LTE Macro Cell eNodeB

The Lekha's Vyapi LTE eNodeB is a product solution available for commercial deployment of LTE networks and manufacturing.

Introduction`

Lekha's Vyapi is complete reference design for a macro cell eNB product includes Software and Hardware designs. The software stacks includes L1,L2 and L3 layers. The Hardware design includes digital baseband HW, Radio Module and high power Radio front End designs. eNodeB solution has been tested and validated against multiple UEs from different chip vendors and Test and Measurement equipment. eNodeB is integrated and tested against EPC or core network from multiple vendors. The solution is easy to deploy and offers lower cost of ownership and accelerates time to market.

Extreme flexibility for tactical and private networks where both centralized and distributed mode of deployment is supported on same HW. The solution includes independent test frame work and a development environment to customize the RRM scheduler.

Features

- Modular design with low power radio module that supports all LTE bands.
- Radio front end available for Band 28, Band 7, Band 40.
- Hardware capable of single or 3 sector operation.
- Interoperated with majority of the UE chip vendors.
- NLOS deployment
- Up to 20MHz bandwidth

Software Specifications

- 3GPP Release 10
- 4 users per TTI are scheduled
- Up to 300 active users supported
- 2x2 MIMO
- 1.4,3, 5,10 and 20 MHz bandwidth support
- TDD and FDD modes are supported
- Modulation in DL and UL: QPSK, QAM16 and QAM64
- Peak Data Rate: 150 Mbps in DL and 50 Mbps in UL(single carrier).
- QoS: Supports 3GPP specified QoS Class Identifier.

HW Specification

Number of Antenna Up to 2 Transmit and 2 Receive port.
Duplexing: Radio Front end for TDD/FDD mode.

Antenna Type: External Antenna N type connector.

Radio Output Power: 10 Watts per Antenna Port.

Synchronization: GPS and IEEE1588.

Network : Four RJ45 connectors 1 G Eth. Two SFP connector upto 10 G Eth.

Supports DPD and CFR for reduction ACLR and PAPR.

Power Consumption: <240W

Enclosure: 4U Rack Mount

Weight: Less than 22 KG.

PHY Stack

PHY is developed using highly optimized DSP library functions. The solution includes a platform independent C code for reference and MATLAB scripts for several algorithms validation and trouble shooting field issues.

L2 and L3 Stack:

L2 and L3 software is organized as time critical and asynchronous functions. The design is flexible to partition the entire processing across a

Configuration and Monitoring:

The reference solution includes an interactive configuration tool with which user can manage all standard configurations. There is also an integrated GUI to manage multiple NIB/eNBs, configure them and display logs from each of them. NIB reference design supports SNMPv3 to integrate with NMS tool to enable monitoring and configuration management.

Diagnostics and Debugging:

Remote logging with multiple hierarchical and module-wise log levels available. Logging mechanism is built so that it does not affect real-time operations. Simple and interactive CLI is supported for changing parameters and obtaining statistics.

Support

Pilot network with low power in lab with UEs and test equipment.

Setup of pilot trial network for customers with permission for radiation in LTE bands.

Integration support for any third-party or Lekha's partner EPC.

Manufacturing support.

Workshop and training on trouble shooting and debugging network issues.

Lekha Wireless is a technology solutions company with focus in wireless communication. We have portfolio of products and IPs for LTE Macro and Small Cell, NB-IOT reference designs, LTE UE, WiMAX and other tactical communication waveforms developed on indigenous hardware platform. We do have platforms that can support 5G waveforms and support giga bit throughputs. We work with OEMs and operators for deploying wireless communication networks using our HW and SW solutions.

For further information, enquiry or a demonstration, send a request to business@lekhawireless.com

Lekha

maRUt Indoor RU

maRUt is Lekha's O-RAN Compliant Radio Unit (RU) portfolio, available in multiple form factors suitable for various deployment scenarios - a rugged form factor and high power for outdoor use, or light-weight and low power for indoor use.

This datasheet describes the maRUt low power indoor RU with internal antennas.

Specifications	
Frequency Band	FR1 – N78 & N28; N41 - upcoming
Fronthaul or ORAN Split	ORAN 7-2x
Duplexing Mode	TDD, FDD
Numerology	0, 1
Bandwidth	Up to 100 MHz
Antenna Configuration	4T4R
Antenna Type	Internal
Radio Power Output	250mW
Component Carriers	One 100/20 MHz Carrier
RU Type	Category A
Technology Support	5G
Synchronization	IEEE1588 (PTP)
Enclosure	IP65/62 Grade Enclosure
Temperature Range	0 to +60 degree C

Lekha Wireless is an OEM focused on wireless communications, with a portfolio of products and IPs for 3GPP-based and proprietary wireless links. We work with SIs and operators to deploy wireless networks using our own hardware and software solutions.

For further information or a demonstration, please send a request to business@lekhawireless.com. For details on other products please visit www.lekhawireless.com.

Lekha Wireless Solution. Pvt. Ltd.
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maRUt Indoor/Outdoor RU

maRUt is Lekha's O-RAN Compliant Radio Unit (RU) portfolio, available in multiple form factors suitable for various deployment scenarios - a rugged form factor and high power for outdoor use, or light-weight and low power for indoor use.

This datasheet describes the maRUt Indoor/outdoor RU with external antennas, and low power.

Specifications	
Frequency Band	FR1 – N78 & N28; N41 - upcoming
Fronthaul or ORAN Split	ORAN 7-2x
Duplexing Mode	TDD, FDD
Numerology	0, 1
Bandwidth	Up to 100 MHz
Antenna Configuration	4T4R
Antenna Type	External
Radio Power Output	250mW
Component Carriers	One 100/20 MHz Carrier
RU Type	Category A
Technology Support	5G
Synchronization	IEEE1588 (PTP)
Enclosure	IP65/62 Grade Enclosure
Temperature Range	0 to +60 degree C

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maRUt Outdoor RU

maRUt is Lekha's O-RAN Compliant Radio Unit (RU) portfolio, available in multiple form factors suitable for various deployment scenarios - a rugged form factor and high power for outdoor use, or light-weight and low power for indoor use.

This datasheet describes the maRUt high power outdoor RU with external antennas.

Specifications	
Frequency Band	FR1 – N28; N78 & N41 - upcoming
Fronthaul or ORAN Split	ORAN 7-2x
Duplexing Mode	FDD; TDD upcoming
Numerology	0, 1
Bandwidth	Up to 100 MHz
Antenna Configuration	2T2R
Antenna Type	External
Radio Power Output	40W
Component Carriers	One 20 MHz Carrier (FDD)
RU Type	Category A
Technology Support	5G
Synchronization	IEEE1588 (PTP)
Enclosure	IP65/62 Grade Enclosure
Temperature Range	0 to +60 degree C

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