



Technical Specification

Nortel WLAN Handset 6140

Professional-level Wireless LAN handset designed for premises-based mobile communication

Nortel's WLAN Handset 6140 is a professional-level IEEE 802.11a/b/g Voice over Wireless LAN (VoWLAN) device that features high-quality voice communication with integrated Push-to-Talk functionality.

VoWLAN represents the integration of two important and rapidly growing technologies — WLAN and IP Telephony. By seamlessly integrating the IP Telephony system with WLAN infrastructure, users are provided with high-quality mobile voice and data communications throughout the workplace.

The WLAN Handset 6140 is engineered for demanding environments that require a higher level of workgroup collaboration, but is small enough to be highly mobile, yet rugged enough for heavy use.

Utilizing its Open Application Interface (OAI) via the Nortel WLAN Application Gateway 2246, the handset can function as a two-way messaging device allowing integration with other enterprise systems to provide mobile workers with access to critical information.

Nortel's WLAN Handset 6140 supports a broad range of market applications — from general office to medical, retail, education, healthcare, manufacturing and industrial environments.

Key features and benefits:

- › Designed for use as a premises-based device, the WLAN Handset 6140 telephony capabilities are fully integrated with Nortel Communication Server platforms
- › Delivers high-quality voice communication over standards-based IEEE 802.11a/b/g Wireless LAN infrastructures
- › Helps improve mobility, responsiveness and productivity of employees as they move across the facility or campus
- › WLAN handset supports advanced telephony features and functionality similar to the Nortel IP Phone 1140E or IP Phone 2004 desksets
- › Ease of use with minimal training via familiar Nortel IP Telephony feature usage and provisioning
- › Durable handsets designed for shock, dust and water resistance in demanding environments and vertical applications
- › Available Push-to-Talk functionality with up to 24 discrete channels plus a priority override channel for real-time group communication
- › Full speaker earcup for better ear coupling in noisy environments
- › Enhanced speakerphone performance for real-time Push-to-Talk communication



WLAN Handset 6140



- Refined interface ergonomics with a fully backlit pixel-based display and keypad, menu-driven interface, dedicated side volume keys, four-way navigation cluster plus Enter key, and four discrete context-sensitive soft keys
- Support for Nortel communication server-based features including: Corporate Directory, Personal Directory, Callers List, Redial List and Virtual Office Login¹
- Handsfree options with an integrated speakerphone designed for instant ad-hoc conferences and a 2.5mm headset jack located on the side of the handset to allow easy access while the handset is placed in the desktop charger
- Robust security options with support for WEP, WPA™ with Pre-Shared Key, WPA2™ with Pre-Shared Key and Cisco Fast Secure Roaming (FSR)
- Wireless Quality of Service (QoS) with Nortel WLAN IP Telephony Gateway 2245 (using SVP) or with 802.11e Wi-Fi Multimedia™ (WMM®)
- WLAN Handset 6140 can be located and tracked using the Ekahau® Real-Time Location System (RTLS)
- Access to critical information from anywhere within the facility or campus using OAI with WLAN Application Gateway 2246
- Supports several extended capacity Lithium-ion battery options with long-life battery talk and standby times
- Complete set of WLAN handset accessories (i.e., desktop/group chargers, headset, batteries, belt clips, lanyards, and carry cases)

Technical specifications

Platform support

- Communication Server 1000 Rls 4.5 and later

Display

- 128 x 96 pixel, fully bitmapped, fully-backlit, monochrome Liquid Crystal Display (LCD)
 - Physical dimensions (approximate): 1.65in x 1.38in/42mm x 35mm
 - Viewable area (approximate): 1.30in x 0.98in/33mm x 25mm
- Backlit LCD with local contrast settings enhances viewing
- Display top line status indicators provide quick notification of:
 - WLAN radio signal strength
 - Voicemail messages
 - Lines in use
 - Voice, text message or Push-to-Talk visual ring
 - Handsfree operation
 - Battery gauge (three-bar battery status with audible low battery alert)
- More than ten pre-defined display fonts are available for different display layouts and modes to enhance content readability
- On-screen display of user extension and customizable user name line while WLAN handset is idle

Fixed and Soft Label Keys

- Seven fixed keys
 - Start, End/Power, Function (FCN), Line, Volume Up, Volume Down and Push-to-Talk (PTT)
- Four context-sensitive soft keys

Push-to-Talk (PTT)

- Dedicated key (located on side of WLAN Handset)
- PTT Channels
 - Up to 24 channels plus one priority channel
 - Supports text naming of channels in addition to the channel number ID
- Channel monitoring
 - Multi-channel across all allowed channels (administrator configurable)

Navigation cluster

- Four-way navigation cluster (left, right, up, down arrows) plus Enter

Backlit keypad, navigation cluster and softkeys

Integrated handset side rubber grips for improved hold and comfort

User-selectable ringtones² or silent ring vibration options

Manual or Auto keypad lock

- Auto lock delay can be configured for 5, 10 or 20 seconds)

WLAN handset notification profiles

- Five user-selectable handset notification profiles (Silent, Vibrate, Loud, Soft, Custom) for quick user modification to the ring, key, alert tones and volume level settings.

Wireless standards compliance

- Radio type — fully compatible with the following industry standards:
 - IEEE 802.11a: up to 54 Mbps operation in the 5 GHz band with support for transmit power control (TPC)³ and dynamic frequency selection (DFS)⁴ for conformance with FCC and European regulatory requirements
 - IEEE 802.11g: up to 54 Mbps operation in the 2.4 GHz band
 - IEEE 802.11b: up to 11 Mbps operation in the 2.4 GHz band
- Media access control — fully compatible with the IEEE 802.11 specification

Wireless supported data rates⁵, modulation and modulation types

- IEEE 802.11a
 - 54, 48, 36, 24, 18, 12, 9, 6 Mbps
 - Orthogonal frequency division multiplexing (OFDM)
 - 64-QAM, 16-QAM, QPSK, BPSK
- IEEE 802.11g⁶
 - 54, 48, 36, 24, 18, 12, 9, 6 Mbps
 - Orthogonal frequency division multiplexing (OFDM)
 - 64-QAM, 16-QAM, QPSK, BPSK
- IEEE 802.11b
 - 11, 5.5, 2, 1 Mbps
 - Direct sequence spread spectrum (DSSS)
 - CCK, DQPSK, DBPSK

Wireless receive sensitivity (typical)⁷

- IEEE 802.11a
 - At 54 Mbps: -65 dBm
 - At 48 Mbps: -66 dBm
 - At 36 Mbps: -70 dBm
 - At 24 Mbps: -74 dBm
 - At 18 Mbps: -77 dBm
 - At 12 Mbps: -79 dBm
 - At 9 Mbps: -81 dBm
 - At 6 Mbps: -82 dBm
- IEEE 802.11g
 - At 54 Mbps: -65 dBm
 - At 48 Mbps: -66 dBm
 - At 36 Mbps: -70 dBm
 - At 24 Mbps: -74 dBm
 - At 18 Mbps: -77 dBm
 - At 12 Mbps: -79 dBm
 - At 9 Mbps: -81 dBm
 - At 6 Mbps: -82 dBm
- IEEE 802.11b
 - At 11 Mbps: -76 dBm
 - At 5.5 Mbps: -76 dBm
 - At 2 Mbps: -80 dBm
 - At 1 Mbps: -80 dBm

¹ These functions are provided on the WLAN Handset when deployed on Signaling Server architecture with Communication Server 1000 Release 4.0 or later.

² Up to ten user-selectable ring tones with eight-step volume control.

³ TPC implementation does not support active power control adjustment. The maximum power level is controlled by regulatory domain to be below the level required for dynamic power control.

⁴ DFS operates in Slave mode in conjunction with wireless infrastructure devices capable of performing Master mode detection algorithms.

⁵ If there are changes in the propagation channel, the dynamic rate switching algorithm will automatically step up or down to an optimum rate that allows for reliable transmissions at the highest possible bit rate.

⁶ Configurable for 802.11g-only operation or for optimized 802.11b/g mixed mode performance via medium reservation mechanism.

⁷ WLAN handset data rates conform to IEEE specifications @ <10% error rate. Coverage requirements for handover and good wireless network design with higher signal strengths will give better voice performance and help guard against interference fluctuations in environment.

Radio Frequency (RF) output power (peak)⁸

- IEEE 802.11a/b/g
 - 100, 50, 40, 30, 20, 10, 5 mW

Wireless frequency range⁹ and supported number of channels¹⁰

- IEEE 802.11a
 - 5.15 - 5.35 and 5.725 - 5.825 GHz (North America)
 - 5.15 - 5.35 and 5.47 - 5.725 GHz (Europe)
 - 23 channels
- IEEE 802.11g
 - 2.4 - 2.4835 GHz
 - 14 channels
- IEEE 802.11b
 - 2.4 - 2.4835 GHz
 - 14 channels

Open Application Interface (OAI)

Text messaging and external application support via Open Application Interface (OAI) with Nortel WLAN Application Gateway 2246

- Allows external applications to access the status and control features for the WLAN handset display, keypad, status indicators and the ringer

Administration

- Static, Partial and Full Dynamic Host Control Protocol
- Trivial File Transfer Protocol (TFTP)

Wireless security

- IEEE 802.11i standards compatibility with Wi-Fi Protected Access™ — Pre-share Key (WPA™-PSK and WPA2™-PSK)
- Encryption methods
 - Advanced Encryption Standard (AES), Temporal Key Integrity Protocol (TKIP) and Wired Equivalent Privacy (WEP) encryption options, with no performance penalty
- Encryption keys
 - 40-bit and 104-bit keys for WEP, 128-bit keys for AES. Up to four encryption keys can be configured for WEP. TKIP/AES encryption keys can be entered in both hexadecimal notation and via passphrase (alphanumeric).
- Authentication methods
 - Open system, shared key and WPA™-PSK/WPA2™-PSK
 - Cisco Fast Secure Roaming (FSR) is supported for fast re-authentication

Wireless Quality of Service (QoS)

- Standards compliance and compatibility
 - IEEE 802.11e Wi-Fi Multimedia™ (WMM®) or SpectraLink Voice Priority (SVP)
- Prioritized access
 - WMM/802.11e: Provides class-based differentiated QoS through priority (if implemented in the corresponding WLAN access point)

– SVP: Encapsulates voice packets to ensure preferred treatment of voice traffic over asynchronous data traffic by reducing the backoff counter of the CSMA/CA protocol. The SVP Server can be used to set the maximum number of simultaneous voice calls over a single WLAN Access Point (AP) for admission control. SVP is fully compatible with the IEEE 802.11 specification and must be implemented on both the handset and VIEW certified AP infrastructure.

Configuration and setup

- Integrated site survey tool displays the signal strength, MAC address and other parameters of usable access points in the vicinity of the WLAN handset
- Handset local Administration Menu with password-protected access
- Over-the-Air firmware updates
- Handset setup and configuration support via the WLAN Handset Administration Tool (HAT) requires:
 - HAT application software for Windows PC (available to registered users via the nortel.com Technical Support Portal)
 - WLAN Handset 6100 Series Dual-slot Desktop Charger, local power supply and USB cable (items purchased separately)

Durability

- IP53 rated for dust and water spray protection
- MIL-STD-810E, Method 516.5, Procedure IV for environmental durability

Headset support

- 2.5mm headset jack with integrated jack cover for protection when headset is not in use

Dimensions and weight (approximate)

- Size (W x D x H): 2.0in x 0.9in x 5.7in / 51mm x 23mm x 145mm
- Weight (WLAN Handset 6140 with Standard Battery Pack): 4.4oz/125g
- Weight (WLAN Handset 6140 with Extended Battery Pack): 4.6oz/131g
- Weight (WLAN Handset 6140 with Ultra-Extended Battery Pack): 5.0oz/142g

Color

- Front: Graphite gray with silver metallic bezel finish
- Back: Charcoal

Battery Pack options

The WLAN Handset 6140 supports three different capacity Lithium-Ion Battery Packs with the following expected performance¹¹:

- Standard Battery Pack
 - Designed for moderate call usage
 - Requires up to two hours to fully charge

- Extended Battery Pack
 - Designed for intermediate call usage
 - Requires up to three hours to fully charge
- Ultra-Extended Battery Pack
 - Designed for heavy call usage
 - Requires up to four hours to fully charge

Handset/Battery Charger options

The Battery Pack used with the WLAN Handset 6140 can be charged via three different options:

- WLAN Handset 61xx Single-slot Desktop Charger
 - Charges a “Standard”, “Extended” or “Ultra-Extended” Battery Pack inserted into a WLAN Handset 6120/6140
- WLAN Handset 61xx Dual-slot Desktop Charger
 - Charges a “Standard”, “Extended” or “Ultra-Extended” Battery Pack inserted into a WLAN Handset 6120/6140 and one spare/loose Battery Pack (any capacity) sequentially
- WLAN Handset 61xx Quad-slot Battery Charger
 - Charges up to four “Standard”, “Extended” or “Ultra-Extended” loose Battery Packs (no WLAN handset slots) in parallel
 - The Quad-slot Battery Charger can be placed on the desktop or be wall-mounted

Protocol Support

- TCP/IP
 - Address Resolution Protocol (ARP)
 - Dynamic Host Control Protocol (DHCP)
 - Domain Name System (DNS)
 - Trivial File Transfer Protocol (TFTP)
- Signaling
 - Dual-Tone Multifrequency (DTMF) Digits — Telephony Tones and Signals
- Other
 - Simple Network Time Protocol (SNTP) for network-based date and time support

Audio Quality of Service (QoS)

- G.711 a-law, G.711 μ-law, G.729a and Annex B

Language support

- English
- French
- German
- Norwegian
- Portuguese
- Spanish
- Swedish

Operating temperature

- +0°C to +50°C / +32°F to +122°F

Relative humidity

- 0% to 95% (non-condensing)

Storage temperature

- -20°C to +70°C / -4°F to +158°F

— *continued*

⁸ Levels are configurable by Administrator. Available power levels may vary based on regulatory domain.

⁹ Frequency ranges and channels may vary for certain countries to meet the appropriate regulatory restrictions.

¹⁰ Local regulatory requirements and good wireless network design will limit the number of usable channels available in any particular installation.

¹¹ Recommended battery replacement interval is every 12 to 13 months under normal usage duty cycle.

Technical specifications — continued

EMC and wireless

- United States
 - Radio: FCC Parts 15.247 (802.11a/b/g) and 15.407 (802.11a)
 - FCC Part 15 Class A
 - SAR: FCC 2.1093
- Canada
 - RSS-210 / RSS-GEN
- European Union:
 - Radio: EN 300 328, EN 301 893, EN 301 489-17
 - Emissions : EN 55022 Class A
 - Immunity : EN 55024
 - SAR: EN 50371, EN 50360, EN 50361

Safety

- United States: UL 60950 -1
- Canada: CSA C22.2 No. 60950-1
- European Union: EN 60950-1
- International: IEC 60950-1

Wireless Regulatory Identification/ Compliance (for WLAN radio)

- United States: FCC Part 15 Wireless Certification
 - FCC ID: IYG703X
- Canada: IC RSS 210 Wireless Certification
 - Canada IC No.: IC: 2128B-703X

US/Canada/EU Countries

- United States/Canada: Hearing Aid Compatibility (HAC) as per FCC Part 68 (68.316 and 68.317) and Industry Canada CS-03 Part V
- Compliant at general availability to the Reduction of Hazardous Substances — RoHS (6 of 6) requirement as part of the European Union Environmental Directive (EUED)
- Complies with CE Marking Requirements. This device complies with the essential requirements and other relevant provisions of Directive 1999/5/EC.
- American Disabilities Act (ADA) compliant dialpad

WLAN Handset 6140 key features



Nortel is a recognized leader in delivering communications capabilities that make the promise of Business Made Simple a reality for our customers. Our next-generation technologies, for both service provider and enterprise networks, support multimedia and business-critical applications. Nortel's technologies are designed to help eliminate today's barriers to efficiency, speed and performance by simplifying networks and connecting people to the information they need, when they need it. Nortel does business in more than 150 countries around the world. For more information, visit Nortel on the Web at www.nortel.com. For the latest Nortel news, visit www.nortel.com/news.

For more information, contact your Nortel representative, or call 1-800-4 NORTEL or 1-800-466-7835 from anywhere in North America.

Nortel, the Nortel logo, Nortel Business Made Simple and the Globemark are trademarks of Nortel Networks. All other trademarks are the property of their owners.

Copyright © 2007 Nortel Networks. All rights reserved. Information in this document is subject to change without notice. Nortel assumes no responsibility for any errors that may appear in this document.

NN123317-111507

In the United States:

Nortel
35 Davis Drive
Research Triangle Park, NC 27709 USA

In Canada:

Nortel
195 The West Mall
Toronto, Ontario M9C 5K1 Canada

In Caribbean and Latin America:

Nortel
1500 Concorde Terrace
Sunrise, FL 33323 USA

In Europe:

Nortel
Maidenhead Office Park, Westacott Way
Maidenhead Berkshire SL6 3QH, UK
Phone: 00 800 8008 9009

In Asia:

Nortel
United Square
101 Thomson Road
Singapore 307591
Phone: (65) 6287 2877



BUSINESS MADE SIMPLE