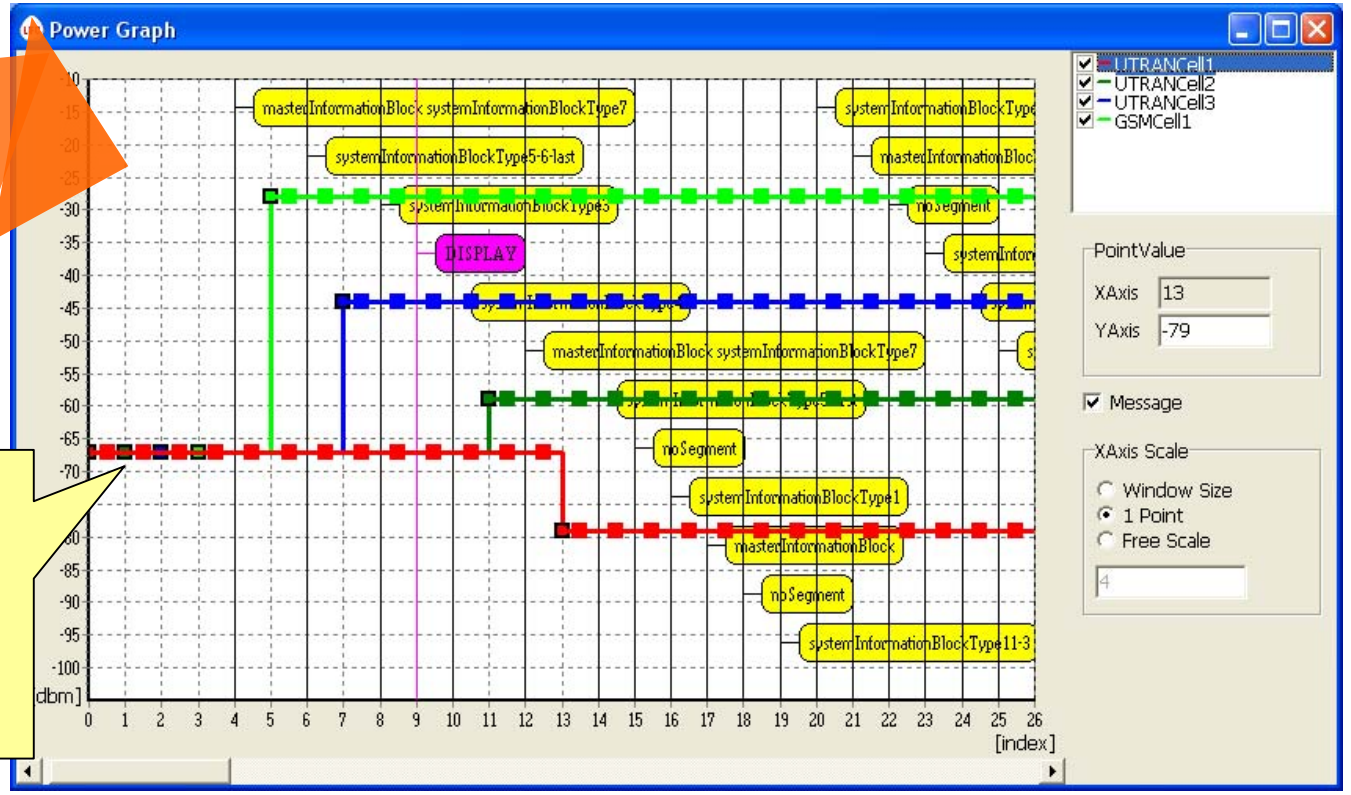


Click [Decode] to open Layer 3 Message Editing screen.

How to Convert from UE Log to Test Scenario

Step 2: Edit with LFC GUI (Easy to control downlink power)



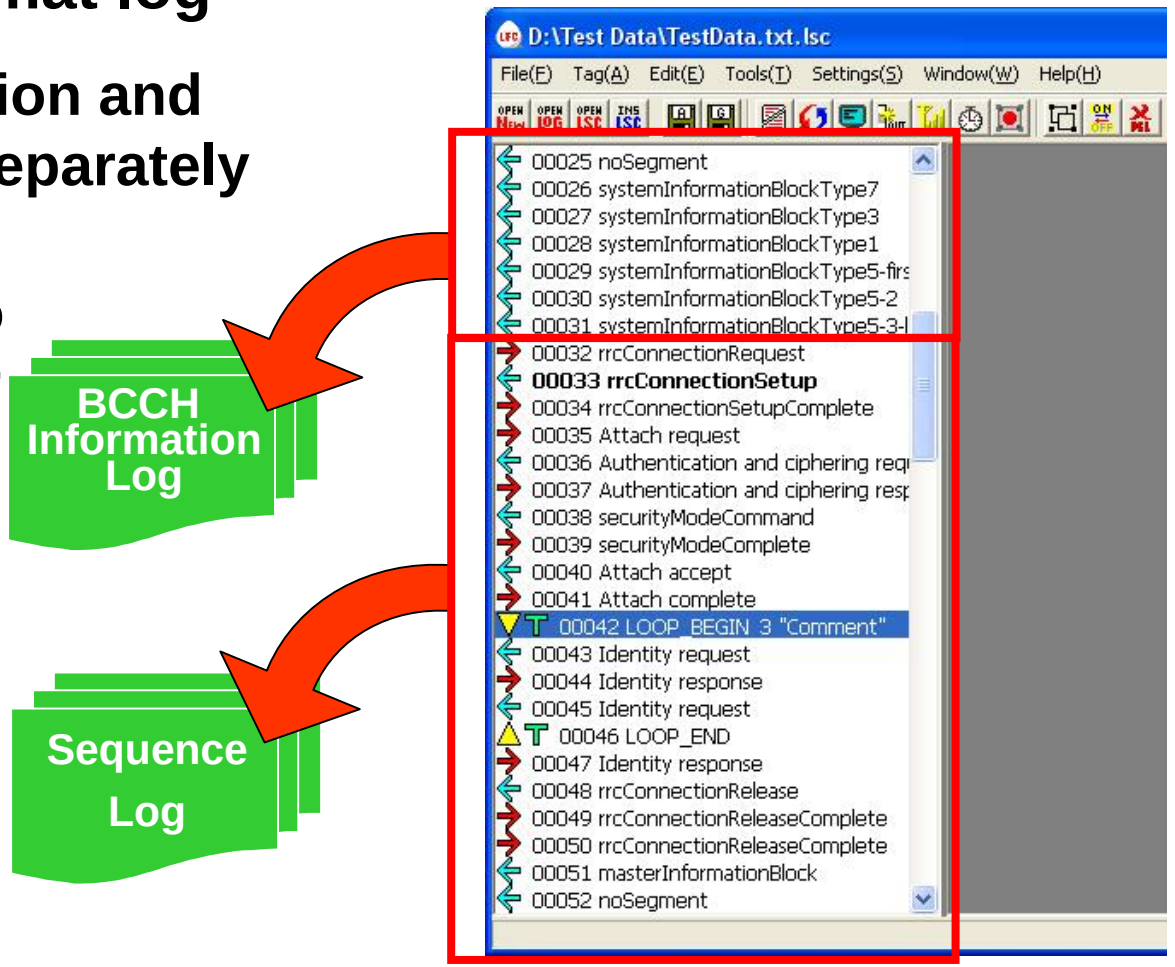


The power level of each cell is displayed and can be changed using the mouse.

How to Convert from UE Log to Test Scenario

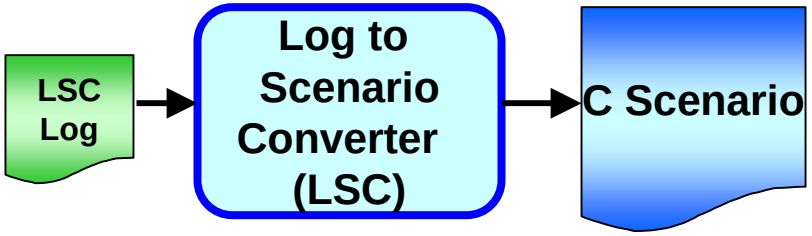
Step 3: Save LSC format log

- Save BCCH information and protocol sequence separately as LSC log
- The LSC log helps to make a data base for reproducing various field conditions without relying on UE log format and version differences by accumulating each LSC log files



How to Convert from UE Log to Test Scenario

LSC Log Format to C Scenario



STEP 4: Load LSC format log into LSC

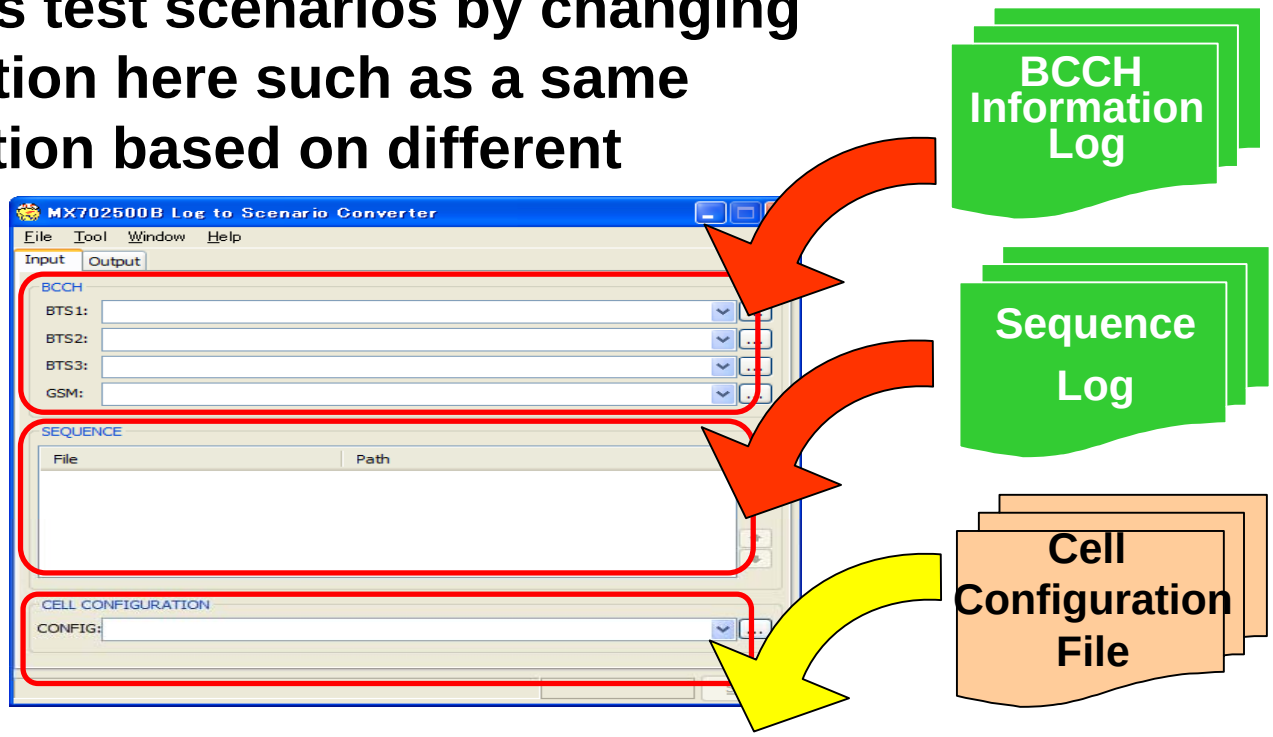
STEP 5: Edit CellConfig.lsc file (if required)

STEP 6: Generate C scenario

How to Convert from UE Log to Test Scenario

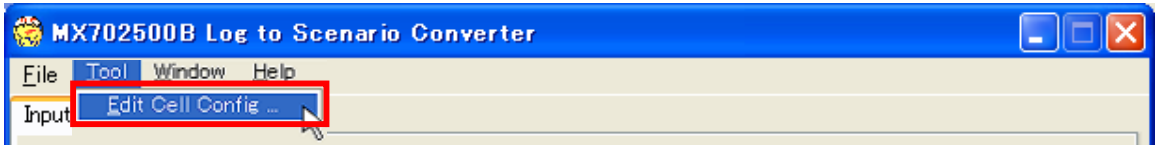
Step 4: Load LSC format log into LSC

- Load BCCH information and protocol sequence saved in LFC
- Generates various test scenarios by changing LSC file combination here such as a same sequence simulation based on different network (cell) condition

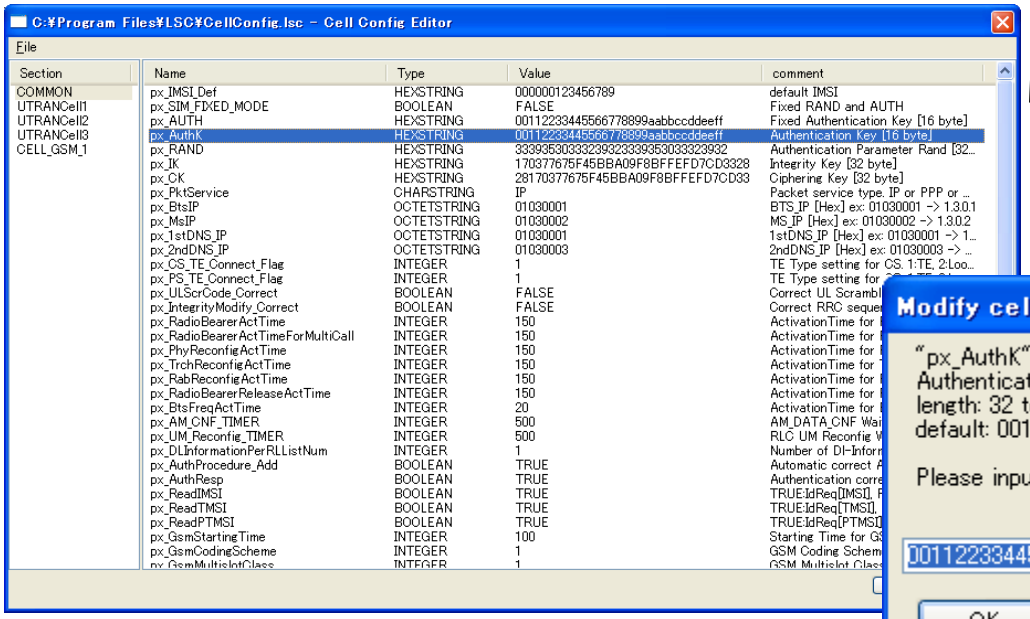


How to Convert from UE Log to Test Scenario

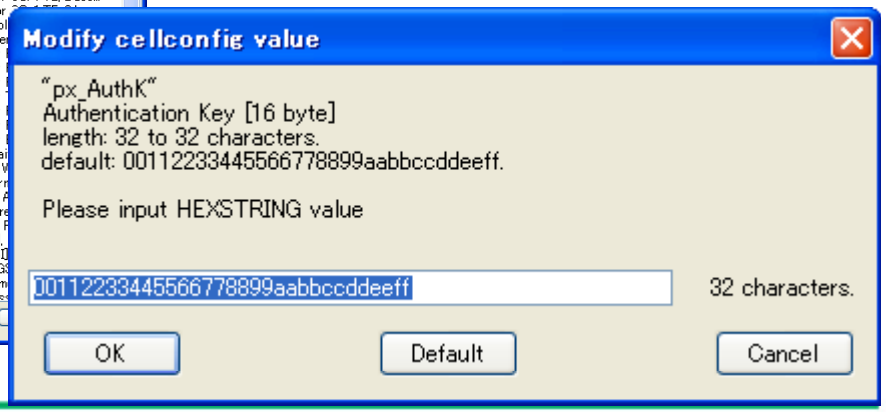
Step 5: Edit CellConfig.lsc file (if required)



Change most parameters such as MCC, MNC, Authentication Key, etc. These parameters are overwritten in C scenario.

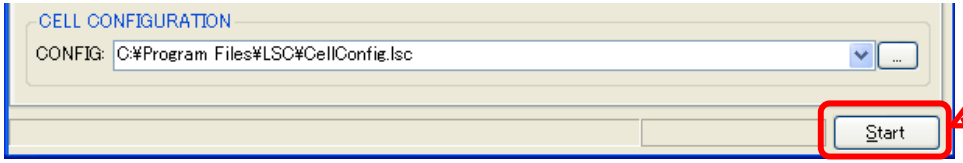


1. Change value of item



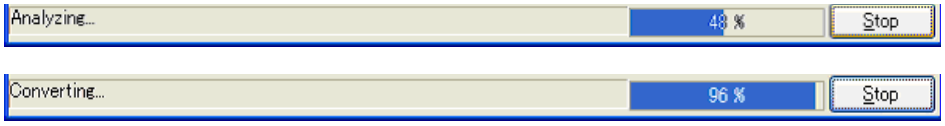
How to Convert from UE Log to Test Scenario

Step 6: Generate C scenario

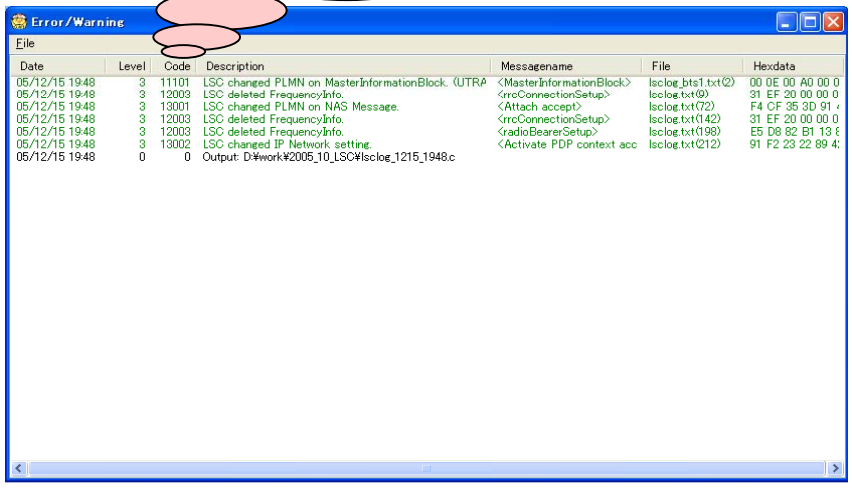


1. Click [Start] button to start generating scenario

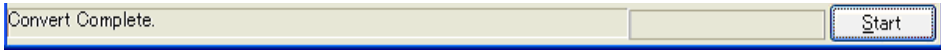
2. Progress bar displayed while scenario generated



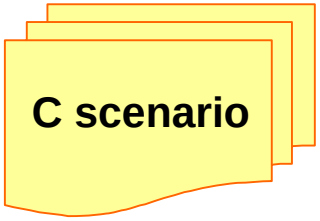
Displays details of any errors and warnings during processing



3. Process completed



4. Scenario generated



Supported Features

- W-CDMA/HSDPA/HSUPA
  - Supported Number of Cells
    - Three BTS (MD8480C) max
    - Two BTS (MD8470A) max
  - Supported Services
    - Voice Call
    - Video Telephony
    - Packet Communication
    - SMS
    - Muiti-call
  - Others
    - State Transition
    - Handover
    - Cell Reselection and more
- GSM/GPRS
  - Supported Number of Cells
    - Two BTS max
  - Supported Services
    - Voice Call
    - Packet Communication
    - SMS
  - Others
    - Handover
    - Cell Reselection
    - Cell Change Order and more
- InterRAT (W/G)
  - InterRAT Handover
  - InterRAT Cell Reselection and more

Product Configuration

- **Main Frame**
  - **MX702500B** Log to Scenario Converter
  - **MX702500B-010** LSC Format Creator
    - **MX702500B-011** Log Importing for QXDM
    - **MX702500B-SS180** Log Importing Customized Service
- **Wireless System**
  - **MX702500B-020** LSC InterRAT Package
    - **MX702500B-030** LSC WCDMA Package
    - **MX702500B-040** LSC GSM Package
- **Technical Support Service**
  - **MX702500B-TS110** 1 Year Technical Support Service
- **Time-based License (Optional)**
  - **MX702500B-TL051** Time-based License (6 months)
    - **MX702500B-TL052** Time-based License (12 months)
    - **MX702500B-TL053** Time-based License (24 months)

Summary

- The LSC tool reproduces UE software faults at field tests
- The tool converts the UE log file (Layer 3 message) captured at the FT to the signalling tester file format
  - More efficient FT fault troubleshooting
    - Easy and flexible
      - Simple and easy GUI and log importing function for QXDM
      - Generates flexible C scenarios when troubleshooting faults
    - Cuts UE software evaluation time and cost
      - Cuts troubleshooting downtime by up to 85%
      - Finds infrequent errors
      - Improves quality through repeated tests

Appendix: System Requirements

Item	Content
PC	IBM-PC/AT or compatible machine
CPU	1 GHz or faster Intel Pentium Processor
Memory	≥256 MB
Display	1024 x 768 pixels or more, and high-color or better
Drive	CD-ROM
OS	Microsoft Windows 2000 Professional SP4 or later or Microsoft Windows XP Professional SP2 or later
HDD	≥20 MB of free space
Keyboard/Mouse	1 port (USB version 1.1/2.0)
Signalling Tester	MD8480B/C Ver. 5.30 or later MD8470A Ver. 3.00 or later

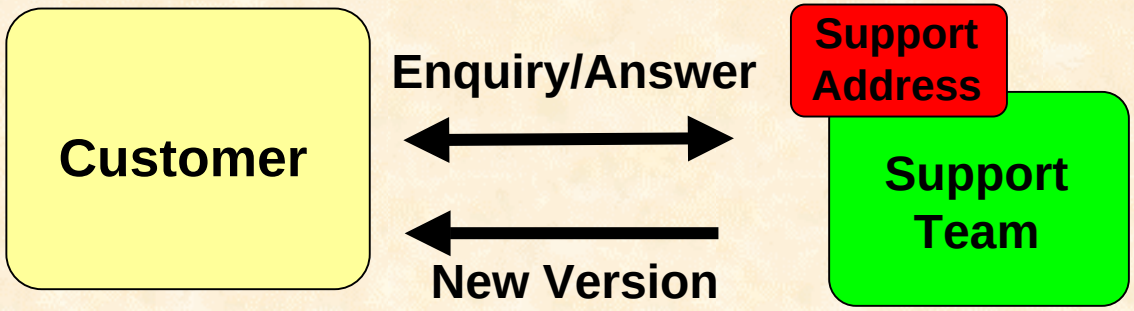
Appendix: Technical Support

An annual support service contract is available to keep the LSC running efficiently

Service Contents

- **LSC Software upgrades**
  - Twice yearly MD8470A and MD8480C software upgrades to strengthen/improve functions
- **Email support for enquiries**

*Logs, detailed information and reports may be required



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Specifications are subject to change without notice.

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