NOKIA

C33525.90_H0
Nokia MetroHub Transmission Node Rel. C3

Technical Specifications for Nokia MetroHub

The information in this documentation is subject to change without notice and describes only the product defined in the introduction of this documentation. This documentation is intended for the use of Nokia's customers only for the purposes of the agreement under which the documentation is submitted, and no part of it may be reproduced or transmitted in any form or means without the prior written permission of Nokia. The documentation has been prepared to be used by professional and properly trained personnel, and the customer assumes full responsibility when using it. Nokia welcomes customer comments as part of the process of continuous development and improvement of the documentation.

The information or statements given in this documentation concerning the suitability, capacity, or performance of the mentioned hardware or software products cannot be considered binding but shall be defined in the agreement made between Nokia and the customer. However, Nokia has made all reasonable efforts to ensure that the instructions contained in the documentation are adequate and free of material errors and omissions. Nokia will, if necessary, explain issues which may not be covered by the documentation.

Nokia's liability for any errors in the documentation is limited to the documentary correction of errors. NOKIA WILL NOT BE RESPONSIBLE IN ANY EVENT FOR ERRORS IN THIS DOCUMENTATION OR FOR ANY DAMAGES, INCIDENTAL OR CONSEQUENTIAL (INCLUDING MONETARY LOSSES), that might arise from the use of this documentation or the information in it.

CE Hereby, Nokia Corporation, declares that these Transmission Node units measured in Nokia MetroHub are in compliance with the essential requirements of the Directive 1999/5/EC (R&TTE Directive) of the European Parliament and of the Council.

UL Complies with UL 1950, CSA 22.2 NO. 950 Information Technology Equipment. This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions. (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Contents

1 Technical specifications for Nokia MetroHub

1.1 Dimensions and weight of Nokia MetroHub

Table 1. Nokia MetroHub dimensions

Height	870 mm (34.25 in) 984 mm (38.7 in) with cable cover
Width	310 mm (12.2 in)
Depth	215 mm (8.5 in) (+ 34 mm mounting rack)

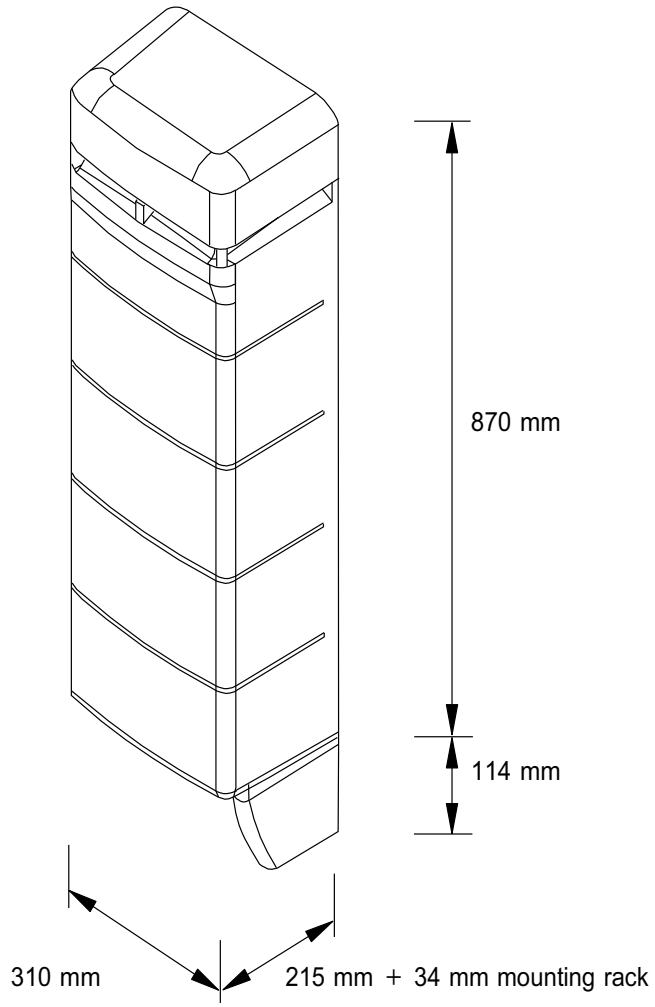

Figure 1. Dimensions of Nokia MetroHub cabinet

Table 2. Nokia MetroHub weights

Equipment	Weight
MetroHub with battery unit	45 kg (99.1 lb.)
MetroHub without battery unit	32 kg (70.5 lb.)
Cabinet	11 kg (24.2 lb.)
Battery unit	13 kg (28.6 lb.)

1.2 Power requirements for Nokia MetroHub

1.2.1 Power system of Nokia MetroHub

Table 3. Power system

Voltage range	
Rated input voltages	110 to 240 VAC ; 50 to 60 Hz -48 to -60 VDC or internal battery
Permitted operating voltage fluctuation	85 VAC to 276 VAC ; 44 to 66 Hz -39 VDC to -72 VDC
Output voltages	-48 VDC/0.5 A +55 VDC/5 A
for battery back-up	-48 VDC/2.1 A for charging 110 to 240 VAC @ 1 A for heating
Power consumption	
Max. input power	750 VA (AC) 500 W (DC)

Table 4. Battery backup time in minutes; one power supply unit in use

Configuration	+25°C (77°F)	-10°C (14°F)	-40°C (-40°F)
5 x FXC E1	380	300	95
6 x MetroHopper	170	130	70
10 x FlexiHopper	50	40	20
MetroHub PT with one FlexiHopper	380	270	100
MetroHub PT with two FlexiHopper radios	230	160	80

Note

Using the Nokia MetroSite Battery Backup roughly doubles the above backup times.

1.2.2 Mains power requirements for Nokia MetroHub

The power supply of MetroHub can operate at the following voltages: 110 to 240 VAC and -48 to -60 VDC. The power interfaces are located on the power interface panel (DIPx) of MetroHub. For details, see *Overview of connecting power cables to Nokia MetroHub*.

AC mains is recommended to be protected with a lightning and transient overvoltage protector (mains wire-in protector). This protection is not included in MetroHub.

The power supply contains a 10 A / 250 V (T) AC-fuse and 20 A / 125 V (TT) DC-fuse. To gain optimum selectivity, rate the mains fuses according to the power supply fuses. In AC operation, a 16 A fuse is recommended in redundant power supply use. If there is a failure, the power supply fuse should blow before the mains fuse. This enables the redundant power supply to continue working.

Table 5. Operating voltages and power demand

Nominal operating voltage	Permitted operating voltage fluctuation	Maximum power demand
110 to 240 VAC	85 VAC to 276 VAC	750 VA
-48 to -60 VDC	-39 VDC to -72 VDC	500 W

Table 6. Input currents

Input currents	
AC currents	Max. 9.0 A 7.0 A / Nom. 110 VAC 3.5 A / Nom. 240 VAC
DC currents	Max. 14 A 10.8 A / Nom. -48 VDC 8.7 A / Nom. -60 VDC

1.2.3 Power cable dimensioning

The power consumption of MetroHub depends on the amount and type of installed units, as well as the power feed to external devices such as microwave radio units and other equipment connected to the DC outputs of MetroHub, for example, LTE and modems. When dimensioning the power cable diameter, the cable length, together with the circuit breaker or the fuse at the power distribution point should be taken into account.

The total power demand comprises the power for MetroHub and the power for the microwave radio outdoor units and external equipment.

The maximum power consumption of MetroHub with five FXC transmission units, a redundant power supply unit and a battery unit is approximately

- 210 VA (AC input)
- 120 W (DC input).

For information on the power consumption of the microwave radio outdoor units and the external equipment, see their product documentation.

Table 7. Requirements for the mains power cable

Power supply type	**Connector type at cable end**	**Cable**	**Recomm. mains fuse**	**Internal power supply unit (DSUx) fuse**
AC supply 110 to 240 V	Screw-type	3x2.5 mm^2/ 3xAWG 14	16 A for 2.5 mm^2 wire	10 A, slow
DC supply -48 to -60 V	Anderson Power Pole	3x6 mm^2/ 3xAWG 10 (fine-textured cable)	25 A for 6 mm^2 wire	20 A, slow

Note

In general, the mains fuses and supply cables have to be rated according to the national electric safety regulations.

Note

UL recognised power cables are required for installations complying with UL 1950.

1.3 International standards; Nokia MetroHub

Table 8. Electrical standards

Input voltage

Table 8. Electrical standards (cont.)

ETS 300 132-1:1996	Equipment Engineering Power Supply Interface at the input to Telecommunications Equipment Interface Operated by Alternated Current AC
ETS 300 132-2:1996	Power Supply Interface at the input to telecommunications Equipment Interface Operated by Direct Current DC
ETS 300 253: 1995	Earthing and bonding of telecommunication equipment in telecommunication centres
Electrical safety	
EN 60950:1992 A1:1992 A2:1993 A3:1995 A4:1996 IEC 950:1991 A1:1992 A2:1993 A3:1995 A4:1996	Safety of Information Technology equipment, Including Electrical Business Equipment + Amendments A1, A2, A3 and A4
UL 1950: 1995, 3rd edition	Standard for Safety of Information Technology equipment, including Electrical Business Equipment
FCC Part 68	Rules for Registration of Telephone Equipment PART 68: 1995
EMC	
EN 300 386-2 V1.1.3 (1997-12)	Electromagnetic Compatibility and Radio spectrum Matters (ERM); Telecommunication network equipment; ElectroMagnetic Compatibility (EMC) requirements Part 2: Product family standard
FCC Part 15	FCC Rules for Radio Equipment Devices

Table 9. Environmental standards

ETS 300 019-1-1:1992	Equipment Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment Part 1-1: Classification of environmental conditions: Storage
ETS 300 019-2-1:1992	Equipment Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment Part 2-1: Specification of environmental tests: Storage
ETS 300 019-1-2:1992	Equipment Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment Part 1-2: Classification of environmental conditions; Transportation.
ETS 300 019-2-2:1992	Equipment Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment Part 2-2: Specification of environmental tests: Transportation.
ETS 300 019-1-4:1992	Equipment Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment part 1-4: Classification of environmental conditions. Stationary use at non-weather protected locations
ETS 300 019-2-4:1992	Equipment Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment part 2-2: Specification of environmental tests: Stationary use at non-weather protected locations

Table 10. Mechanical standards

ETS 300 753, 1997	Equipment Engineering (EE); Acoustic noise emitted by telecommunications equipment.

Table 10. Mechanical standards (cont.)

ISO 3744, 1988	Acoustics Determination of sound power levels of noise sources Engineering methods for special reverberation test rooms
IEC 68-2-57: 1989	Environmental Testing Part 2: Test Methods Ff: Vibration Time-history method
EN 60529: 1989	Degrees of Protection Provided by Enclosures (IP Code)

Acoustic noise

The maximum acoustic noise generated by Nokia MetroHub is 61 dB (A) in an outdoor environment and 55 dB (A) in an indoor environment of up to 30°C (86° F).

2 Interfaces of Nokia MetroHub

2.1 External interfaces of Nokia MetroHub

Table 11. Transmission interfaces

E1 in FXC E1 (G.703, G.704)	BT43 (female), 75 Ω
E1 in FXC E1/T1 (G.703, G.704)	TQ, 120 Ω
T1 in FXC E1/T1 (T1.403, T1.102)	TQ, 100 Ω
Flexbus in FXC RRI	TNC (female), 50 Ω
STM-1 in FXC STM-1 (ITU-T G.957)	LC duplex, two L-1.1 long-haul optical interfaces. Laser wavelength 1310 nm.

Table 12. Power system interfaces

Power supply unit stand-by switch	Flush type rocker switch
AC supply input in power interface panel	Screw type max. 2.5 mm^2/AWG 14
DC supply input in power interface panel	Plug-type Anderson Power Pole max. 6.0 mm^2/AWG 10
Battery connection in power interface panel	Plug-type
DC outputs in power interface panel	Screw-type max. 2.5 mm^2/AWG 14
Grounding in cabinet	With a grounding terminal max. 25 mm^2/ AWG 4 cable
Grounding press stud	Schaeffer code 1367

Table 13. Interfaces of DIUA unit

External alarms and controls	10 alarm inputs 4 control outputs 26-pin mini D (female)
Extension interface	50-pin mini D (female)
Q1 interfaces (2 pcs)	TQ
Local management ports LMP (2 pcs)	BQ

2.2 Interfaces of the FXC E1 transmission unit

Table 14. E1 equipment interface

Bit rate	2048 kbit/s ± 50 ppm
Line code	HDB3
Impedance	75 Ω
Connector type	BT43 female
Transmitter characteristics:	ITU-T G.703
- Nominal peak voltage of mark (pulse)	2.37 V
- Peak voltage of a space (no pulse)	0 ± 0.237 V
- Attenuation at 1 MHz	< 6 dB
Receiver characteristics:	ITU-T G.703
- Line attenuation at 1 MHz	< 20 dB
Jitter and wander	ITU-T G.823
E1 equipment synchronisation input (IF4 Rx):	
- Frequency	2048 kHz/s ± 50 ppm
- Sensitivity	1.5-3.0 Vpp

2.3 Interfaces of the FXC E1/T1 transmission unit

Table 15. E1 equipment interface

Bit rate	2048 kbit/s ± 50 ppm
Line code	HDB3
Impedance	120 Ω
Connector type	E1: BT43 female T1: TQ
Transmitter characteristics:	ITU-T G.703
- Nominal peak voltage of mark (pulse)	3 V
- Peak voltage of a space (no pulse)	0 ± 0.3 V
- Attenuation at 1 MHz	< 6 dB
Receiver characteristics:	ITU-T G.703
- Line attenuation at 1 MHz	< 20 dB
Jitter and wander	ITU-T G.823
E1 equipment synchronisation input (IF4 Rx)	
- Frequency	2048 kHz/s ± 50 ppm
- Sensitivity	2-3.8 Vpp

Table 16. T1 equipment interface

Bit rate	1544 kbit/s ± 32 ppm
Line code	AMI or B8ZS
Impedance	100 Ω
Transmitter characteristics	ANSI T1.403 (DS-1) or ANSI T1.102 (DSX-1)

Table 16. T1 equipment interface (cont.)

Jitter and wander	ITU-T G.824

2.4 Interfaces of the FXC RRI transmission unit

Table 17. FXC RRI interfaces

Flexbus interfaces 1 (FB1) and 2 (FB2)	TNC connector 50 Ω Up to 16 x 2 Mbit/s signals Embedded power supply voltage 55 V_{DC} for radio outdoor units
Jitter and wander	ITU-T G.823
Bidirectional data	37 Mbit/s, NRZ code, 1.4V pulse amplitude

2.5 Interfaces of the FXC STM-1 and FXC Bridge transmission units

Table 18. FXC STM-1 front panel interfaces

Optical STM-1 interfaces 1 and 2	LC Duplex (ITU-T G.957; L-1.1 long-haul, 1310 nm)

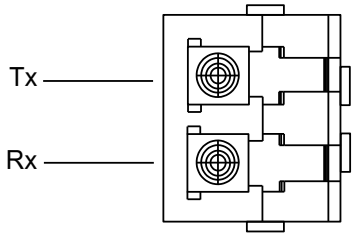

Figure 2. FXC STM-1 connector

Table 19. FXC Bridge front panel interfaces

Test interface	Connector type: SUB-D9 male (used only for Nokia testing purposes)

2.6 External alarm input voltage levels and control output logic voltage levels

Table 20. External alarm input voltage levels

State	Input voltage	Input current	Loop resistance
LOW	-0.5 V...+0.75 V	> 3.9 mA	< 200 ohm
HIGH	+2.0 V...+5.5 V	< 2.8 mA	> 700 ohm
Input short circuit current to GND < 5 mA.			

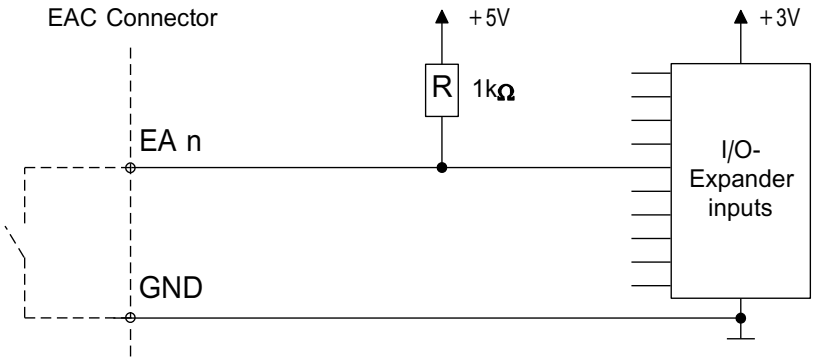

Figure 3. Wiring scheme for external alarm inputs

Table 21. Control output logic voltage levels

State	**Voltage level**
Allowed sink current	< 75 mA
Open circuit leakage current	< 880 µA
Allowed maximum voltage	+5 V

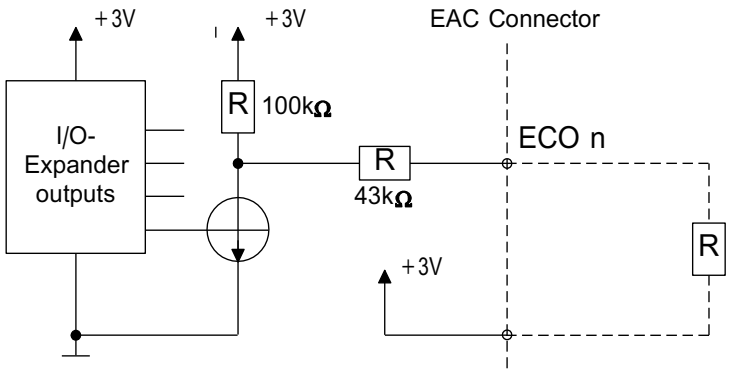

Figure 4. Wiring scheme for control outputs

3 Technical specification of the FXC E1 and E1/T1 transmission units

3.1 Dimensions and weight of FXC E1 and E1/T1 transmission units

Table 22. FXC E1 and FXC E1/T1 dimensions and weight

Height	254 mm (10 in.)
Width	30 mm (1.18 in.)
Depth	220 mm (8.7 in.)
Weight	1.35 kg (3 lb.)

3.2 Power requirements for FXC E1 and FXC E1/T1 transmission units

Table 23. Power supply and power consumption

DC supply voltage	Powered by Nokia MetroHub or BTS
Power consumption	< 6 W

3.3 International standards; FXC E1 and FXC E1/T1 transmission units

Table 24. International recommendations

2048 kbit/s E1 interface	
ITU-T G.703 (1991)	Physical/electrical characteristics of hierarchical digital interfaces
ITU-T G.704 (10/94)	Synchronous frame structures used at primary and secondary hierarchical levels
ITU-T G.706 (1991)	Frame alignment and cyclic redundancy check (CRC) procedures relating to basic frame structures defined in Recommendation G.704
ITU-T G.823 (03/93)	The control of jitter and wander within digital networks which are based on the 2048 kbit/s hierarchy
ITU-T G.826 (08/96)	Error performance parameters and objectives for international, constant bit rate digital paths at or above the primary rate
1544 kbit/s T1 interface	
ITU-T G.824 (03/93)	The control of jitter and wander within digital networks which are based on the 1544 kbit/s hierarchy
ANSI T1.403 (1995) and T1.102 (1993)	Digital interface characteristics Functional Interface Characteristics PCM Coding Law Primary PCM Multiplexer Performance parameters
BELCORE GR-1089	Electromagnetic compatibility and electrical safety - generic criteria for network telecommunications equipment.
FCC Part 68.308	Signal power limitations

4 Technical specification of the FXC RRI transmission unit

4.1 Dimensions and weight of the FXC RRI transmission unit

Table 25. FXC RRI dimensions and weight

Height	254 mm (10 in.)
Width	30 mm (1.18 in.)
Depth	220 mm (8.7 in.)
Weight	1.35 kg (3 lb.)

4.2 Power requirements for the FXC RRI transmission unit

Table 26. Power supply and power consumption

DC supply voltage	Powered by Nokia MetroHub or BTS
Power consumption	< 8 W (For OU power consumption, see the radio documentation)

4.3 International standards; FXC RRI transmission units

Table 27. International recommendations

Flexbus interface	
ITU-T G.704 (10/94)	Synchronous frame structures used at primary and secondary hierarchical levels.
ITU-T G.706 (1991)	Frame alignment and cyclic redundancy check (CRC) procedures relating to basic frame structures defined in Recommendation G.704
ITU-T G.823 (03/93)	The control of jitter and wander within digital networks which are based on the 2048 kbit/s hierarchy.
ITU-T G.826 (08/96)	Error performance parameters and objectives for international, constant bit rate digital paths at or above primary rate.
ITU-T G.921	Digital sections based on the 2048 kbit/s hierarchy

4.4 Flexbus cable requirements for the FXC RRI transmission unit

Table 28. Flexbus cable requirements

Cable type	Coaxial cable, double shielded or semi-rigid
Recommended cable types	RG-223, max. length 140 m RG-214, max. length 300 m
Characteristic impedance	50 ± 2 Ω
DC resistance	< 4.6 Ω (sum of inner and outer conductor)
Data attenuation	< 9.0 dB at 19 MHz

Table 28. Flexbus cable requirements (cont.)

Flexbus signals	- DC power supply - Bidirectional data (37 Mbit/s, NRZ code, 1.4V pulse amplitude)

Note

Over-voltage protection and cable equalizer are integral parts of the Flexbus interface. Primary over-voltage protection is a 90 V gas-arrester. External gas-arresters can be used as well.

Table 29. Recommended cable type

RG-223	Maximum length 140 m (459 ft.)
RG-214	Maximum length 300 m (984 ft.)

5 Technical specification of the FXC STM-1 and FXC Bridge transmission units

5.1 Dimensions and weight of FXC STM-1 and FXC Bridge transmission units

Table 30. FXC STM-1 and FXC Bridge dimensions and weight

Height	254 mm (10 in.)
Width	28 mm (1.1 in.)
Depth	187 mm (7.4 in.)
Weight	1.35 kg (3 lb.)

5.2 Power requirements for FXC STM-1 and FXC Bridge transmission units

Table 31. Power supply and power consumption

DC supply voltage	Powered by Nokia MetroHub or BTS
Power consumption	< 11 W

5.3 International standards; FXC STM-1 and FXC Bridge transmission units

ITU-T G.828 (March 2000)	Error performance parameters and objectives for international, constant bit rate synchronous digital paths.
ITU-T G.829 (December 2002)	Digital networks - Quality and availability targets - Error performance events for SDH multiplex and regenerator sections.
ITU-T G.957	Digital sections and digital line systems - Optical interfaces of equipments and systems relating to the synchronous digital hierarchy.
ETS 300147 (September 2001)	ETSI Transmission and Multiplexing; Synchronous Digital Hierarchy - Multiplexing Structure.
EN 300417-1-1 (October 2001)	ETSI Transmission and Multiplexing; Generic functional requirements for SDH equipment; Part 1: Generic processes and performance.
EN 300417-2-1 (October 2001)	ETSI Transmission and Multiplexing; Generic functional requirements for SDH equipment; Part 2: SDH and PDH physical layer functions.
EN 300417-3-1 (October 2001)	ETSI Transmission and Multiplexing; Generic functional requirements for SDH equipment; Part 3: STM-N MS and RS section layer functions.
EN 300417-4-1 (October 2001)	ETSI Transmission and Multiplexing; Generic functional requirements for SDH equipment; Part 4: SDH path layer functions.
EN 300417-5-1 (October 2001)	ETSI Transmission and Multiplexing; Generic functional requirements for SDH equipment; Part 5: PDH layer functions.
EN 300417-6-1 (May 1999)	ETSI Transmission and Multiplexing; Generic functional requirements for SDH equipment; Part 6: Synchronisation layer functions.
EN 300417-7-1 (October 2001)	ETSI Transmission and Multiplexing; Generic functional requirements for SDH equipment; Part 7: Equipment Management and Auxiliary Layer Functions.

EN 300462-1 (June 1998)	ETSI Transmission and Multiplexing; Generic requirements for synchronisation networks; Part 1: Definition and terminology for synchronisation networks.
EN 300462-2 (June 2002)	ETSI Transmission and Multiplexing; Generic requirements for synchronisation networks; Part 2: Synchronisation Network Architecture.
EN 300462-3 (June 1998)	ETSI Transmission and Multiplexing; Generic requirements for synchronisation networks; Part 3: The control of jitter and wander within synchronisation networks.
EN 300462-4 (June 1998)	ETSI Transmission and Multiplexing; Generic requirements for synchronisation networks; Part 4: Timing characteristic of slave clocks suitable for synchronisation supply to SDH and PDH equipment.
EN 300462-5 (June 1998)	ETSI Transmission and Multiplexing Generic requirements for synchronisation networks; Part 5: Timing characteristics of slave clocks suitable for operation in SDH equipment.
EN 300462-6 (June 1998)	ETSI Transmission and Multiplexing; Generic requirements for synchronisation networks; Part 6: Timing characteristics of primary clocks.
TS 101009 (V1.1.1. (November 1997))	ETSI Transmission and Multiplexing; SDH Network protection schemes types and characteristics.
TS 101010 (V1.1.1. (November 1997))	ETSI Transmission and Multiplexing; SDH Network protection schemes.

6 Transmission capabilities of ITN-related products

6.1 Transmission capabilities of ITN related products

Table 32. Nokia MetroHub transmission capabilities

Cross-connection bus capacity		56 x 2 Mbit/s non-blocking with 8 kbit/s granularity
Basic cross-connection types:		Granularities:
B2	Bi-directional	2M / nx64k / 64k / 32k /16k / 8k / nx8k
M2	Bi-directional masked	64k / 32k / 16k
D	Uni-directional fixed	64k / 32k / 16k / 8k
Protected cross-connection type:		Granularity:
P2	Protected bi-directional	nx64k / 64k / 32k / 16k
Max. interface capacity of the node		222 x 2 Mbit/s (with 2 x STM-1 and 6 x Flexbus interface)

Table 33. Nokia UltraSite EDGE BTS transmission capabilities

Cross-connection bus capacity		56 x 2 Mbit/s non-blocking with 8 kbit/s granularity
Basic cross-connection types:		Granularities:
B2	Bi-directional	2M / nx64k / 64k / 32k /16k / 8k / nx8k
M2	Bi-directional masked	64k / 32k / 16k

Table 33. Nokia UltraSite EDGE BTS transmission capabilities (cont.)

D	Uni-directional fixed	64k / 32k / 16k / 8k
Protected cross-connection type:		Granularity:
P2	Protected bi-directional	nx64k / 64k / 32k / 16k
Max. interface capacity of the node		190 x 2M (with 2 x STM-1 and 4 x Flex-bus interface)

Table 34. Nokia MetroSite EDGE BTS transmission capabilities

Basic cross-connection types:		Granularities:
B2	Bi-directional	2M / nx64k / 64k / 32k /16k / 8k / nx8k
M2	Bi-directional masked	64k / 32k / 16k
D	Uni-directional fixed	64k / 32k / 16k / 8k
Protected cross-connection type:		Granularity:
P2	Protected bi-directional	nx64k / 64k / 32k / 16k
Max. interface capacity of the node		32 x 2 Mbit/s specifications

Table 35. FXC STM-1 unit capacity

SDH cross-connection capacity between aggregate STM-1 interfaces	126 x VC-12
Add/drop capacity to the FXC Bridge unit	20 x VC-12

Table 36. FXC Bridge unit capacity

Add/drop capacity to the FXC STM-1 unit	up to 20 x VC-12
Cross-connection capacity (at 8 kbit/s granularity)	20 x 2 Mbit/s

Table 36. FXC Bridge unit capacity (cont.)

Add/drop capacity to the FXC PDH cross-connection bus	20 x 2 Mbit/s
Add/drop capacity to the D-bus	3 x 2 Mbit/s

Table 37. FXC RRI unit capacity

Cross-connection capacity between Flexbus interfaces	32 x 2 Mbit/s
Add/drop capacity to the FXC PDH cross-connection bus, when used as the node master unit within a BTS transmission Hub	13 x 2 to 15 x 2 Mbit/s
Add/drop capacity to the FXC PDH cross-connection bus, when used as the node master unit within a MetroHub chained to a Nokia BTS	15 x 2 Mbit/s
Add/drop capacity to the FXC PDH cross-connection bus, when used as a slave unit or as the node master unit within a MetroHub, which is not chained to a Nokia BTS	16 x 2 Mbit/s
Add/drop capacity to the D-bus, when used as the node master unit	1 x 2 to 3 x 2 Mbit/s
Add/drop capacity to the D-bus, when used as the node master unit within a MetroHub chained to a Nokia BTS	1 x 2 Mbit/s