

LTE LabKit™

LTE LabKit with the free Hosted Core service provides the full functionality of an LTE/IMS and GSM/GPRS network.

It is intended for mobile network operators laboratory use, IoT and M2M application development, mobile phone vendors, and researchers.

The LTE LabKit allows the easy and stable development of experiments and test procedures with the YateENB.



Components

The LTE LabKit is a small factor PC computer that has preinstalled the following software components:

- YateENB (eNodeB)
- YateBTS (BTS)
- YateLMI (Web management interface)

Features

- Wireshark monitoring traffic inside EnodeB (S1AP, GTPu) interfaces.
- LTE enb (LTE EnodeB connected to a MME/MiniCore/HostedCore)
 - LTE Release 12, FDD (Radio Interface)
 - LTE Release 12, TDD
- Capability to switch between working modes: GSM nipc, GSM roaming, GSM dataroom, LTE enb
- Supports both IPv4 and IPv6 connection
- GSM NiPC mode (GSM Network in a PC)
 - Add/Edit individually subscribers via LMI
 - 2G authentication BTS ↔ MS (Mobile Stations)
 - Subscribers acceptance based on regular expression that matches the IMSI
 - Option to see in real time: online subscribers, accepted subscribers or rejected subscribers by the BTS
 - Call detailed records for each subscriber
- GSM roaming mode (GSM BTS connected to YateUCN/HostedCore for voice/sms services)
 - Register/Calls/SMS are send to YateUCN/MiniCore/HostedCore
- GPRS with Local breakout (MS receive data services using their LabKit internet connection)
- Outbound connection through SIP/IAX in NiPC mode

LTE specifications

Radio interface	LTE Release 12 FDD, LTE Release 12 TDD
Available bands	filters and antennas provided for bands 5 and 8 can operate any FDD band up to 3.8 GHz; TDD upgrades later in 2017
Operating bandwidth	1.4, 2, 5, 10, 15, 20 MHz
MAC specs	localized or distributed VRBs, proportional fairness scheduling
Maximum connected UEs	no fixed limit
Antenna configuration	1x1 (SISO)
Network interface	IPv4; IPv6
Network protocols	IP
Output power	up to 70mW (18 dBm)

Communication protocols

GTP-U	or S1u interface
S1AP	Signalling for LTE enb mode
HTTP	<ul style="list-style-type: none"> - JSON API server for configuration and subscriber management - JSON API for monitoring and information retrieval - JSON and REST API for sending SMS
OpenVPN	Securely connects LabKit to YateUCN/MiniCore/HostedCore through a direct connection.
SNMP	<ul style="list-style-type: none"> - SNMP v2 or v3 for information retrieval - Traps sending for alarms
Telnet	<ul style="list-style-type: none"> - Management CLI - Optional SSL and password protection
Voice	<ul style="list-style-type: none"> - SIP and RTP - G711, GSM and AMR codecs
SIP	<ul style="list-style-type: none"> - Supported standards (RFC3261) - B2BUA for calls - RTP (RFC3550) with sideband DTMF (RFC2833) - SMS and USSD over IP

SMS - BTS → RAN: Format: SMS PDU (MO and MT)
- BTS → Core: SIP MESSAGE transport (SMS over IP, R-PDU format)

CDR - Flexible file format
- Automatic file rotation
- Optional file transfer: FTP, SFTP

Communication interfaces

- S1-MME Interface (S1AP, YateENB ↔ MME)
- S1u (GTP, YateENB ↔ EPC)
- SIP, RTP (YateBTS ↔ VLR)
- Gi (YateBTS in nipc mode) and **SGi Interface** (IP, connects to Public Data Network)
- SIP connects to YateUCN/MiniCore

Hardware Interfaces

- Dual Gigabyte ethernet
- DVI and HDMI video*
- USB for mouse and keyboard
- 12V Power supply, 100-240V AC, 50-60Hz (included)

*Due to radio interference, we strongly recommend to use DVI/HDMI connectors only for the initial setup

What you get

- 1 LabKit (mini-ITX PC + bladeRF + software)
- 1 LabKit power adapter
- 2 antennas for 850/900/1800/1900 MHz operation
- filters for LTE Band 5 (GSM 850) and LTE Band 8 (EGSM 900)
- 2 smartphones and chargers
- use of the hosted YateUCN core network
- 10 SIMs configured for Hosted Core and NiPC
- USB Wifi Adapter

About us

Legba, Inc. provides innovative infrastructure for mobile operators.
SS7ware Inc. provides 2.5G/4G mobile networks. The company is a subsidiary of Null Team, the creators of Yate.

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