NORTEL

Technical Specifications
Nortel Digital Mobility Solution

Physical specifications	
Depth	12.75 in., 324 mm
Width	8.625 in., 219 mm
Height	2.625 in., 67 mm
Weight	DMC080 2 lb. 2.4 oz., 975 grams DMC320 2 lb. 10.0 oz., 1191 grams
System status LEDs	Status and Power
Mounting options	Desk top, wall mount or rack mount
Power supply specifications	AC input: 100-240V, 2A, 50-60 Hz DC output: 19V, 6.32A
Operating temperature*	0ºC to 40ºC
Operating humidity*	90-95% RH at 40ºC
Storage temperature*	-55ºC to 70ºC
Storage humidity*	90-95% RH at 40ºC

Mechanical requirements

Packaged

- Transportation vibration as per Telcordia GR-63 (Section 5.4.3, Figure 4-3, Curve 2)

- Transportation bounce as per IEC 68-2-55 (Method A)

- Drop as per ISTA Procedure 1A

Unpackaged

- Office vibration as per Telcordia GR-63 (Section 5.4.2, Electronic Subassemblies)

- Mechanical shock as per IEC 68-2-27 (Test Ea)

- Drop as per IEC 68-2-32 (Test Ed)

* Also apply to base stations, repeaters and handsets.

Electromagnetic emissions

Digital Mobility equipment meets all FCC Part 15, Class A radiated and conducted emissions requirements. Does not exceed the Class A limits for radiated and conducted emissions from digital apparatus as set out in the Radio Interference Regulations of Industry Canada.

Electromagnetic compliance

The Digital Mobility Controller fully complies with the following standards and specifications:

Canada	ICES-003 Class A using: − CISPR 22 (1997) Class A − ANSI C63.4 (2001) method
United States	FCC Part 15 Subpart B Class A using: − CISPR 22 (1997) Class A − ANSI C63.4 (2001) method
European Union	− EN55024 (1998 w/A1:01 & A2:03)/ CISPR 24 (1997) excluding Annex A − EN55022 (1998) Class A − EN61000-3-2 (2001) − EN61000-3-3 (1995 w/A1:98)
Australia/New Zealand	AS/NZS CISPR 22 (2002) Class A using: − EN55022 (1998) Class A

Safety

- CSA 22.2 No. 60950

- UL 60950

- IEC 60950 (including all national and group deviations)

For all radio components (Basestation, Repeaters, Handsets)

Radio specifications

- **Frequency of operation:** 1.9 GHz/60 Channels (North America) and 1.8 GHz/120 Channels (rest of world)
- **Type of modulation:** GMSK
- **Peak transmit power:** Up to 125 mW (21 dBm) (1.9 GHz North America), up to 250 mW (24 dBm) (rest of world)

Nortel Digital Mobility Basestation

The Digital Mobility Basestation controls the traffic channels in the air and works as a link between the Digital Mobility Handset and the Digital Mobility Controller (DMC). The DMC operates the Basestations through a wired standard twisted pair of cables. Only one pair is required per Basestation and the cable length may be up to 1,500 meters (4,921 feet). Nortel recommends using CAT5 wiring.

Each Basestation covers a circular area of radius up to 450 meters (1,476 feet). In a typical office environment, the radius is 50-150 meters (164-492 feet) depending on the environment. It is not possible to define a more exact size of a Basestation coverage area, as it depends on location specifics such as building materials, etc. Before a Digital Mobility solution is installed, careful deployment is performed in order to define how many Basestations are needed to provide the necessary coverage at each individual location.

Digital Mobility Repeater

Features of the Digital Mobility Basestation:

- 4 simultaneous voice channels
- Antenna diversity
- Frame synchronizing via the Digital Mobility Controller
- Fast and easy installation — one wired twisted pair of cables connected to the Digital Mobility Controller
- No external power required — powered from the Digital Mobility Controller directly
- Weight: 0,172 kg. (6.1 oz.)
- Dimensions (L x H x D): 100 x 100 x 36 mm (3.937 x 3.937 x 1.417 inches)

Nortel Digital Mobility Repeater

The Digital Mobility Repeater is a building block to be used to extend the coverage area in a Digital Mobility solution. The Repeater does not increase the number of traffic channels, but provides a larger physical spreading of the traffic channels and thereby increases the coverage area established with the Digital Mobility Basestations. The Repeater extends the coverage of the Digital Mobility Basestation by 50 percent. Repeaters are mainly used in areas with limited traffic.

The Digital Mobility Repeater is available with either two or four voice channels.

The Digital Mobility Repeater is wireless and does not need physical connection to the Digital Mobility Controller, making it very easy to install. The Repeater just requires local power.

Repeater Jumps

The Digital Mobility Repeaters can be installed like "pearls on a string" to provide coverage in a large area using only Digital Mobility Repeaters. A maximum of three Repeaters can be placed on the string, providing the possibility to assure coverage of a large area without physical cabling. Repeater jumps should only be used to expand coverage in areas with limited traffic as the total area will have to share four traffic channels.

Features of the Digital Mobility Repeaters:

- 4 simultaneous voice channels
- Antenna diversity
- Fast and easy installation — wireless connection with the Basestation
- External AC power required
- Weight: 0.1129 kg. (3.96 oz.)
- Dimensions (L x H x D): 100 x 100 x 30 mm (3.937 x 3.937 x 1.18 inches)

Nortel Digital Mobility External Antenna

The Digital Mobility Repeater can be supplied with an external directional antenna, which makes it possible to create radio coverage in a remote area without cabling to the rest of the installation. The use of an external directional antenna makes it possible for businesses encompassing more than one building to still maintain coverage in all areas. This could be the case in a motel, where the reception area is placed in one building and the rooms are in another.

Features of the Digital Mobility External Antenna:

- Fast and easy installation — mounts up to four feet from the Repeater
- May be mounted outside
- No external power required — powered from the Digital Mobility Repeater directly
- Weight: 56 grams, 2 oz.
- Dimensions (L x H x D): 102 x 95 x 32 mm (4.016 x 3.740 x 1.260 in.)

Nortel Digital Mobility Handsets: North America

	Features	7439	7449
Handset specific	Display	Graphic	Graphic
	Hands-free	No	Yes
	Vibrate alert	No	Yes
	Headset jack	No	Yes
	Multiple languages	11*	11*
	Rugged design	Yes	Yes
	IP 54 classification (dust and splashing water protected)	No	Yes
	Coverage and scalability	Up to 64 mobile users supported; range is up to 1,000 ft/300 M (line of sight to Basestation)	
Common attributes	Weight (grams)	130	130
	Size (mm)	148x50x28	148x50x28
	Norstar/BCM features	Comprehensive Norstar and BCM feature integration including Caller Identification (CLID), conferencing, voicemail and many more	
	Extensive battery life	Speech (16 hrs), Standby (150 hrs), Recharge (3.5 hrs)	
	Flexible sound settings	Including vibrate alert, silent mode, microphone mute, adjustable ringer volume, 9 different ring tones	
	Additional features	3 Soft Keys, CLID, Key Lock, Redial, Telephone Book (80 names/numbers), Frequency Hopping (to filter background noise and enhanced security)	
	Frequency/modulation/security	1.9 GHz (DECT)/GMSK/Secure DES	

* Languages supported include English, German, French, Italian, Spanish, Dutch, Portuguese, Turkish, Danish, Swedish and Norwegian.

Nortel Digital Mobility Handsets: Europe, Australia and South America

	Features	4135, 4136 and 7434	4145, 4146 and 7444	4145Ex and 4146Ex
Handset specific	Display	Graphic	Graphic	Graphic
	Hands-free	No	Yes	Yes
	Vibrate alert	No	Yes	Yes
	Headset jack	No	Yes	Yes
	Multiple languages	11	11	11
	Rugged design (vibration tested)	Yes	Yes	Yes
	IP 54 classification (dust and splashing water protected)	No	Yes	Yes
	ATEX classification	No	No	Yes
	Coverage and scalability	Up to 64 mobile users supported, range is up to 1000 ft/300 M (line of sight to Basestation)		
Common attributes	Norstar/BCM features	Comprehensive Norstar and BCM feature integration including Caller Identification (CLID), conferencing, voicemail and many more		
	Extensive battery life	Speech (16 hrs), Standby (150 hrs), Recharge (3.5 hrs)		
	Flexible sound settings	Including vibrate alert, silent mode, microphone mute, adjustable ringer volume, 9 different ring tones		
	Weight (grams) and size (mm)	130 grams, 148x50x28 millimeters		
	Additional features	3 Soft Keys, CLID, Key Lock, Redial, Telephone Book, Frequency Hopping (to filter background noise and enhanced security)		
	Frequency/modulation/security	1.8 GHz (DECT)/GMSK/Secure DES		

7439	7449	Digital Mobility Controller
(outside NA: 7434/4135/4136)	(outside NA: 7444/4145/4146)	(DMC080/DMC081)

Nortel Digital Mobility Handsets

Nortel offers a choice of stylish handsets designed for serious use, with sophisticated features such as three-line backlit displays, programmable "softkeys", memory for up to 80 names and numbers, support for caller ID, user selectable ring tones and vibrate setting, adjustable volume, headset jack and more.

- Nortel Digital Mobility Handset **7439** (equivalent model numbers for the 7439 outside North America are 7434, 4135 and 4136) offers a solid basic value at a low cost, with a rugged design ideal for industry, warehouse and retail environments that don't need special features like a headset jack, hands-free or vibrate-alert.

- The Nortel Digital Mobility Handset **7449** (equivalent model numbers for the 7449 outside North America are 7444, 4145 and 4146) is a full-featured, rugged, high-quality set with IP 54 classification, meaning it is well protected from dust and splashing water. The 7449 is designed for high traffic and/or more rugged environments, such as "big-box" retail stores, hospitals or even car dealerships, as well as power users in more dynamic office environments or customer contact centers.

Nortel Digital Mobility Controller (DMC)

Features of the Digital Mobility Controller 08x (DMC080 and DMC081)

- Supports up to 8 Digital Mobility Handsets

- Supports up to 2 Digital Mobility Basestations

Features of the Digital Mobility Controller 32x (DMC320 and DMC321)

- Supports up to 32 Handsets

- Supports up to 8 Digital Mobility Basestations
  - DMC080 and DMC320 include Controller, Power Supply and a North American power cord.
  - DMC081 and DMC321 include Controller, Power Supply and a power cord adapter. AC power cord must be purchased separately to meet each specific country requirements.
  - Every active handset requires one digital station port to be provisioned on the BCM or Norstar system.
  - Any two Controllers may be connected together to increase capacity to a maximum of 64 Handsets and 16 Basestations.
  - Supported on BCM200/400/1000 with software release 3.7 or later, BCM50 with software release 2.0 or later, BCM450 with software release 1.0, and Norstar CICS and MICS with software release 7.0 or later.

At Nortel, we have a passion for quality

Quality in terms of voice quality — no noise, no jitter, no delays to disturb conversations. And quality in terms of the physical handset: one of the lowest return rates in the industry speaks for itself.

The high quality is constantly tested. During development phase, the handsets are tested numerous times. The functionalities, the software as well as the finished handsets are tested at our own testing facilities and at field tests. Furthermore, the handsets are subject to third-party laboratory tests, including drop tests and stress tests.

With carefully developed migration plans built into our communication solutions, Digital Mobility handsets are designed to adapt with the changing interface technologies in the systems, lending to a return on your technology investment.

Digital Mobility handset tests

All Digital Mobility handsets have undergone and passed the following tests:
- Cyclic humidity (IEC 60068-2-30)
- Lifetime (heat) (IEC 60068-2-2)
- Lifetime (cold) (IEC 60068-2-1)
- Lifetime (heat/cold) (IEC 60068-2-14 Na)
- Salt fog (Mil-std 810E 509.3.I)
- Vibration (IEC 60068-2-6)
- Lifetime (ringer) (IEC 60068-2-2)

- ESD (static electricity)
- Lifetime (keyboard)
- User test (software)
- Drop test: (150 cm = 4 ft 11 inch)
- Bump test: IEC 60068-2-29

Additional Digital Mobility Handset 7449 tests
- Enclosure protection (dripping): IEC 60529 (2001-02), Ed. 2.1, IPx2
- Enclosure protection (splashing): IEC 60529 (2001-02), Ed. 2.1, IPx4
- Enclosure protection (dust-protected): IEC 60529 (2001-02), Ed. 2.1, IP5x

Handset accessories
- Head set
- Belt clip
- Safety line
- Leather protective cover for office environment
- Rugged protective cover for industrial environments where the handset is exposed to harsh handling

Nortel Digital Mobility Service Tool

The Digital Mobility Software Service Tool allows the following aspects of the Digital Mobility solution to be managed:

- Repeater programming
- Handset firmware upgrading

The Service Tool software package is available on the CICS/MICS Documentation and Client Software CDROM. Use of this tool requires a programming cable and service tool handset cradle, available as a separately orderable item.

For BCM50/200/400/450, the Tool is available under the client download software portion of the hard drive.

Nortel Digital Mobility DMC OA&M Tool

The OA&M software package allows the following aspects of the Digital Mobility solution to be managed:

- Digital Mobility Controller administration
- Handset registration and subscription
- Basestation registration
- System backup and restore programming information
- Statistical package for debug
- Broadcasting test messaging
- Updating Controller firmware
- Updating Basestation firmware
- Remote system administration using a modem and RS232 connection

The OA&M software package is available on the CICS/MICS Documentation and Client Software CDROM. Direct connection is done through a null modem cable (not supplied) connected to the RS232 port on the DMC and the serial port on the PC.

For BCM50/200/400/450, the Tool is available under the client download software portion of the hard drive.

Digital Mobility Deployment Tool

The Digital Mobility Deployment Tool serves two purposes. The first purpose is to provide the site surveyor with the ability to take real-world measurements of a prospective deployment site. These measurements help determine the proper number and location of Basestations and/or Repeaters a site might require. The Digital Mobility Deployment Tool should be used for challenging deployments. The typical mobility deployment can be supported with basic Basestation layout methodology and a normal handset by utilizing Meter Mode.

The second purpose for the Deployment Tool is to allow a perspective customer to experience the high-quality voice standards that they can expect from Nortel's Digital Mobility.

Global Digital Mobility Portfolio		
Countries	**Frequency**	**Supported products**
Canada, U.S.	N/A	DMC080 DMC320
Global	N/A	DMC081* DMC321*
Canada, U.S.	1920-1930 MHz	Basestation 19 Repeater 49 External Antenna 51 Handset 74x9
EMEA, Hong Kong, Australia, New Zealand	1880-1900 MHz	Basestation 15 Repeater 25 Repeater 45 External Antenna 51 Handset 41x5 Handset 41x6 (Australia, New Zealand)
South America	1900-1930 MHz	Basestation 14 Repeater 24 External Antenna 51 Handset 74x4

* Does not include power cord

Deployment Kit Features

- *Handset to Handset Calling* — Extension 1 and call extension 2 with the call being switched internally.
- *On-board Basestation* — The Central control unit has a built-in Basestation function so additional equipment is not required.

- *Radio Signal Strength Metering (built into handsets)* — Any handset can be placed into Meter Mode, from which radio signal strength can be read.
- *Diagnostic Handset* — Enabling advanced diagnostics to troubleshoot existing installations.

To find out more about how Nortel Digital Mobility Solutions can redefine the way your workplace communicates, contact your local reseller or visit us on the Web at *www.nortel.com/digitalmobility.*

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.

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