

**Multi-band, multi-mode
Multi Protocol (GPRS/GSM/UMTS/HSPA)
Terminal Software
e3MultiCom v3.2**

**By
Mobile Technology Solutions,
Nex-G Exuberant Solutions Pvt. Ltd.**

Motivation

Customer demand for wireless handsets, PDAs and PCMCIA card is being increasingly driven by the need for seamless roaming across multi-technology network infrastructure, integrated applications requiring high bandwidth and lighter handsets.

These requirements in turn, translate to the need for multi-mode, multiband protocol communication stacks, efficiently programmed embedded system device implementations, memory-efficient software implementation and low battery consumptions.

e3MultiCom™ is build for multi-band, multi-mode devices to allow subscribers to seamlessly roam between GSM, GPRS and UMTS networks using a common SIM card. Our stacks interface with SIM card, OS and RF hardware by employing a robust set of software API's. As a consequence of which, memory optimization from common software modules and uninterrupted handover across heterogeneous network technologies can be realized.

Product Feature

1. e3MultiCom™ supports GPRS Class B, GPRS Class C, UMTS and HSPA operations. It incorporates all the standard design features specific to GPRS and UMTS stack to enable efficient and easy application development
2. Supports all GSM, GPRS, UMTS and HSDPA-HSUPA stacks
3. MAC-G (For GPRS), MAC-U (For UMTS), RLC-G (For GPRS, RLC-U (For UMTS)), RR, RRC, GMM, MM, LLC, SNDCP, PDCP, BMC, SM, SMS, CC, SS and MAC-Hs.
4. Frequency band of operation: Multi-band (GSM 900, GSM 1900, GSM 1800 and WCDMA)
5. Medium Access Modes: - Fixed, dynamic and extended dynamic allocation (For GPRS)
6. Coding Schemes: - CS1 – CS4 (For GPRS)

Product Feature (Contd...)

7. For GPRS, Paging Co-ordination for Network Mode – I, II, III
8. SMS point-to-point
9. SMS compression
10. Cell broadcast
11. Multislot 1-12
12. Compression based on RF2507
13. (IPv4 header compression for TCP/IP and UDP/IP data)
14. FFR/FR/HR/AMR Codec Interface

Product Feature (Contd...)

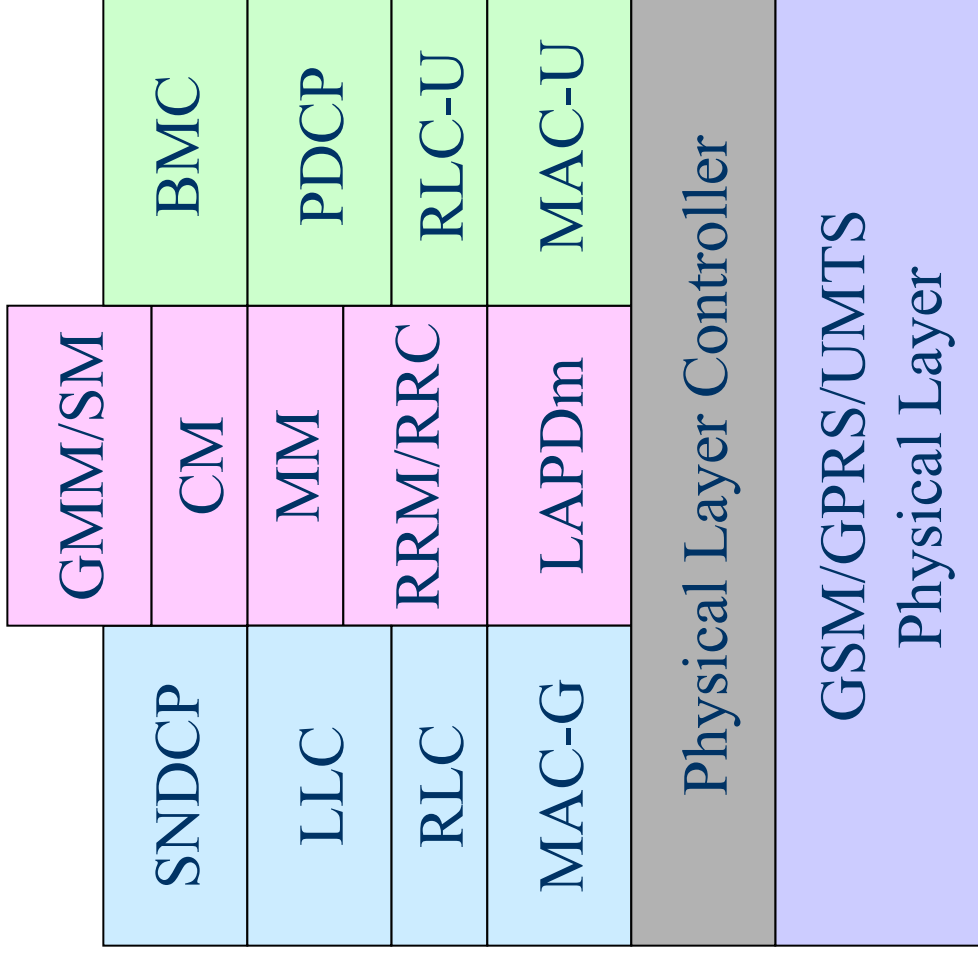
15. Measurements
16. Handover
17. Transparent, Acknowledged and Unacknowledged mode
RLC
18. Ciphering and Compression in hardware
19. PDP Context Activation/deactivation/modification procedure
20. Support IPv4 and PPP
21. Circuit Switched Data

Additional Features

1. Full Conformance Testing using the e3NetSim™ (Conformance Tester)
2. Effective isolation from OS and hardware dependencies through a set of API's for easy porting across various environments
3. Global release from common stack core e.g. Common GPRS and UMTS modules:GMM/SM/MM/CC/SMS

1. JAVA Platform and API for application development
2. AT command support for Terminal Equipment Interface
3. SIM Interface API
4. Platform Abstraction Interface API
5. Layer 1 and Hardware Abstraction Interface API

e3MultiCom™ Protocol Architecture



e3MultiCom™ is designed for ready porting to a variety of target platforms. This is achieved by *Nex-G Platform Abstraction Interface (NPAI)* to abstract the stack software from the target platform environment

e3MultiCom™ stack is written in “ANSI C”. The *NPAI* enables the stack to run on the Linux, Sun Solaris and several real time embedded systems.



Application Programming Interface

e3MultiCom™ stack is interfaced using a rich set easy-to-use API's. By using a modular design, the stack is easily integrated into different mobile devices environments.

Testing & Performance

e3MultiCom™ stack is tested using industry standard test equipment and e3NetSim™ and is optimized for real-time and memory limited applications. More information on e3NetSim™ can be obtained from us on request.

e3MultiCom™ stack is rigorously tested at multiple levels. Unit Testing and Module Testing are performed during the stack development phase.

System integration testing is performed where the stack is tested for conformance in accordance with the relevant ETSI/3GPP specifications using the e3NetSim™. Eventually, the integrated stack is tested for reliable operation using industry standard test equipment.

Adaptability

e3MultiCom™ stack architecture is designed for adaptability to various target and customer specific operating environments. A modular design approach enables the software to be quickly updated to the most recent specifications.



ETSI/3GPP Compliance

e3MultiCom stack is compliant with 3GPP ETSI Specification
Release 5/6 Specifications

THANK-YOU

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