

UMT/DCL/DD/0002  
411-8111-905

Wireless Service Provider Solutions

# UMTS

Product Fundamentals

About the Univity iBTS

UMT/DCL/DD/0002 03.09/EN Preliminary October 2003  
411-8111-905

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Wireless Service Provider Solutions

# UMTS

## Product Fundamentals About the Univity iBTS

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### August 2003

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### July 2003

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Update for OAM V3.1/RAN V3.1 Customer Readiness

Introduction of UMTS 1900 iBTSs Indoor 2 and Outdoor

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The following changes were made throughout the document:

- modify modules organization throughout the document
- update the iBTS features according to the system release change
- update the configuration rules
- add the TMA description
- update the PFM description
- update the ac plinth description
- update the batteries description
- modify software section

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Issue 01.03/EN Draft

The following changes were made throughout the document:

- update the iBTS description and configuration according to the system release
- update the hardware description
- add information about physical interfaces, cabling, functional architecture, and software
- add and update the ancillary modules
- add the configuration description
- delete the dimensioning section

**January 2001**

Issue 01.02/EN Preliminary

Update after review

**December 2000**

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Issue 01.01/EN Draft  
Creation

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## About this publication

This publication deals with the Nortel Network Univity Internet Base Transceiver Station (iBTS) which is part of the UMTS network.

### Applicability

This publication is applicable to the UMTS03 system release.

### Audience

This publication is for operations and maintenance personnel, and other users who want more knowledge of the iBTS.

### Prerequisites

It is recommended that readers also become familiar with the following documents:

- *About the UMTS Network (UMT/DCL/DD/0001 or 411-8111-101)*
- *Univity iBTS Fault Analysis (UMT/DCL/DD/0006 or 411-8111-506)*
- *Univity iBTS Hardware Maintenance Guide (UMT/DCL/DD/0005 or 411-8111-505)*
- *About the Univity RNC (UMT/DCL/DD/0003 or 411-8111-906)*

### How this document is organized

In a continuous effort to improve our documentation, we are preparing its delivery through the web. This leads to a new global organization of the Nortel Networks technical publications.

The information will be broken down into modules, with each module containing elementary information such as the procedure to replace a particular equipment, or the description of a particular component.

The modules are designed in order to deliver just enough information to provide the user with the solution required to perform his current task.

These modules will usually be delivered on CD-ROMs or through the web. The user will access this information by browsing, navigating from one module to another, or by using a search engine.

In its current version, this NTP has been written as a series of modules. The modules are arranged one after the other in logical order. The table of contents helps you to access the right module. Be careful, while screening the table of contents, since all the modules will be displayed with the same level of importance.

This publication consists of the following sets of modules:

- The first part describes what is new in the About the Univity iBTS publication.
- The second part provides the Univity iBTS regulatory information.
- The third part gives the UTRAN overview of the UMTS03 solution.
- The fourth part describes the Univity iBTS configuration and architecture.
- The fifth part describes the Univity iBTS interfaces
- The sixth part describes the Univity iBTS hardware
- the seventh part describes the Univity iBTS software



- the last part describes the Univity iBTS services and features

**Vocabulary conventions**

Lists of terms used in the publication are in: *Terminology (UMT/DCL/DD/0004 or 411-8111-804)*

**Safety regulation**

In order to guarantee the safety of personnel and equipment it must be taken into account of the following aspects general personnel safety instructions and equipment safety instructions.

Caution message indicate the risk of impact on equipment.



**CAUTION**  
**Impact on equipment**

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## What is in new about the Univity iBTS

This following list details the main changes in this publication between system release UMTS03 and UMTS02 releases:

### Univity iBTS modules

The new modules are the following:

- DDM-2
- iCEM 64 (19006)
- iCEM 128 (22752)
- iCCM (19845)
- iCCM Redundancy (20681)
- iTRM (20615)
- TMA 2100 module
- TMA 1900 module (22691)
- NAM (19849) from the system point of view.
- DDM/DDM2 1900
- MCPA 1900 module
- TRM/iTRM 1900 module

### Univity iBTS cabinets

The new Univity iBTS cabinets are the following:

- Univity iBTS Mono 2100 (20600)
- Univity iBTS Indoor 2 2100
- Univity iBTS Outdoor 1900 (24861)
- Univity iBTS Indoor 2 1900(20914)
- Univity iBTS Mono 1900
- Univity iBTS Indoor 1900 Compact

### Univity iBTS functionalities

The new Univity iBTS functionalities are the following:

- iModules mixity
- Univity iBTS 1900 transmission (IMA+D&I) (22458)
- +24 Vdc option for Univity iBTS indoor 2 1900 (21654)
- +24 Vdc option for Univity iBTS indoor 1900 Compact
- OTOR configuration
- BTBR configuration
- OTBR configuration (only for UMTS 2100)



## Univity iBTS regulatory information

This part which provides the regulatory information concerning the Univity iBTS is split into the following items:

- European regulatory requirement compliance
- North American regulatory requirement compliance
- Compliances for other regions/countries
- Operation conditions
- Cable specifications
- Product labelling

### European regulatory requirement compliance

As a radio product, the Nortel Networks UMTS iBTS falls under the requirement of the RTTE (Radio and Telecom Terminal Equipment) European directive 1999/5/EEC. The RTTE directive covers essential requirements in the field of:

- protection of the Health and Safety of the user and any other person, including the objectives with respect to safety requirements contained in the Low Voltage directive (73/23/EEC)
- the protection requirements with respect to EMC contained in Directive 89/336/EEC.

The equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instruction manual, the equipment may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference.

The EMC requirements have been selected to ensure an adequate level of compatibility for apparatus at residential, commercial, and light industrial environments. The levels however, do not cover extreme cases which may occur in any location but with a low probability of occurrence. In particular, it may not cover those cases where a potential source of interference which is producing individually repeated transient phenomena, or continuous phenomena, is permanently present, for example a radar or broadcast site in the near vicinity. In such a case it may be necessary to either limit the source of interference, or use special protection applied, to the interfered part, or both.

**Note:** For operation or maintenance inside Nortel Networks systems, the antistatic wrist shall always be used to maintain the integrity of the product.

- effective use of the Radio spectrum allocated to terrestrial/space radio communication and orbital resources so as to avoid harmful interference. The routes and standards used to demonstrate compliance with these essential requirements are outlined in the following paragraphs.

#### — iBTS EMC

Compliance with the essential requirements of EMC has been demonstrated using EN301489-1 & -23 standard

#### — iBTS radio compliance

Compliance with the essential requirements of effective use of the radio spectrum has been demonstrated using EN301908-1 & -3 standard.

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— **iBTS safety**

Compliance with the essential requirements of Safety has been demonstrated using EN 60950 Standard.

— **iBTS health protection**

Compliance with the essential requirement of health requirement has been demonstrated using EN50385.

**North American regulatory requirements compliance**

The Nortel Networks UMTS iBTS has been qualified according to North American market requirements for the Outdoor, Indoor 2, Mono, and Indoor 1900 compact versions.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient or relocate the receiving antenna
- increase the separation between the equipment and receiver
- connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- consult the dealer or an experienced radio/TV technician for help

**iBTS safety**

Nortel Network iBTS complies with UL60950 and CAN/CSA C22.2 No. 60950-00 Safety Standards. The CSA mark is applied on the iBTS and demonstrates compliance with both US and Canadian Standards.

**iBTS EMC and radio compliance**

Nortel Network iBTS complies with 47CFR Part 15 class B and 47 CFR Part 24 for EMC and radio emission limits according to US regulatory requirements as indicated on the regulatory label

**iBTS interconnection compliance**

The UMTS Univity iBTS complies with 47 CFR Part 68 of the FCC rules and the requirements adopted by the ACTA.

On the top right of this equipment is a label that contains, among other information, a product identifier in the following format:

- **US : AB6XDNANUMTSIND** for the Univity iBTS Indoor 2
- **US : AB6XDNANUMTSOUT** for the Univity iBTS Outdoor
- **US : AB6XDNANUMTSMONO** for the Univity iBTS Mono
- **US: AB6XDNANUMTSCOMP** for the Univity iBTS Indoor Compact

If requested, the following information must be provided to the telephone company:

- FCC Registered Number: AB6
- Facility Interface Code (FIC): 04DU9.BN, 04DU9.DN, 04DU9.1KN, and 04DU9.1SN
- Service Order Code (SOC): 6.0F

A FCC part 68 and ACTA compliant cable is provided with the Univity iBTS equipment, with no connector at network interface side. The Univity iBTS equipment operates with a 1.544 Mbps digital channel. See Installation Instructions for details.

If the Univity UMTS iBTS equipment causes harm to the phone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary

The telephone company may make changes to its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the telephone company will provide advance notice so you can make the necessary modifications to maintain uninterrupted services.

If trouble is experienced with Univity UMTS iBTS equipment, for repair or warranty information, please contact Toy-Brent Lorange  
Nortel Networks  
Phone: 972-685-2270  
Fax: 972-684-7601  
Nortel Networks 1334 Enterprise Drive, West Chester PA, 19380.

If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

All repairs should be handled by authorized Nortel Networks Service Personnel.

#### Univity iBTS data equipment

The following table shows which jacks are associated with which modes of operation.

Operation Mode	USOC Jack
Programmable & Test	RJ45S

#### Univity iBTS systems

Facility Interface Codes (FIC), Services Order Codes (SOC), USOC Jack Codes, and Ringer Equivalence Number (REN) are shown in the table below for each port where applicable.

Port	FIC	SOC	USOC Jack	REN
CCM T1 board	04DU9.BN	6.0F	N/A	N/A
CCM T1 board	04DU9.DN	6.0F	N/A	N/A
CCM T1 board	04DU9.1KN	6.0F	N/A	N/A
CCM T1 board	04DU9.1SN	6.0F	N/A	N/A
iCCM T1 board	04DU9.BN	6.0F	N/A	N/A
iCCM T1 board	04DU9.DN	6.0F	N/A	N/A
iCCM T1 board	04DU9.1KN	6.0F	N/A	N/A
iCCM T1 board	04DU9.1SN	6.0F	N/A	N/A

**iBTS RF health protection**

Compliance with the North American requirements is demonstrated through calculation according to FCC OET bulletin 65.

**Compliances for other regions/countries**

For countries outside Europe and the Americas, the requirements of European countries usually apply.

It is not possible to list all the applicable approvals / compliances as they will be dependent on the markets and products considered.

**Note:** Please contact your local Nortel Networks representative for more information.

**Operational conditions**

The aforementioned standards compliance of the products are based on the following operating conditions (called normal operation):

- doors shall be closed and/or covers shall be in place
- external cables shall be of the same type as specified by Nortel Networks
- no modification of any mechanical or electrical characteristics of the product shall be made

Any change or modification made to the product without written approval from Nortel Networks releases Nortel Networks from subsequent responsibility regarding the standards compliance.

**Cable specifications**

The compliance to the aforementioned standards has been verified using cables as specified by Nortel Networks. The continuing compliance of the product relies upon use of the correct cabling scheme as well as use of identical type cables as specified by Nortel Networks. Refer to the installation guides for details on cable specifications.

**Product labeling**

The label may be located inside or outside the product, provided that the operation and/or maintenance personnel have the information when working on the product.

**iBTS labeling for American Countries**

To indicate compliance with the CSA and UL Safety requirements, the Nortel Networks UMTS iBTS bears the following mark in a conspicuous location.



On the regulatory label, compliance to 47 CFR Part 15, 24 and 68 is stated along with:

- FCC ID, FCC Registration Number
- Manufacturers name
- Equipment designation
- Nominal voltage operating range and maximum rated current.

**iBTS labelling for European Countries**

To indicate compliance with the European RTTE Directive, the Nortel Networks UMTS iBTS bears the following information in a conspicuous location:



- Manufacturers name
- Equipment designation
- Nominal voltage operating range and maximum rated current

**Labeling for other regions / countries**

Labeling for other regions and countries is performed as appropriate and required by the local regulatory framework.



## UTRAN introduction of the UMTS03 solution

The Nortel Networks UTRAN is based on:

- the Univity RNC
- the Univity iBTS
- the NAM, optionally for transmission purpose

### Univity RNC

The Univity RNC is the Nortel Networks Univity UMTS RNC. It is the 3GPP-compliant UMTS RNC developed by Nortel Networks.

The Univity RNC allows mobility between UMTS and GSM networks.

The main functions of the Univity RNC are to control and manage the following:

- the Radio Access Network (RAN)
- the signaling between the different Core Network (CN) components and the Radio Network System (RNS)
- the Node Bs and their corresponding radio resources

The Univity RNC is connected to:

- Univity iBTSs through the lub interface
- another Univity RNC through the lur interface.

In fact an RNC can be connected to several other RNCs via lur.

- the Core Network through the lu interface

Most of the Univity RNC interfaces provide the ability to build multi-vendor solutions. The main part of the Univity RNC is built upon the Passport technology.

The Univity RNC supports the UMTS 1900 MHz and the UMTS 2100 MHz frequencies.

### Univity RNC configurations for UMTS 1900

The RNC supports UMTS 1900 MHz configurations to provide the SONET/OC-3 transmission interfaces. The SONET/OC-3 mode is supported for the lu, lub, lur interfaces.

### Univity RNC configurations for UMTS 2100

The RNC supports UMTS 2100 MHz configurations to provide the SDH/STM-1 transmission interfaces. The SDH/STM-1 mode is supported for the lu, lub, lur interfaces.

### Univity iBTS

The Univity iBTS is the 3GPP-compliant UMTS Node B developed by Nortel Networks. The generic term iBTS is used to designate the Univity UMTS Internet Base Transceiver Station.

The Univity iBTS supports the following functions:

- network interface management
  - lub towards the Univity RNC
  - Uu towards the UE

- radio access and modem (modulation/demodulation, frequency up/down-conversion, amplification)
- call processing (channel setup and management for both common and dedicated channels, cell management, power control, handover and measurement)
- configuration and supervision
- synchronization
- performance monitoring

**NAM**

The NAM improves the switching/routing capabilities of the Univity iBTS.

It provides the following features:

- Hub  
 The NAM can implement a hubbing function for the Node Bs. It allows to minimize the number of T1/E1 links, between Node Bs and a RNC.
- Cell aggregation  
 It concentrates the traffic of different Node Bs before transmission on the Iub interface.
- Fractional E1/T1 to achieve Drop&Insert UMTS-UMTS and GSM-UMTS.

The NAM is built on the Passport 7420 equipment.

**UTRAN architecture examples of the UMTS03 solution**

UTRAN architecture examples of the UMTS03 solution are shown in the following figures. They are split into:

- UMTS 1900: for a SONET configuration
- UMTS 2100: for a SDH and a PCM configuration

**Figure 1 UTRAN architecture example of the UMTS03 solution (1900 MHz—SONET)**

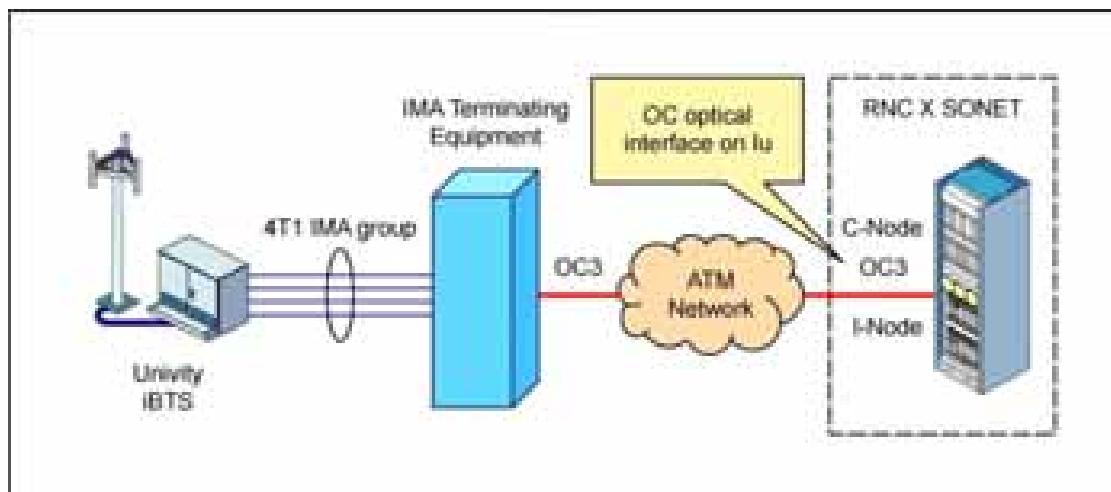


Figure 2 UTRAN architecture example of the UMTS03 solution (2100 MHz — SDH)

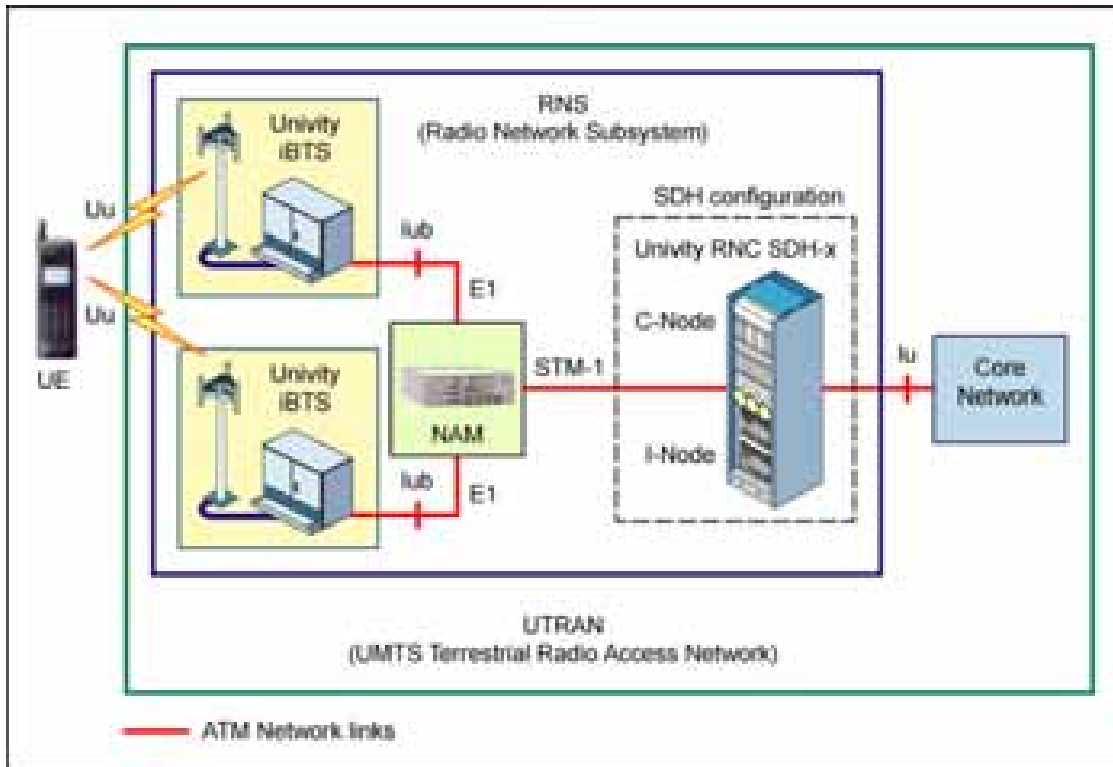
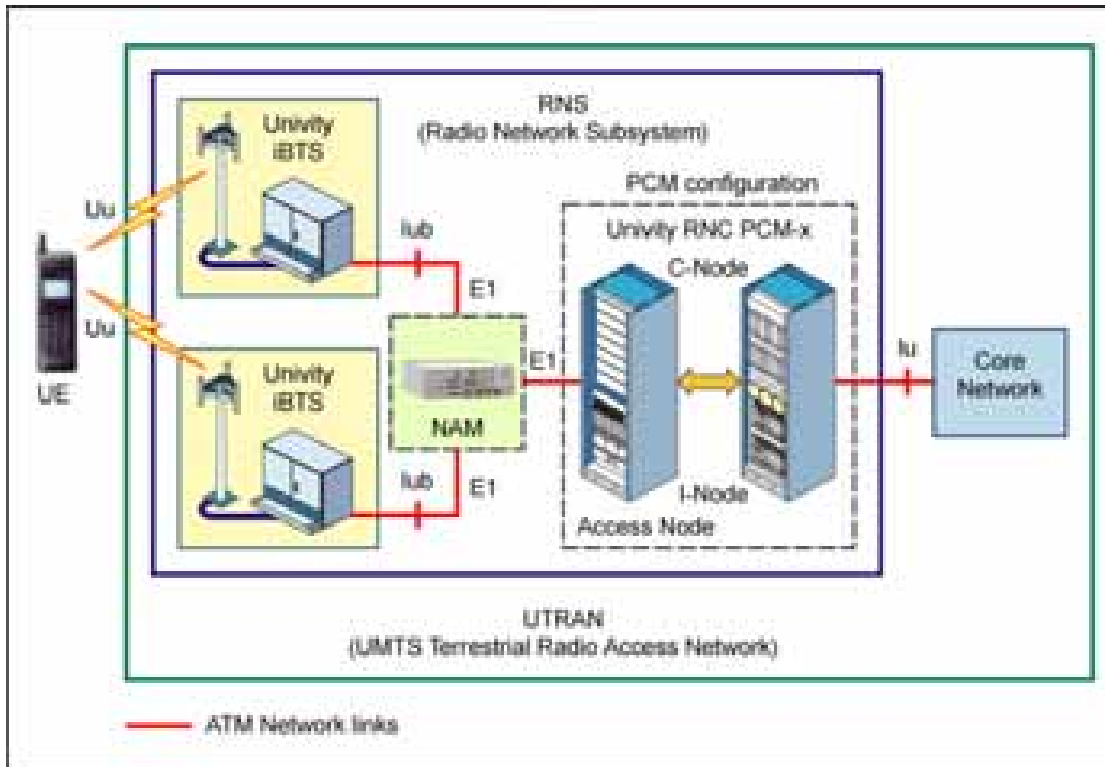


Figure 3 UTRAN architecture example of the UMTS03 solution (2100 MHz — PCM)



**Univity iBTS basic characteristics**

This part describing the basic characteristics of the Univity iBTS is split into the following:

- Univity iBTS introduction
- Univity iBTS key features

## Univity iBTS introduction

A NodeB supports Frequency Division Duplex (FDD) mode, Time Division Duplex (TDD) mode or dual-mode operation.

The 3GPP-compliant UMTS base station developed by Nortel Networks is named Univity iBTS. The Univity iBTS supports only the FDD mode and it provides Outdoor and indoor deployment to cover different customer requirements.

This section provides an overview of Nortel Network Univity iBTS.

The Univity iBTS is responsible for radio transmission/reception in one or more cells to/from the UE (User Equipment).

The iBTS provides:

- the means of communication between a User Equipment (UE) and a network via Transport Channels
- physical layer channels which are necessary to synchronize the downlink and also to perform cell selection/reselection and hand over preparation
- measurement information to the Univity RNC for radio resource management (hand over, power control)

The Univity iBTS provides up to eight E1/T1 with IMA (Inversion Multiplexing ATM) or to Drop and Insert a fractional E1/T1.

### Univity iBTS interfaces

The iBTS provides the following interfaces:

- Uu interface (UMTS User interface): this interface is used between the iBTS (internet Base Transceiver Station) and the UE (User Equipment). It is dependent on the technology used on the radio (for example, it can be W-CDMA or TD/CDMA)
- Iub interface (Interface UMTS iBTS): this interface lies between the Univity RNC and the iBTS. It allows to connect Univity RNCs (internet Radio Network Controller).

### Univity iBTS cabinets

Nortel Networks provides the following iBTS cabinet types:

- Univity iBTS Outdoor 2100  
The iBTS Outdoor 2100 is a single cabinet closed by two doors.  
The iBTS Outdoor 2100 is designed to optimize deployment in rural area, suburban area, urban area, highway, and rooftop.
- Univity iBTS Outdoor 1900  
The iBTS Outdoor 1900 is a single cabinet closed by two doors.  
The iBTS Outdoor 1900 is only the 1900 MHz version of the Univity iBTS Outdoor 2100, which makes it compatible with the North-American standard.
- Univity iBTSs Indoor 2100  
The Univity iBTS Indoor is a single 600mm-wide cabinet (Univity iBTS Indoor 600) or a single 700mm-wide cabinet (Univity iBTS Indoor 700) closed by two doors. It is installed inside if an air

exchanger is provided.

The Univity iBTS Indoor 2100 is also designed to optimize deployment in rural area, sub-urban area, urban area, highway, and rooftop.

- Univity iBTS Street 2100

The Univity iBTS Street 2100 is a single cabinet closed by two doors.

The Univity iBTS Street 2100 is designed to optimize deployment in city, urban, and sub-urban areas: city street corner, public sidewalks, parking areas, and motorways.

- Univity iBTS Indoor 2 2100

The Univity iBTS Indoor 2 2100 is a single cabinet closed by one door. It is designed for ease of manufacture, transportation, installation, system assembly, repair and testing.

The iBTS Indoor 2 2100 is installed inside if an air exchanger is provided.

The iBTS Indoor 2 2100 is an evolution of iBTS Indoor 600 to improve mechanical, acoustic performances on the equipment.

- Univity iBTS Indoor 2 1900

The Univity iBTS Indoor 2 1900 is a single cabinet closed by one door. It is designed for ease of manufacture, transportation, installation, system assembly, repair and testing.

The iBTS Indoor 2 1900 is installed inside if an air exchanger is provided.

The Univity iBTS Indoor 2 1900 is a new version of the Univity iBTS Indoor 2 2100, which makes it compatible with the North-American standard. There is no specific evolution, excepted the support of the module needed for the 1900 MHz frequency.

- Univity iBTS Mono 2100

the Univity iBTS Mono 2100 is a single cabinet closed by one door.

The Univity iBTS Mono 2100 is designed to be installed on walls or poles. It is also designed to provide minimum visual impact while maintaining the highest Radio Frequency (RF) performance for a mono carrier UMTS product. Its compact dimensions allow easy and flexible installation in outdoor areas.

- Univity iBTS Mono 1900

The Univity iBTS Mono 1900 is a new version of the Univity iBTS Mono 2100, which makes it compatible with the North-American standard. There is no specific evolution, excepted the support of the module needed for the 1900 MHz frequency.

- Univity iBTS Indoor 1900 Compact

the Univity iBTS Indoor 1900 Compact is a single cabinet closed by one door.

The Univity iBTS Compact provides the an attractive solution for restricted site space, particularly in urban and sub-urban environments. It can fit in standard racks or even on tabletops.

The Univity iBTS Indoor 1900 Compact compatible with the North-American standard.

The Macro iBTS term is used to indicate the set of iBTS cabinets (Univity iBTS Outdoor, Univity iBTS Indoor 700, Univity iBTS Indoor 600, and Univity iBTS Indoor 2).

The Macro iBTS is modular in design for easy network growth and flexibility, to manage diverse traffic demands. Common modules are used to grow the iBTS to increase capacity as required. The

increase in capacity is provided via the simple addition of modules, as opposed to the addition entire of cabinets.

The following table lists the Univity iBTS cabinets according to the UMTS standard (UMTS 2100 and UMTS 1900).

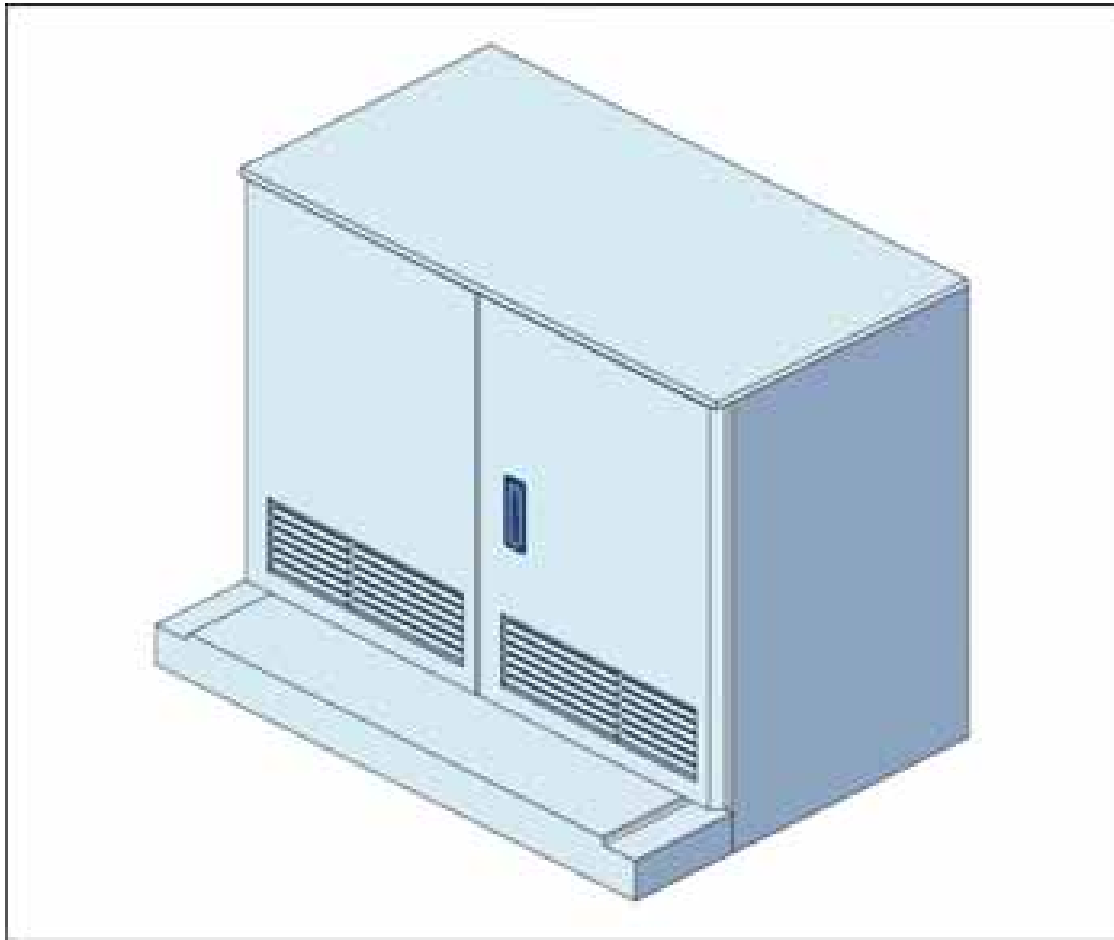
**Table 1 Univity iBTS cabinets**

<b>Types</b>	<b>UMTS 2100</b>	<b>UMTS 1900</b>
Univity iBTS Outdoor	X	X
Univity iBTS Indoor 2100 (600/700)	X	NA
Univity iBTS Indoor 2	X	X
Univity iBTS Mono	X	X
Univity iBTS Street 2100	X	NA
Univity iBTS Indoor 1900 Compact	NA	X

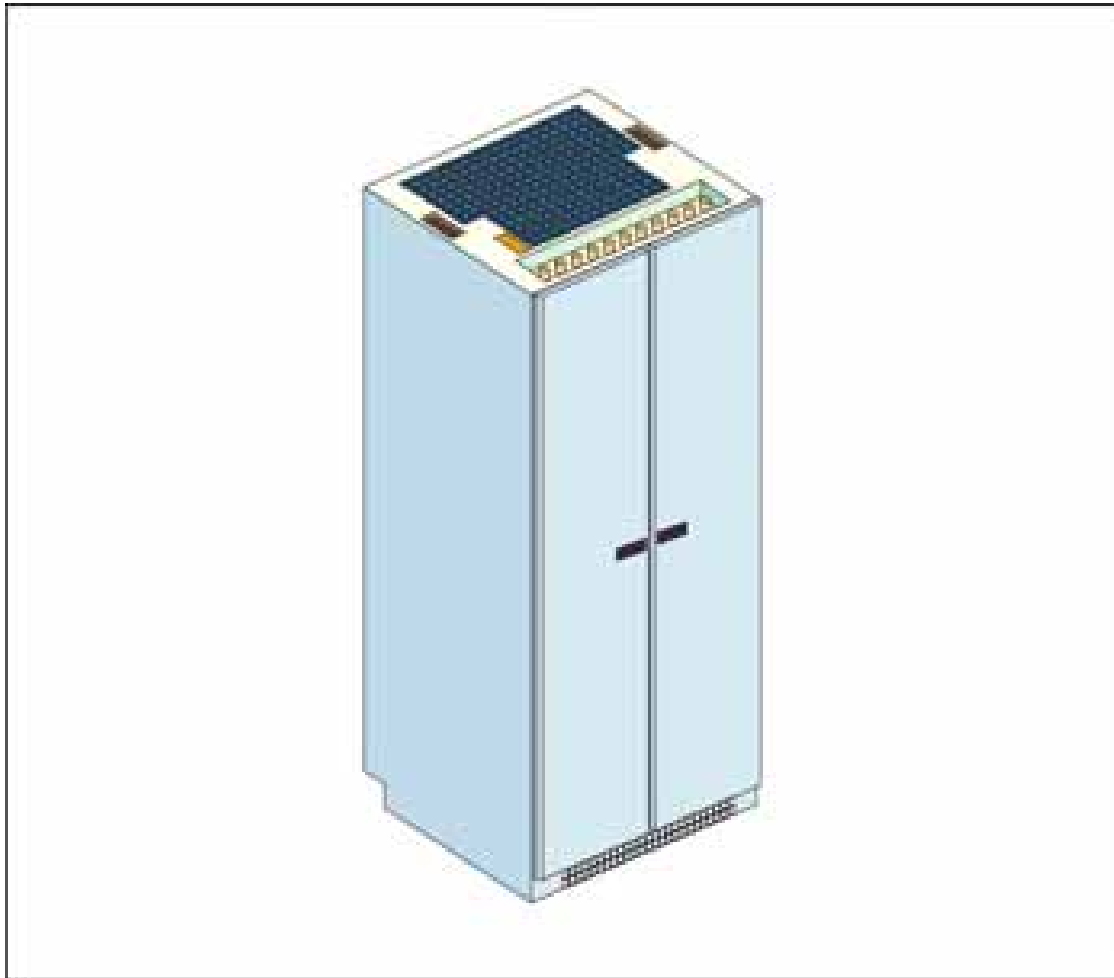
The following figure shows the iBTS types provide by Nortel Networks:



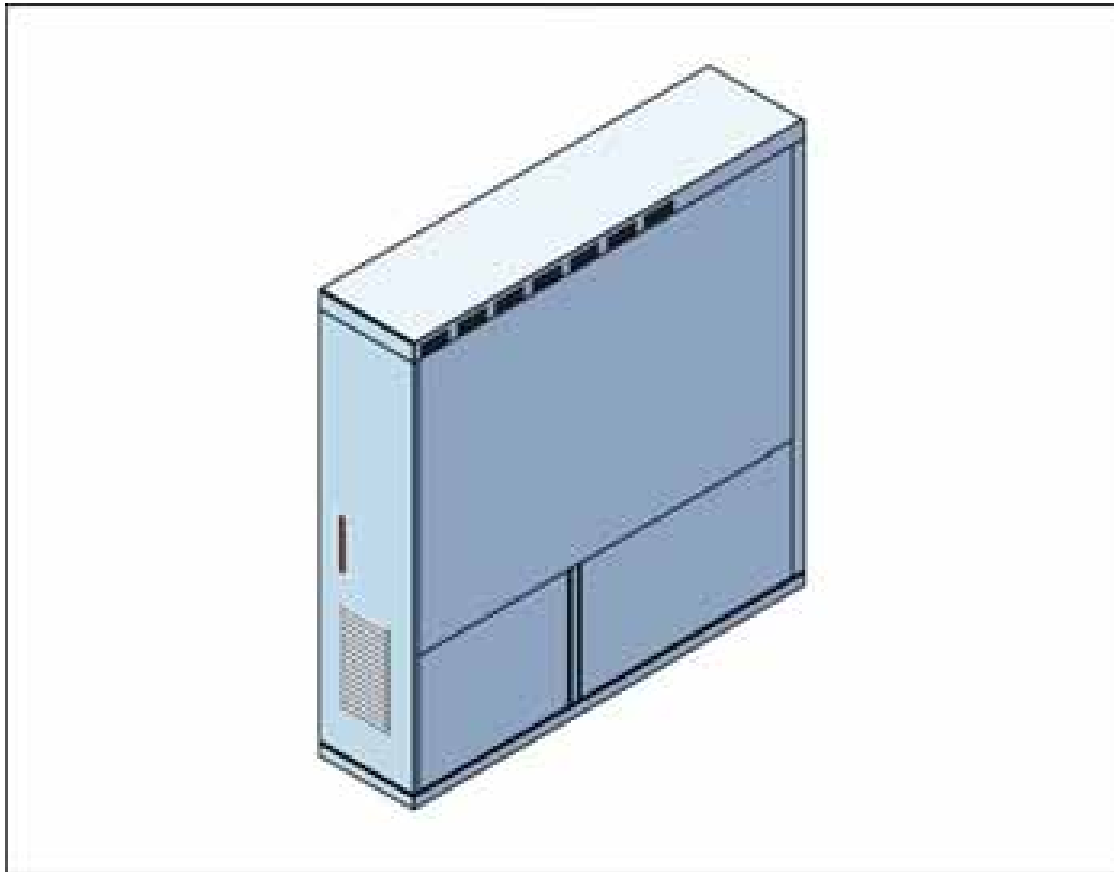
**Figure 4 Univity iBTS Outdoor outside view**



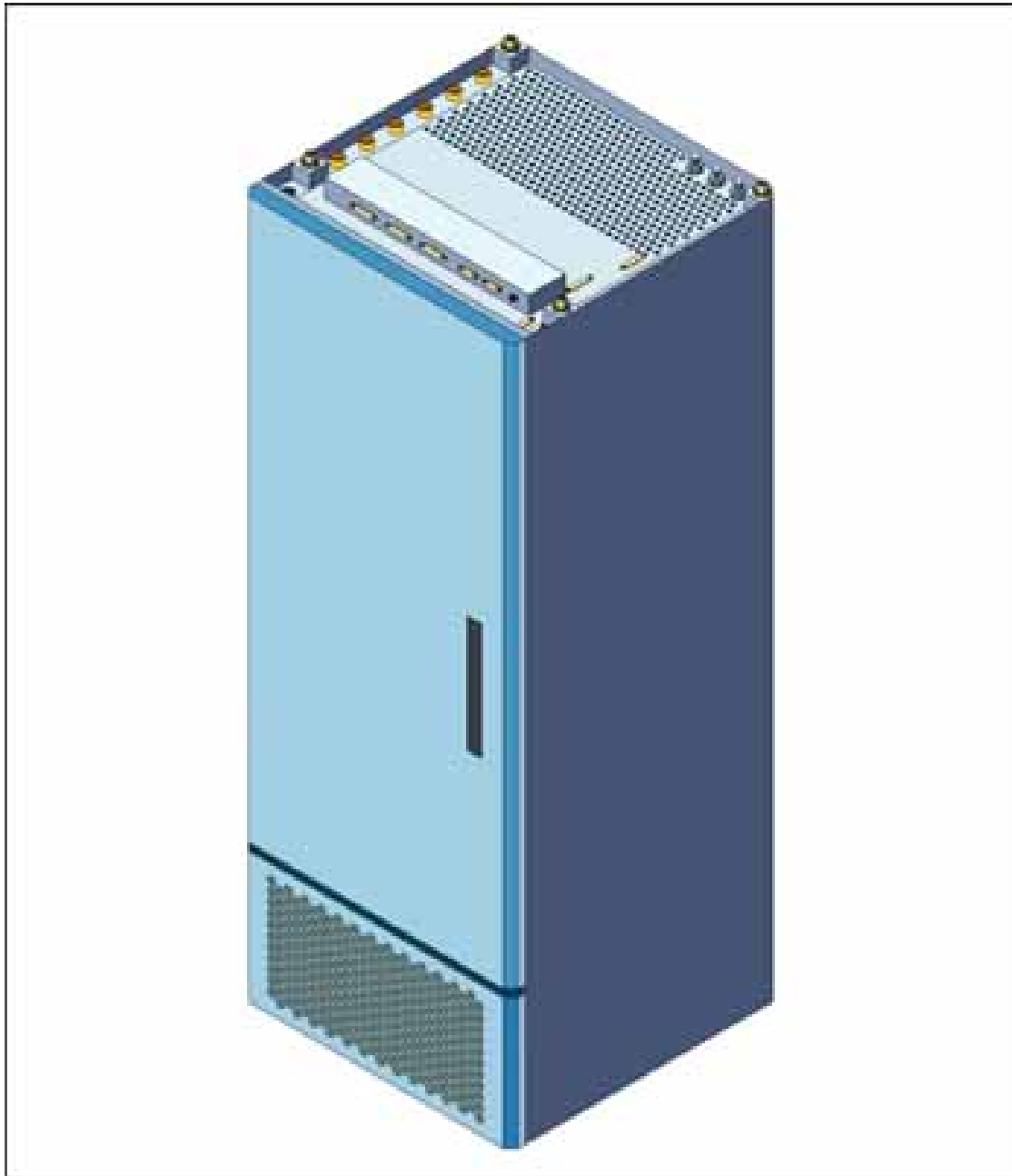
**Figure 5 Univity iBTS Indoor 2100 outside view**



**Figure 6 Univity iBTS Street 2100 outside view**

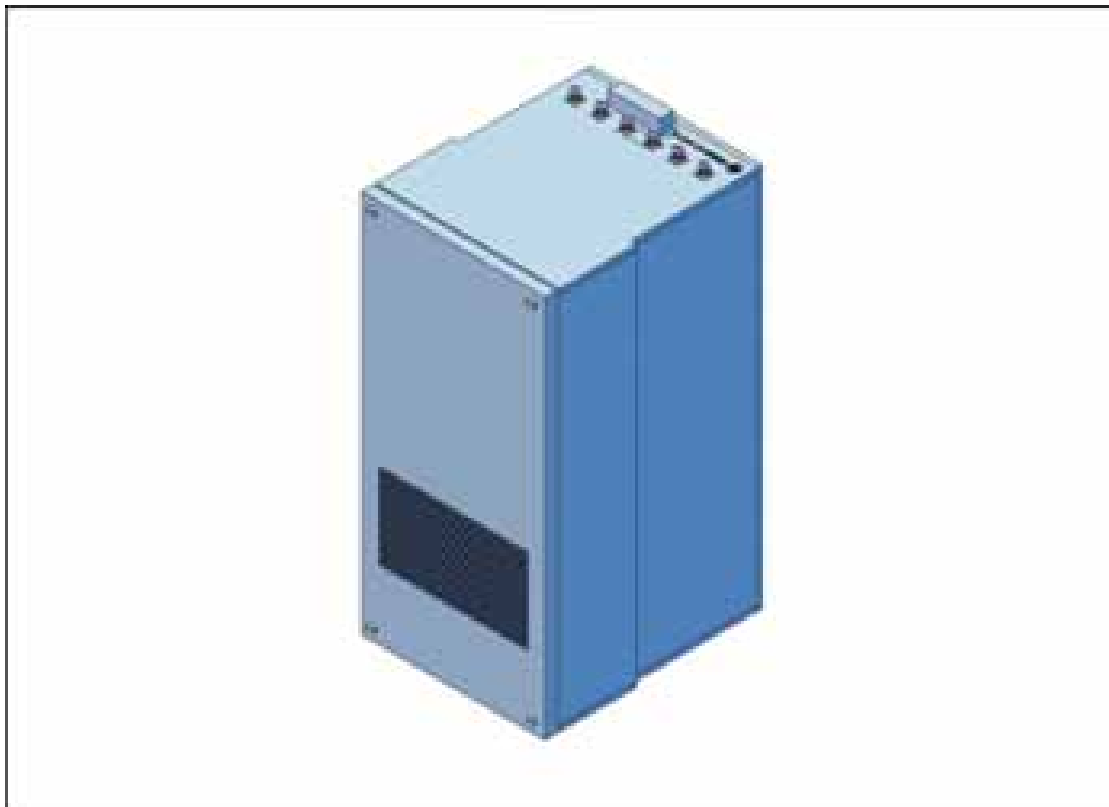


**Figure 7 Univity iBTS Indoor 2 outside view**



**Figure 8 Univity iBTS Mono outside view**



**Figure 9 Univity iBTS Indoor 1900 Compact outside view****Univity iBTS modules**

In the first generation, Nortel Networks delivers the modules-alpha. These modules are supported by all the iBTSs (Macro iBTS, Univity iBTS Mono, Univity iBTS Indoor 1900 Compact, and Univity iBTS Street 2100).

In the second generation (UMTS03 system release), Nortel Networks delivers the iModules (called also modules-beta). These modules are supported by all the iBTSs (Macro iBTS, Univity iBTS Mono, Univity iBTS Indoor 1900 Compact, and Univity iBTS Street 2100) and are compatible with existing ones. These new modules are transparent to you as they do not provide a capacity change (except for the iCEM).

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## Univity iBTS key features

This section describes the general features of the iBTS.

### **iBTS features**

The iBTS includes the following features:

- outdoor operation
- indoor operation
- ac operation (iBTS Outdoor, iBTS Street, and iBTS Indoor 700) or dc operation (iBTS Indoor 600, iBTS Indoor 2, iBTS Mono, and iBTS Indoor 1900 Compact)
- digital system support of up to three carriers
- front access only
- plug and play
- PCM internal protection
- multiple CEM
- multiple PCM
- no need for an extra site cabinet for user space and batteries
- best-in-class in term of volume and size
- easy installation and commissioning
- maintenance facilities: modular design, hardware and software diagnostics for fault isolation mechanism and fast reconfiguration
- most commonly shared modules between the iBTS different types
- software upgrade with minimum service downtime
- a flexible product: possible growth from low to high capacity without any additional cabinets
- drop and insert
- STSR1 configuration
- BTBR1 configuration
- STSR2 configuration
- BTBR2 configuration
- OTSR1 configuration
- OTBR1 configuration
- OTOR1 configuration
- OTOR2 configuration
- Network Access Module (NAM)
- iCEM, iCCM, and iTRM modules
- iCCM redundancy





## Univity iBTS characteristics

This section details the characteristics (frequency bands, physical, electrical, thermal and acoustic) of the iBTS cabinet types.

### Univity iBTS Outdoor

The characteristics of the Univity iBTS Outdoor are the following:

- frequency bands 2100 MHz:
  - 2110-2170 MHz for downlink
  - 1920-1980 MHz for uplink
- frequency bands 1900 MHz:
  - 1930-1990 MHz for downlink
  - 1850-1910 MHz for uplink
- optimized size versus capacity ratio:
  - footprint: 0.95 m<sup>2</sup>
  - cabinet size is the following:
    - width (W): 1350 mm
    - depth (D): 700 mm
    - height (H): 1300 mm
  - Volume: 1240 l
- ac Power:
  - Single/Split: 20 A/phase
  - three phase: 10 A/phase (balanced)
- operation Temperature Range: -40 to +50 degree Celsius
- weight:
  - fully equipped: 520 kg
  - empty: 180 kg
- acoustic: about 44 dBA at 5 feet

### Univity iBTS Indoor 600

The characteristics of the Univity iBTS Indoor 600 are the following:

- frequency bands 2100 MHz:
  - 2110-2170 MHz for downlink
  - 1920-1980 MHz for uplink
- optimized size versus capacity ratio:
  - footprint: 0.615 m<sup>2</sup>
  - cabinet size is the following:

- width (W): 600 mm
- depth (D): 600 mm
- height (H): 1600 mm
- volume: 576 L
- dc Power: -48 V dc
- operation Temperature Range: -5 to +50 degree Celsius
- weight:
  - fully equipped: 560 kg
  - empty: 105 kg

#### **Univity iBTS Indoor 700 without ac power plinth**

The characteristics of the Univity iBTS Indoor 700 are the following:

- frequency bands 2100 MHz:
  - 2110-2170 MHz for downlink
  - 1920-1980 MHz for uplink
- Optimized size versus capacity ratio:
  - footprint: 0.7525 m<sup>2</sup>
  - cabinet size is the following:
    - width (W): 700 mm
    - depth (D): 600 mm
    - height (H): 1600 mm
  - volume: 672 l
- dc Power: -48 V dc
- operation Temperature Range:
  - long term: 5 to +40 degree Celsius
  - short term: -5 to +50 degree Celsius
- weight:
  - fully equipped: 325.5 kg
  - empty: 128.5 kg

#### **Univity iBTS Indoor 700 with ac power plinth**

The characteristics of the Univity iBTS Indoor 700 with ac power plinth are the following:

- frequency bands 2100 MHz:
  - 2110-2170 MHz for downlink
  - 1920-1980 MHz for uplink

- optimized size versus capacity ratio:
  - footprint: 0.7525 m<sup>2</sup>
  - cabinet size is the following:
    - Width (W): 700 mm
    - Depth (D): 600 mm
    - Height (H): 2000 mm
  - Volume: 672 l
- dc Power: -5 V dc and +24 V dc
- ac Power:
  - Single/Split: 20 A/phase
  - three phase: 10 A/phase (balanced)
- operation Temperature Range:
  - long term: 5 to +40 degree Celsius
  - short term: -5 to +50 degree Celsius
- weight:
  - fully equipped: 513.5 kg
  - empty: 128.5 kg
  - ac Plinth: 170 kg

#### **Univity iBTS Street 2100**

The characteristics of the Univity iBTS Street are the following:

- frequency bands 2100 MHz:
  - 2110-2170 MHz for downlink
  - 1920-1980 MHz for uplink
- optimized size versus capacity ratio:
  - footprint: 0.52 m<sup>2</sup>
  - cabinet size is the following:
    - width (W): 1480 mm
    - depth (D): 350 mm
    - height (H): 1500 mm
  - volume: 761.25 l
- ac power is following:
  - Single/Split: 120/240 V ac
  - three phase: 120/208 V ac or 240/416 V ac
- operation Temperature Range: -40 to +45 degree Celsius

- weight:
  - fully equipped: 321 kg
  - empty: 180 kg
- acoustic: about 47 dBA between -20 and +40 degree Celsius

### **Univity iBTS Indoor 2**

The characteristics of the Univity iBTS Indoor 2 are the following:

- frequency bands 2100 MHz:
  - 2110-2170 MHz for downlink
  - 1920-1980 MHz for uplink
- frequency bands 1900 MHz:
  - 1930-1990 MHz for downlink
  - 1850-1910 MHz for uplink
- optimized size versus capacity ratio:
  - cabinet size is the following:
    - width (W): 600 mm
    - depth (D): 600 mm
    - height (H): 1650 mm
  - volume: 594 L
- dc Power: -48 V dc (2100)
- dc Power: + 24 V dc (1900) by using the +24 V dc converter kit option
- operation Temperature Range:
  - long term: +5 to +45 degree Celsius
  - short term: -5 to +45 degree Celsius
- weight:
  - empty: 140 kg
  - fully equipped: 305 kg

### **Univity iBTS Mono**

The characteristics of the Univity iBTS Mono are the following:

- frequency bands 2100 MHz:
  - 2110-2170 MHz for downlink
  - 1920-1980 MHz for uplink
- frequency bands 1900 MHz:
  - 1930-1990 MHz for downlink
  - 1850-1910 MHz for uplink

- optimized size versus capacity ratio:
  - cabinet size is the following:
    - width (W): 460 mm
    - depth (D): 570 mm
    - height (H): 600 mm
  - volume: 157,32 L
- dc power: -48 V dc
- single phase: 220 V ac
- operation Temperature Range: -20 to +45 degree Celsius
- weight < 90 kg
- single configuration: 1 sector and 1 carrier
- receive diversity

The iBTS Mono does not support the following:

- external alarms
- battery backup
- CCM redundancy
- Tx diversity
- +24 V dc

The iBTS Mono supports the following options:

- Tower Masterhead Amplifiers (TMA)
- Lightening protection
- Fractional E1/T1 which is shared with GSM BTS

#### **Univity iBTS Indoor 1900 Compact**

The characteristics of the Univity iBTS Indoor 1900 Compact are the following:

- frequency bands 1900 MHz:
  - 1930-1990 MHz for downlink
  - 1850-1910 MHz for uplink
- optimized size versus capacity ratio:
  - cabinet size is the following:
    - width (W): 483 mm
    - depth (D): 650 mm
    - height (H): 900 mm
  - volume: 282 L
- dc power: -48 V dc

- 
- single/split phase: 120/240 V ac
  - operation Temperature Range: -5 to +45 degree Celsius
  - weight < 63kg
  - the configurations supported are the following:
    - OTOR1/OTOR2 configuration
    - STSR1/STSR2 configuration with MCPAs 45W
    - BTBR1/BTBR2 configuration with MCPAs 45W
  - receive diversity

The Univity iBTS Indoor 1900 Compact does not support the following:

- external or internal battery
- O2 configuration
- CCM redundancy
- Tx diversity

The Univity iBTS Indoor 1900 Compact supports the following options:

- Tower Masterhead Amplifiers (TMA)
- Lightening protection
- Fractional E1/T1 which is shared with GSM BTS
- +24 V dc