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Wireless Service Provider Solutions

UMTS

Product Fundamentals

About the Univity iBTS

UMT/DCL/DD/0002 03.08/EN Draft September 2003
411-8111-905



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PUBLICATION HISTORY

SYSTEM RELEASE UMTS03

September 2003

- Issue 03.08/EN Draft
- Update for OAM V3.1/RAN V3.1 Customer Readiness
- Introduction of UMTS 1900 Univity iBTSs Mono and Indoor Compact

August 2003

- Issue 03.07/EN Preliminary
- Update after internal review

July 2003

- Issue 03.06/EN Draft
- Update for OAM V3.1/RAN V3.1 Customer Readiness
- Introduction of UMTS 1900 iBTSs Indoor 2 and Outdoor

July 2003

- Issue 03.05/EN Preliminary
- Update after FCC Regulatory information validation

June 2003

- Issue 03.04/EN Draft
- FCC Regulatory Information enhancement: addition of North-American rules

May 2003

- Issue 03.03/EN Preliminary
- Update after Internal Review

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- Issue 03.02/EN Draft
- Update for OAM V3.1/RAN V3.1

April 2003

- Issue 03.01/EN Standard
- Minor update
- Document version change (UTRAN V2.1 belong to UMTS V3.0b system release)

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- Issue 02.08/EN Standard
- Editorial Update to introduce the iBTS Indoor 2

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- Issue 02.07/EN Standard
- Update for UMTS V2.1 UTRAN

September 2002

- Issue 02.06/EN Preliminary
- Update for UMTS V2.0d UTRAN

July 2002

- Issue 02.05/EN Preliminary
- Minor update

July 2002

- Issue 02.04/EN Preliminary
- Update after internal review

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- Issue 02.03/EN Draft
- Update for UMTS V2.0c UTRAN

May 2002

- Issue 02.02/EN Preliminary
- Update after internal review

March 2002

- Issue 02.01/EN Draft
 - introduction of the STSR2 configuration
 - introduction of the new iBTS Street
 - drop and insert feature description

SYSTEM RELEASE UMTS01

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- Issue 01.08/EN Preliminary
- Update after review

January 2002

- Issue 01.07/EN Draft
- Update according the product release change.

October 2001

Issue 01.06/EN Preliminary

Update after review

September 2001

Issue 01.05/EN Draft

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

July 2001

Issue 01.04/EN Preliminary

Update after review

June 2001

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

Issue 01.01/EN Draft

Creation

About this publication	1
What is in new about the Univity iBTS	3
Univity iBTS regulatory information	4
UTRAN introduction of the UMTS03 solution	9
Univity iBTS basic characteristics	13
Univity iBTS introduction	14
Univity iBTS key features	23
Univity iBTS mechanical characteristics	24
Univity iBTS architecture and configuration	30
Univity iBTS architecture	31
Univity iBTS RF configuration	35
Univity iBTS interfaces	48
Uu interface physical description	49
Iub interface physical description	50
Univity iBTS hardware	51
Univity iBTS hardware presentation	52
Univity iBTS digital shelf	74
Univity iBTS digital shelf description	75
CEM (Channel Element Module)	82
iCEM (internet Channel Element Module)	89
CCM (Core Control Module)	94
iCCM (internet Core Control Module)	98
TRM (Transceiver Receiver Module)	103
iTRM (internet Transceiver Receiver Module)	112
GPSAM/cGPSAM (GPS and Alarm Module)	116
Univity iBTS RF block	120

Univity iBTS Radio Frequency (RF) Description	121
MCPA (Multi Carrier Power Amplifier)	125
Tx Splitter	130
DDM (Dual Duplexer Module)	133
Univity iBTS cabinet other modules	139
MCA (Manufacturing, Commissioning, and Alarm) module	140
Mono Control Board	145
Single Power Control Module (SPCM)	147
TMA (Tower Masterhead Amplifier)	149
Interconnection module of the Univity iBTS	156
Alarm protection module	161
PCM protection module (iBTS Outdoor)	165
PCM protection module (iBTS Indoor 2)	167
PFM (Power Filter Module) (Univity iBTS Indoor 2100)	170
User ICO of the iBTS Outdoor	171
User ICO of the Univity iBTS Street 2100	172
Univity iBTS cooling system	173
Cooling system of the Univity iBTS Outdoor	174
Fan tray of the Univity iBTS Indoor 2100	177
Cooling system of the Univity iBTS Street 2100	179
Cooling system of the Univity iBTS Indoor 2	182
Cooling system of the Univity iBTS Indoor 1900 Compact	185
Univity iBTS power system	189
Power supply of the Univity iBTS Outdoor	190
Power supply of the Univity iBTS Indoor 2100	192
ac plinth (Univity iBTS Indoor 700 2100)	195

Power supply of the Univity iBTS Street 2100	199
dc power system shelf of the Univity iBTS	201
dc distribution module of the Univity iBTS Outdoor	204
dc distribution module of the Univity iBTS Street 2100	206
dc distribution system of the Univity iBTS Indoor 2	208
dc distribution system of the Univity iBTS Mono	211
dc distribution system of the Univity iBTS Indoor 1900 Compact	214
Rectifier of the Univity iBTS	217
Single Power Control Module (SPCM)	219
Batteries of the Univity iBTS Outdoor	221
Batteries of the Univity iBTS Indoor 700	222
External battery cabinet	223
Univity iBTS software	226
Univity iBTS software overview	227
CEM software	231
TRM software	233
CCM software	235
Univity iBTS services and features	238
Introduction of the Univity iBTS services and features	239
Multi CEM management	242
Resource allocation management	243
Pool management	246
Multi PCM management	247
Multi PCM features	248
Multi PCM feature interactions	251
Impact of the multi PCM feature on the network	252

Figure 1 - UTRAN architecture example of the UMTS03 solution (1900 MHz SONET)	10
Figure 2 - UTRAN architecture example of the UMTS03 solution (2100 MHz SDH)	11
Figure 3 - UTRAN architecture example of the UMTS03 solution (2100 MHz PCM)	12
Figure 4 - Univity iBTS Outdoor outside view	17
Figure 5 - Univity iBTS Indoor 2100 outside view	18
Figure 6 - Univity iBTS Street 2100 outside view	19
Figure 7 - Univity iBTS Indoor 2 outside view	20
Figure 8 - Univity iBTS Mono outside view	21
Figure 9 - Univity iBTS Indoor 1900 Compact outside view	22
Figure 10 - Univity iBTS functional architecture	32
Figure 11 - Univity iBTS hardware architecture	33
Figure 12 - Univity iBTS Mono configuration	37
Figure 13 - Univity iBTS Indoor 1900 Compact with O1 configuration (functional diagram)	40
Figure 14 - Univity iBTS Outdoor 2100, Univity iBTS Indoor 600, Univity iBTS Indoor 700, or Univity iBTS Indoor 2 2100 with OTSR1 configuration (functional diagram)	41
Figure 15 - Univity iBTS Street 2100 with OTSR1 configuration (functional diagram)	42
Figure 16 - iBTS Outdoor, iBTS Indoor 600, iBTS Indoor 700, or iBTS Indoor 2 with STSR1 configuration without TRM/iTRM redundancy (functional diagram)	43
Figure 17 - Univity iBTS Street 2100 with STSR1 configuration (functional diagram)	44
Figure 18 - Univity iBTS Indoor 1900 Compact with STSR1 configuration (functional diagram)	45
Figure 19 - Univity iBTS Outdoor, Univity iBTS Indoor 600, Univity iBTS Indoor 700, Univity iBTS Indoor 2, or Univity iBTS Indoor 1900 compact with STSR2 (functional diagram)	46
Figure 20 - Inside view (Univity iBTS Outdoor 2100)	53
Figure 21 - Inside view (Univity iBTS Indoor 600)	55
Figure 22 - Inside view (Univity iBTS Indoor 700)	56
Figure 23 - Bulkhead top view (Univity iBTS Indoor 600)	57
Figure 24 - Bulkhead top view (Univity iBTS Indoor 700)	58
Figure 25 - Inside view (Univity iBTS Street 2100)	60
Figure 26 - Cabinet layout (Univity iBTS Street 2100)	61
Figure 27 - Internal cabling top view (Univity iBTS Street 2100)	62
Figure 28 - Inside view (Univity iBTS Indoor 2)	63
Figure 29 - Cabinet Layout (Univity iBTS Indoor 2)	64
Figure 30 - Bulkhead top view (Univity iBTS Indoor 2)	65
Figure 31 - Inside view (Univity iBTS Mono 2100)	67
Figure 32 - Cabinet layout (Univity iBTS Mono 2100)	68
Figure 33 - Bulkhead below view (Univity iBTS Mono 2100)	69
Figure 34 - Inside view (Univity iBTS Indoor 1900 Compact)	71
Figure 35 - Cabinet layout (Univity iBTS Indoor 1900 Compact)	72
Figure 36 - Bulkhead top view (Univity iBTS Indoor 1900 Compact)	73
Figure 37 - Digital shelf description	76
Figure 38 - Front view of the digital shelf (Univity iBTS Outdoor and Univity iBTS Indoor	77

700)	
Figure 39 - Front view of the digital shelf (Univity iBTS Indoor 600)	78
Figure 40 - Front view of digital shelf (Univity iBTS Street 2100)	78
Figure 41 - Front view of digital shelf (Univity iBTS Indoor 2)	79
Figure 42 - Front view of digital shelf (Univity iBTS Mono)	80
Figure 43 - Front view of digital shelf (Univity iBTS Indoor 1900 Compact)	80
Figure 44 - Overview of the CEM physical architecture	83
Figure 45 - Detailed view of the CEM hardware	85
Figure 46 - Interconnection of the mini backplane	86
Figure 47 - Front view of the CEM	87
Figure 48 - iCEM 64 functional architecture	89
Figure 49 - Front view of the iCEM 64	91
Figure 50 - Front view of the iCEM 128	92
Figure 51 - Front view of the CCM	95
Figure 52 - Interfaces of the CCM	97
Figure 53 - iCCM functional architecture	99
Figure 54 - Front view of the iCCM	101
Figure 55 - Functional block diagram of the TRM	104
Figure 56 - Block diagram of the dTRM	105
Figure 57 - Block diagram of the rTRM transmitted part	106
Figure 58 - Block diagram of the rTRM received part	107
Figure 59 - Front view of the TRM	108
Figure 60 - iTRM radio architecture (Direct Modulation)	112
Figure 61 - iTRM radio architecture (Direct Demodulation)	113
Figure 62 - Front view of the iTRM	114
Figure 63 - GPSAM alarm and inventory diagram	117
Figure 64 - Front view of the GPSAM	118
Figure 65 - RF block general description	122
Figure 66 - Front view of the MCPA (Univity iBTS Outdoor, Univity iBTS Indoor 2100, and Univity iBTS Indoor 2)	123
Figure 67 - Front view of the MCPA (Univity iBTS Street 2100)	123
Figure 68 - Functional description of an MCPA	126
Figure 69 - MCPA functional block diagram	127
Figure 70 - Front view of the MCPA module	128
Figure 71 - Tx Splitter functional block	131
Figure 72 - Tx Splitter hardware description	132
Figure 73 - DDM block diagram	134
Figure 74 - Front view of DDM (iBTS Outdoor, iBTS Indoor, and iBTS Indoor 2)	135
Figure 75 - Front view of DDM (iBTS Street and iBTS Mono)	136
Figure 76 - Front view of DDM-2 (iBTS Outdoor, iBTS Indoor, and iBTS Indoor 2)	137
Figure 77 - Front view of the MCA module (Univity iBTS Outdoor)	140
Figure 78 - Front view of the MCA module (Univity iBTS Indoor 2100)	141

Figure 79 - Front view of the MCA module (Univity iBTS Street 2100)	142
Figure 80 - Front view of the MCA module (Univity iBTS Mono)	143
Figure 81 - Front view of MCA module	144
Figure 82 - Front view of the MCA module (Univity iBTS Indoor 2)	144
Figure 83 - Front view of Control board (iBTS Mono)	146
Figure 84 - Front view of the SPCM	147
Figure 85 - Double TMA 2100 insertion in the system	150
Figure 86 - single TMA 1900 insertion in the system	151
Figure 87 - TMA 2100 block diagram	152
Figure 88 - TMA 1900 block diagram	153
Figure 89 - Front view of single TMA 1900 module	154
Figure 90 - Front view of double TMA 2100 module	154
Figure 91 - Front view of ICO module (iBTS Outdoor)	158
Figure 92 - Front view of ICO module (Univity iBTS Indoor)	158
Figure 93 - Front view of CICO module (Univity iBTS Street 2100/Univity iBTS Indoor 1900 Compact)	159
Figure 94 - Front view of ICO module (Univity iBTS Indoor 2)	160
Figure 95 - Front view of ICO module (Univity iBTS Mono)	160
Figure 96 - Front view of the alarm protection module (iBTS Outdoor)	161
Figure 97 - Front view of the alarm protection module (iBTS Indoor)	162
Figure 98 - Alarm protection cabling (iBTS Outdoor)	163
Figure 99 - Alarm protection cabling (iBTS Indoor 600)	164
Figure 100 - Front view of the PCM protection module (iBTS Outdoor)	165
Figure 101 - PCM lightning protection cabling (iBTS Outdoor)	166
Figure 102 - Front view of the LPPCM (iBTS Indoor 2)	168
Figure 103 - LPPCM cabling (iBTS Indoor 2)	169
Figure 104 - Front view of the PFM	170
Figure 105 - Front view of User ICO module (iBTS Outdoor)	171
Figure 106 - Front view of User ICO module (iBTS Street)	172
Figure 107 - iDACS operation principle	175
Figure 108 - iBTS Indoor cooling unit	177
Figure 109 - iBTS Street air paths	180
Figure 110 - ICU front view	184
Figure 111 - Univity iBTS Indoor 1900 Compact airflow	186
Figure 112 - CICU detailed front view	188
Figure 113 - Distribution of the ac voltage within the Univity iBTS Outdoor	190
Figure 114 - Front view of the ac filtering box (Univity iBTS Outdoor)	191
Figure 115 - BIP functional diagram	193
Figure 116 - Front view of the BIP (Univity iBTS Indoor 2100)	194
Figure 117 - Outside view of the ac plinth	195
Figure 118 - Inside view of the ac plinth	196
Figure 119 - ac plinth cabling (Univity iBTS Indoor 700 2100)	198

Figure 120 - ac voltage distribution within the Univity iBTS Street 2100	199
Figure 121 - Front view of the dc power system shelf (Univity iBTS Outdoor)	202
Figure 122 - Front view of the dc power system shelf in the ac plinth (Univity iBTS Indoor 2100)	202
Figure 123 - Front view of the dc power system shelf (Univity iBTS Street 2100)	203
Figure 124 - dc distribution rack of the Univity iBTS Outdoor	204
Figure 125 - Front view of the dc distribution (Univity iBTS Outdoor)	205
Figure 126 - Distribution scheme of the dc current within the Univity iBTS Street 2100	207
Figure 127 - Univity iBTS Indoor 2 dc electrical distribution system	209
Figure 128 - Univity iBTS Indoor 2 dc distribution scheme	210
Figure 129 - electrical distribution scheme of Univity iBTS Mono (mode 1)	212
Figure 130 - electrical distribution scheme of Univity iBTS Mono (mode 2)	213
Figure 131 - Univity iBTS Indoor 1900 Compact distribution system	215
Figure 132 - Univity iBTS Indoor 1900 dc distribution scheme	216
Figure 133 - Front view of the rectifier module	218
Figure 134 - Front view of the SPCM	219
Figure 135 - Inside view of the external battery cabinet	224
Figure 136 - iBTS protocol stacks	229
Figure 137 - iBTS function mapping	230
Figure 138 - Call processing on the CEM	232
Figure 139 - TRM software architecture	233
Figure 140 - Call processing on the TRM	234
Figure 141 - OAM software architecture on the CCM	236
Figure 142 - Call processing on the CCM	237
Figure 143 - Data flow of the uplink path	240
Figure 144 - Data flow of the downlink path	241
Figure 145 - CEM physical model	243
Figure 146 - iBTS external connection	248
Figure 147 - Transmission between iBTS and Univity RNC by using the IMA over PCM	250

Table 1 - Univity iBTS cabinets	16
Table 2 - The digital shelf modules supported by the iBTS cabinets	76
Table 3 - DDM LEDs status	137
Table 4 - TMA LED Status	137
Table 5 - VSWR LEDs Status (Main/Diversity)	138

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

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:

- new structure of information
- update for UTRAN overview of the UMTS03 solution
- update of RF block information
- Introduction of Univity iBTS Mono 1900
- Introduction of Univity iBTS Indoor 1900 Compact

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.

— 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 and Mono 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 : AB6XDNUMUMTSIND** for the Univity iBTS Indoor 2
- **US : AB6XDNUMUMTSOUT** for the Univity iBTS Outdoor
- **US : AB6XDNUMUMTSMONO** for the Univity iBTS Mono

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 LorangeNortel NetworksPhone: 972-685-2270Fax: 972-684-7601Nortel 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 Iub interface
- another Univity RNC through the Iur interface.
In fact an RNC can be connected to several other RNCs via Iur.
- the Core Network through the Iu 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 MHz in North America

The RNC supports UMTS 1900 MHz configurations to provide the SONET/OC-3 transmission interfaces. The SONET/OC-3 mode is supported for the Iu, Iub, Iur interfaces.

Univity RNC configurations for UMTS 2100 MHz

The RNC supports UMTS 2100 MHz configurations to provide the SDH/STM-1 transmission interfaces. The SDH/STM-1 mode is supported for the Iu, Iub, Iur 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
 - Iub 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 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 MHz: for a SONET configuration
- UMTS 2100 MHz: for a SDH and a PCM configuration

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

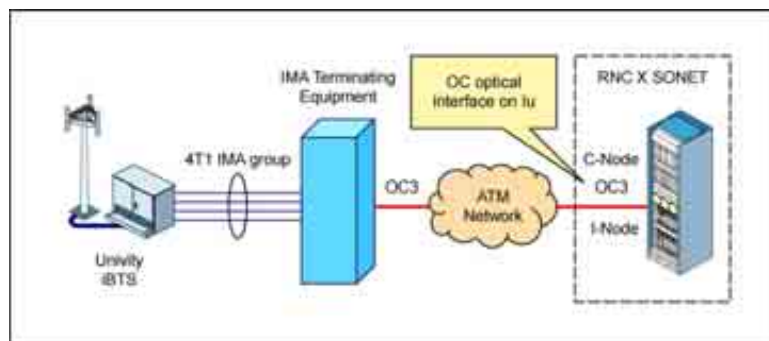


Figure 2 UTRAN architecture example of the UMTS03 solution (2100 MHz — SDH)

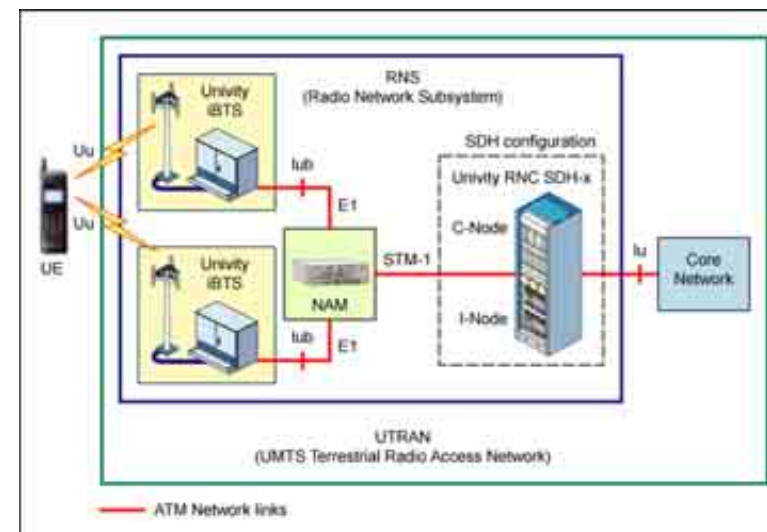
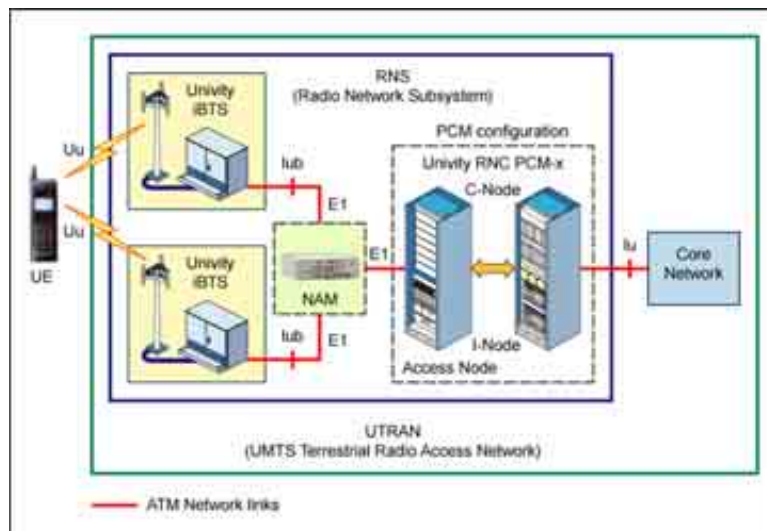


Figure 3 UTRAN architecture example of the UMTS03 solution (2100 MHz — PCM)



Univis iBTS basic characteristics

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

- Univis iBTS introduction
- Univis 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, 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, and the cost reduction 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.

The Univity iBTS Indoor 2 1900 is deployed in North-American countries.

- 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.

The Univity iBTS Mono 1900 is deployed in North-American countries.

- 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 is only developed for US market.

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

Types	UMTS 2100	UMTS 1900
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

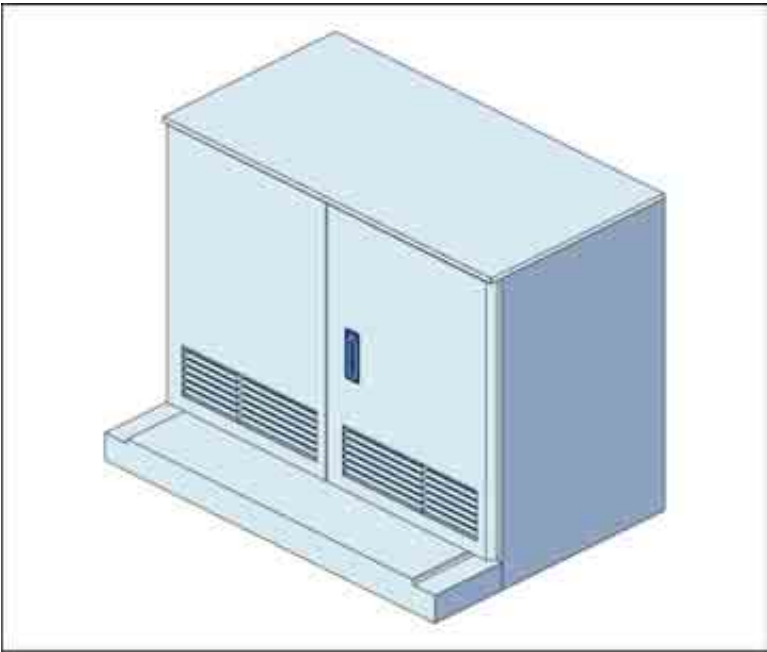


Figure 5 Univity iBTS Indoor 2100 outside view



Figure 6 Univity iBTS Street 2100 outside view

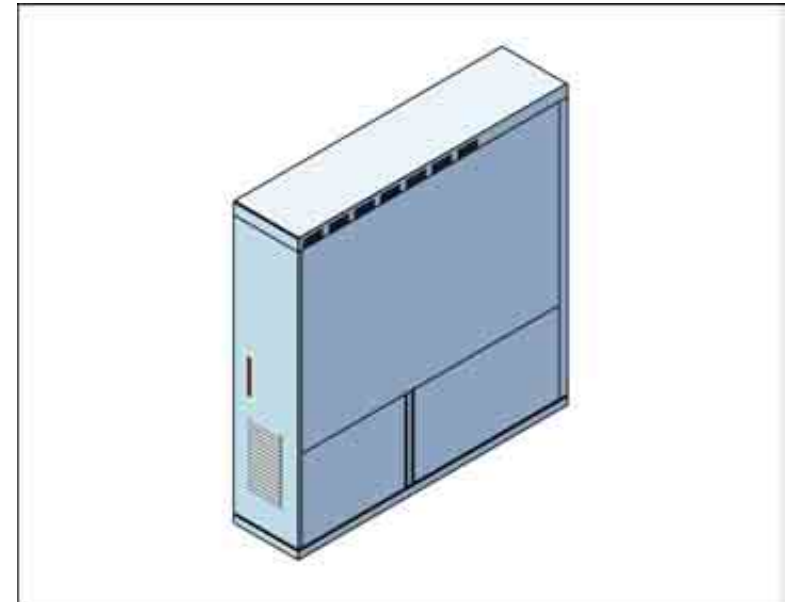


Figure 7 Univity iBTS Indoor 2 outside view

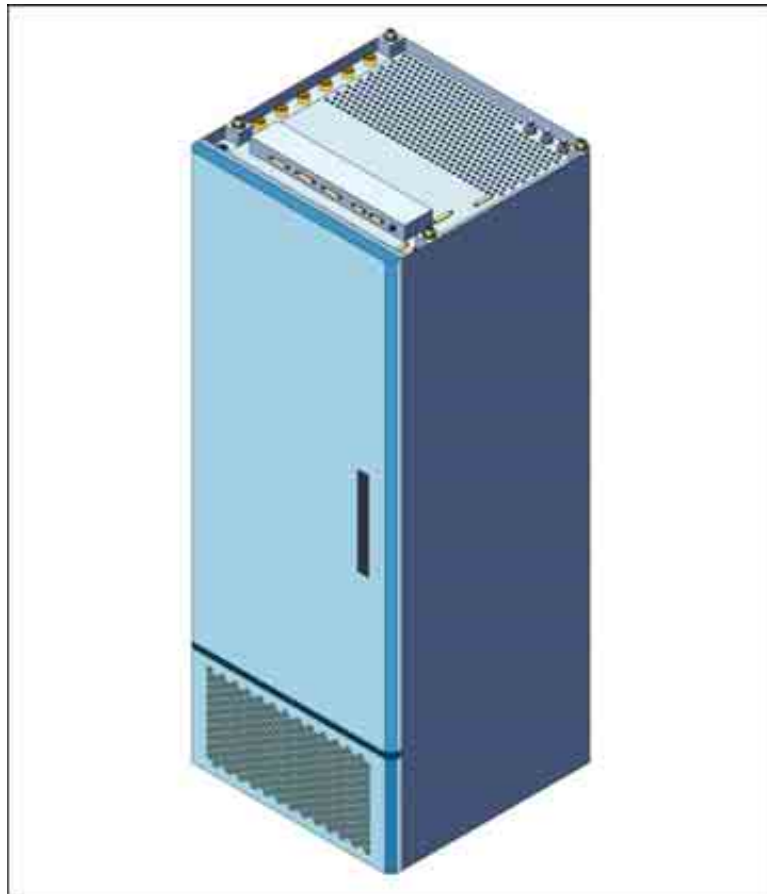
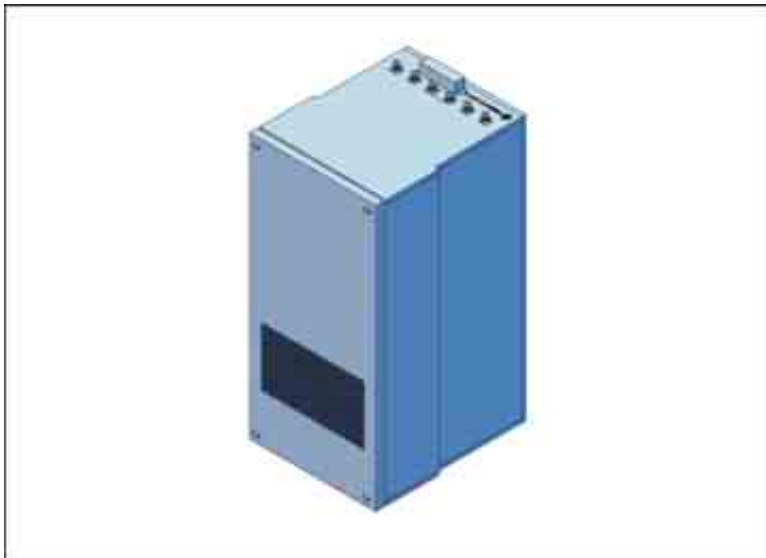


Figure 8 Univity iBTS Mono outside view



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).

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
- STSR2 configuration
- OTSR1 configuration
- OTOR1 configuration
- Network Access Module (NAM)
- iCEM, iCCM, and iTRM modules
- iCCM redundancy

Univity iBTS mechanical 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:
 - 21102170 MHz for downlink
 - 19201980 MHz for uplink
- frequency bands 1900 MHz:
 - 19301990 MHz for downlink
 - 18501910 MHz for uplink
- optimized size versus capacity ratio:
 - footprint: 0.95 m²
 - 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:
 - 21102170 MHz for downlink
 - 19201980 MHz for uplink
- optimized size versus capacity ratio:
 - footprint: 0.615 m²
 - 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:
 - 21102170 MHz for downlink
 - 19201980 MHz for uplink
- Optimized size versus capacity ratio:
 - footprint: 0.7525 m²
 - 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: -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:
 - 21102170 MHz for downlink
 - 19201980 MHz for uplink
- optimized size versus capacity ratio:
 - footprint: 0.7525 m²

- 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: -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:
 - 21102170 MHz for downlink
 - 19201980 MHz for uplink
- optimized size versus capacity ratio:
 - footprint: 0.52 m²
 - 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: 323 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:
 - 21102170 MHz for downlink
 - 19201980 MHz for uplink
- frequency bands 1900 MHz:
 - 19301990 MHz for downlink
 - 18501910 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)
- operation Temperature Range: -5 to +70 degree Celsius
- weight:
 - empty: 140 kg

Univity iBTS Mono

The characteristics of the Univity iBTS Mono are the following:

- frequency bands 2100 MHz:
 - 21102170 MHz for downlink
 - 19201980 MHz for uplink
- frequency bands 1900 MHz:
 - 19301990 MHz for downlink
 - 18501910 MHz for uplink
- optimized size versus capacity ratio:
 - cabinet size is the following:
 - width (W): 450 mm
 - depth (D): 570 mm
 - height (H): 650 mm
 - volume: 167 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 Mounted 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:
 - O1 configuration
 - OTSR1 configuration with MCPAs 45W
 - STSR1/STSR2 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 Mounted Amplifiers (TMA)
- Lightening protection
- Fractional E1/T1 which is shared with GSM BTS
- +24 Vdc