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468962A.505_NOLSD
Nokia MetroSite EDGE BTS, Release 5

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FCC §15.105 - Information to user - 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.

Contents

1 Abbreviations

8-PSK

8 Phase Shift Keying

AC

Alternating Current

AD

Analog/Digital

AGC

Automatic Gain Control

ANSI

American National Standards Institute

ARFCN

Absolute Radio Frequency Channel Number

ARFN

See *ARFCN*.

ASIC

Application Specific Integrated Circuit

BCCH

Broadcast Control Channel

BCF

Base Control Function

BER

Bit Error Ratio

BSC

Base Station Controller

BSS

Base Station System

BTS

Base Transceiver Station

CCCH

Common Control Channel

CCITT

Comité Consultatif International Télégraphique et Téléphonique

CH

Channel

CHDSP

Channel Coding and Decoding Signal Processor

CTDA

10W GSM/EDGE 1800 TRX with standard filter

CTGA

10W GSM/EDGE 900 TRX with standard filter

CTGJ

10W GSM/EDGE 900 TRX with customer-specifc filter J

CTGH

10W GSM/EDGE 900 TRX with customer-specifc filter H

CVSG

Power Supply Unit 230 VAC (wide range)

D/A

Digital/Analog

dBi

Generally refers to a theoretical antenna having a spherical radiation pattern with equal gain in all directions. An isotropic antenna has gain of 0 dBi.

DC

Direct Current

DDS

Direct Digital Synthesis

DGND

Digital ground

DIP

Dual In Parallel

DL (Downlink)

The direction of transmission in which the BTS is the transmitting facility and the mobile station is the receiving facility.

DMR

Digital Microwave Radio

DSP

Digital Signal Processor

EAC

External Alarms and Controls

EDAP

EGPRS dynamic Abis pool

EDGE

Enhanced Data Rates for Global Evolution

EFR

Enhanced Full Rate

EGPRS

Enhanced General Packet Radio Service

EMC

Electromagnetic Compatibility

EQDSP

Equalizing Digital Signal Processor

ESD

Electrostatic Discharge

ETSI

European Telecommunications Standards Institute

Ext.

External

FACCH

Fast Associated Control Channel

FB

Flexbus

FCC

Federal Communications Commission

FC E1/T1

Integrated radio interface unit with enhanced capabilities for Nokia MetroSite BTS

FCLK

Frame clock

FC RRI

Integrated radio interface unit for Nokia MetroSite BTS

FER

Frame Erasure Ratio

FHS

Frequency Hopping Synthesizer (Hopping Synthesizer)

FR

Full Rate

FXC E1

Integrated transmission unit, 75 Ω, unbalanced

FXC E1/T1

Integrated transmission unit, 120/100 Ω, balanced

FXC RRI

Integrated radio interface unit with enhanced capabilities for Nokia MetroSite

GMSK

Gaussian Minimum Shift Keying

GND

Ground (Connection)

GPRS

General Packet Radio Service

GSM

Global System for Mobile Communications

HDLC

High-Level Data Link Control

HSCSD

High Speed Circuit Switched Data

HDSL

High-Rate Digital Subscriber Line

HR

Half Rate

HVCU

Cover unit for MetroSite cabinet

HVMF

High capacity cooling fan

HVSA

High power 230 VAC power supply unit

HVSB

High power 110 VAC power supply unit

HVSC

High power +24 VDC power supply unit

HVSD

High power -48 VDC power supply unit

HVTD

5W GSM 1800 TRX

HVTG

5W GSM 900 TRX

HVTH

5W GSM 900 TRX, with customer specific filter H

HVTJ

5W GSM 900 TRX, with customer specific filter J

HVTP

5W GSM 1900 TRX

HW

Hardware

ICE

Intelligent Coverage Enhancement

IDD

Intelligent Downlink Diversity

IEC

International Electrotechnical Commission

IEEE

The Institute of Electrical and Electronics Engineers

IF

Intermediate Frequency

IRPA

International Radiation Protection Association

ISDN

Integrated Services Digital Network

ITU-T

International Telecommunication Union - Telecommunication Standardization Sector (former CCITT)

ITU-R

International Telecommunication Union - Radiocommunication Sector (former CCIR)

LAPD

Link access protocol on D-channel

LMP

Local Management Port

LNA

Low Noise Amplifier

LO

Local Oscillator

MCLG

Master Clock Generator

MMI

Man-Machine Interface

MML

Man-Machine Language

MS

Mobile Station, usually a mobile phone.

MSC

Mobile Switching Centre

Nokia SRC

Nokia Smart Radio Concept

NMS

Network Management System

O&M

Operation and Maintenance

OCXO

Oven Controlled Crystal Oscillator

PC

Personal Computer

PCM

Pulse Code Modulation

See also *PCM time slot*

RACH

Random Access Channel

RAM

Random Access Memory

RBER

Residual Bit Error Ratio

RF

Radio Frequency

RTS

Radio Time Slot

RX

Receiver

SACCH

Slow Associated Control Channel

SDCCH

Stand Alone Dedicated Control Channel

SW

Software

Sync

Synchronization

TCH

Traffic Channel

TDMA

Time Division Multiple Access

TE

Terminal Equipment

TRX

Transceiver

TRXSIG

TRX Signalling Channel

TS

Timeslot

TX

Transmitter

UC

Unit Controller

UPS

Uninterruptible Power Supply

VCO

Voltage Controlled Oscillator

VIFA

MetroSite BTS interface unit, which also provides the BTS master clock

VSWR

Voltage Standing Wave Ratio

VXEA

FC E1/T1

VXRA

FC RRI

VXRB

FXC RRI

VXTA

FXC E1

WCUA

High impact cover unit (for NEBS)

WTFA

GSM/EDGE 800 TRX unit

WTPA

GSM/EDGE 1900 TRX unit

2 Terms

Abis

Interface between the BTS and the BSC, and between BTSs.

Alarm

Announcement given to the operating personnel about abnormal functioning of the system, a failure, or an indication of the degradation of the service level or reliability.

Alarm Status

The current status of the system. Indicates what alarms are active, if any.

Backplane

Connector board to which the plug in units are connected in the MetroSite BTS, MetroHub and MetroSite BBU. Located at the side of the cabinet.

Backplate

Plate at the back of the MetroSite BTS, MetroHub and MetroSite BBU cabinets. The cabinets are attached to the mounting rack from the backplate.

Cell

The coverage area of a given BTS where the transmission is acceptably receivable.

Cellular Network

Radio network built of combined BTS coverage areas.

Chain Connection

Transmission solution where the BTSs are interconnected through a chain. The first BTS in the chain is connected to the BSC (possibly via a transmission node). See *Loop Connection*, *Multidrop Connection* and *Star Connection.*

Commissioning

Tasks performed in order to enable the BTS to be connected to the network. Includes operational tests and configuration of the transmission equipment.

Coverage Area

see *Cell.*

D-bus

Bus between TRXs and transmission units (D1), and for internal communication between the units of the MetroSite BTS (D2).

Downlink Diversity

The BTS swaps two transmitters on a single channel to obtain improved overall sensitivity in a system which is subject to random fading. See *Uplink Diversity.*

Dynamic Abis

Using the EGPRS dynamic Abis pool (EDAP) to efficiently allocate transmission resources for the high data rates of EDGE.

Earthing

See *Grounding.*

FC

A PDH (FC E1/T1) transmission unit used in Nokia MetroSite BTSs.

Grounding

Protecting the equipment and the users against lightning and surges through the external connections.

Installation

Tasks performed in order to enable the BTS to be mounted at the site.

Integration

Tasks performed in order to enable the BTS to be functional in the cellular network. Includes the test calls.

Intelligent Coverage Enhancement

Base station system solution used for expanding the coverage of a cell.

I^2C-bus

MetroSite BTS's internal bus which handles the alarm and control signalling between passive units.

Loop Connection

Transmission solution where the BTSs are interconnected through a loop. For example, the first and the last BTS are connected to the BSC. See *Chain Connection*, *Multidrop Connection* and *Star Connection.*

Macrocell

Macrocell applications cover large areas with a cell radius of 1 - 10 km (0.6 - 6 miles). The large coverage area is achieved by means of installing the antenna high up off the ground. See *Microcell.*

Microcell

Microcell applications typically cover areas ranging from 100 m to 1 km (330 feet to 0.6 miles). The antennas are installed under the rooftop level. See *Macrocell.*

Multidrop Connection

Transmission solution where one or more BTS chains are connected to one BTS which is connected to the BSC. See *Chain Connection*, *Loop Connection* and *Star Connection.*

Network Element

Any equipment belonging to the telecommunications environment which can be managed, monitored or controlled in a telecommunications network.

Network Topology

The manner in which the transmission between the cells of the network is handled. Examples of transmission solutions are *Loop Connection*, *Multidrop Connection* and *Star Connection.*

Nokia FlexiHopper

Nokia's modern family of microwave radios, currently available for the 15, 23, and 38 GHz frequency bands.

FlexiHopper outdoor unit can be used with different indoor units (FIU 19, RRIC, FC RRI and FXC RRI)

Nokia MetroHopper

Nokia's radio for the 58 GHz band.

MetroHopper outdoor unit can be used with different indoor units (FIU 19, RRIC, FC RRI and FXC RRI)

Nokia MetroHub

Nokia's unique transmission node.

Nokia MetroSite BBU

External battery back-up cabinet. The physical appearance of MetroSite BTS and MetroSite BBU is the same.

Nokia Smart Radio Concept

A Nokia solution for gaining the maximum benefits of EDGE by optimizing the radio link performance with Nokia EDGE base stations.

Nokia Q1

Communication protocol used on Q1-buses.

Operator

A telecommunications company running telecommunications services in a geographical area.

PCM time slot

2 Mbit/s PCM circuit is divided into 32 64 kbit/s time slots.

1.5 Mbit/s PCM circuit is divided into 23 64 kbit/s time slots.

Point-to-point

Transmission between two fixed points.

Q1-bus

Bus in MetroSite BTS, used for local transmission management (Q1int) and for extending the management to external equipment.

Sectored BTS

A BTS with multiple sectors positioned to supply the desired coverage. The maximum number of sectors for a stand-alone MetroSite BTS is four.

Site

Location where telecommunication equipment has been installed. A site can contain, for example, a base station and transmission equipment, with an equipment shelter and antenna tower.

Several *network elements* can be located at a site.

Software Package

Software collection consisting of the components of the BTS operating system.

Star Connection

Transmission solution where three branches, with one BTS in each, are connected to a common node. See *Chain Connection*, *Loop Connection* and *Multidrop Connection.*

UL (Uplink)

The direction of transmission in which the mobile station is the transmitting facility and the BTS is the receiving facility.

Uplink Diversity

The BTS uses two antennas and two receivers simultaneously on a single channel to obtain improved overall sensitivity in a system which is subject to random fading. See *Downlink Diversity.*