Safety Instructions

Contents

1 Introduction

This section contains Safety Instructions for handling the Mobitex Base Radio Unit 1 (BRU1) during installation and maintenance work.

Please read the Safety Instructions before starting any kind of installation or maintenance work.

2 Safety Instructions

Note: Reduce the risk of accidents by studying all the instructions carefully before starting work. If questions arise regarding the safety instructions, contact your supervisor or the local Ericsson company.

Read and follow all warning notices and instructions found on the product or included in the BRU1 manual. Ericsson takes no responsibility if the labels have disappeared from a BRU1 due to accident or age.

Where local regulations exist, these are to be followed. The safety information in this manual is a supplement to local regulations.

It is the responsibility of the local project manager to make certain that local regulations are known and followed.

The relevant manual (including this safety information) and specific instructions supplied by Ericsson must be followed in any work performed on the Ericsson products or systems. Sufficient knowledge of English or of any of the other languages in which the manuals or instructions are printed is necessary.

The safety information in the relevant manuals presupposes that any person performing work on Ericsson products or systems has the necessary education, training and competence required in order to perform that work correctly. For certain work, additional training or special training may be required. For more precise information on the amount and content of the general and/or special training required for work on Ericsson products or systems, please contact the supervisor or the local Ericsson company.

The slots and openings in the bottom of the BRU1 are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, these slots and openings must not be blocked or covered.

When installed in the final configuration, the BRU1 must comply with the applicable safety standards and regulatory requirements of the country in which it is installed. If necessary, consult with the appropriate regulatory agencies and inspection authorities to ensure compliance. Definition of Expressions
The following definitions of hazard degree are used in this document:

DANGER!
Expresses a hazard that, if neglected, could be either fatal or cause life-long injuries to a human being, and/or destroy the equipment.

WARNING!
Expresses a hazard that, if neglected, could cause severe injuries to a human being, and/or severe damage to the equipment.

CAUTION!
Expresses a hazard that, if neglected, could cause injuries to a human being, or damage to equipment.

3 Precautions

3.1 Radio Frequency Exposure

DANGER!
The BRU1 is delivered with an antenna. Every installation of a BRU1 must maintain safety distances between radiating parts (for example, the antenna) and general public in order to meet applicable radio frequency exposure requirements under all circumstances of normal operation and service work being performed.

BRU1 installation, and antenna connection should be performed only by professional personnel, with suitable qualification to assess potential radio frequency hazards. The BRU1 output power shall be considered. For RF safety considerations, users are not allowed to approach close to the antenna (see chapter 3.1.1 below)

WARNING!
To avoid discomfort due to the local heating effect of radio frequency, do not touch the antenna when the BRU1 is transmitting

DANGER!
Do not operate the BRU1 in an explosive atmosphere. Operating where explosive gas is present may result in an explosion.

3.1.1 RF Exposure Assessment by Calculation

BRU1 base stations mounting instructions assume fixed indoor mounting of the base station with an antenna mounted on the base station chassis. Relevant distances for RF exposure in practice exceed the range of the RF near-field range, thus MPE (not SAR) is addressed.

TX maximum output power is 1W (30 dBm) at 100% duty cycle.
According to formula [1] below, power density at R=1 m distance is approximately 0.013 mW / cm^2 << 0.6 mW / cm^2, assuming 2.15dB gain over isotropic antenna and ideal feed line (losses).

$$(TX_{Pmax} * G_{TX}) / (4 * \Pi * R * R) \quad \textbf{[1]}$$

TX_{Pmax}	maximum TX output power
G_{TX}	combined transmitter antenna gain and feeder loss
Π	3.1415
R	distance to point checked for RF exposure

The product is marketed with a chassis antenna and it is to be installed by professional personnel. The installation manual contains a warning note requiring the installation responsible to maintain an antenna safety distance from general public to meet RF exposure limits, considering feeder loss and antenna gain in every case.

Above example shows margin to the commission's exposure limit([1]) in excess of 16 dB. Any installation using higher than 16 dB combined antenna gain and feeder loss arrangements and/or closer distances than 1 m to general public shall require the installation responsible to prove RF exposure performance of his installation meets applicable limits.

([1]) Regulative reference: CFR 47, chapter 1, part 1, subpart I, item 1.1310, Radio frequency radiation exposure limits,

table1	Limits for maximum permissible exposure
part (B)	Limits for general population, uncontrolled exposure
Power density	f [MHz] /1500 [mW / cm^2] = 900 / 1500 = 0.6 [mW / cm^2]

3.2 Electro Static Discharge (ESD)

CAUTION!
All types of electronic components, particularly integrated circuits, are in some way sensitive to Electro Static Discharge (ESD). Damage caused by ESD is a common reason for faults in electronic equipment.

The total operating time between failures can be extended considerably by avoiding ESD damage during installation and maintenance work. This has become more important as electronic components decrease in size and increase in sensitivity.

The following ESD basic rules have to be followed when working with electronic components.

- Avoid materials or clothes that easily create electrostatic charges.

Always wear a wrist strap connected to ground when connecting cables or power to the unit.

3.3 Electrical Hazards

3.3.1 High Voltage

DANGER!
Under adverse conditions, even voltages below 50 volts can be potentially fatal. The electrical installation must be carried out according to local regulations. These regulations may require the work to be carried out by a qualified and authorized electrician.

3.3.2 Power Supply

WARNING!
The equipment is to be connected to an external power supply source providing double or reinforced insulation.

3.4 Earthquakes

CAUTION!
If the area is affected by earthquakes, ensure that the mounting bracket is fastened securely to the wall and that the BRU1 unit is mounted properly. (see installation instruction).

3.5 Thunderstorms

DANGER!
Avoid working on electrical installations during thunderstorms. Thunderstorms can create strong electric fields. For that reason, and to avoid direct strokes of lightning do not perform any installation/maintenance during thunderstorms.

4 Rules and Requirements - US/Canada

4.1 FCC - Rules and Requirements

After the tests, the BRU1 has been classified as a “Class B digital device” by the Federal Communication Commission (FCC). Please note the following notices regarding classification, interference, changes or modifications, government requirements and equipment return valid for the BRU1.

4.2 BRU1 Classification

The BRU1 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. The BRU1 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.

4.3 BRU1 Interference

The BRU1 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.

TO USERS OF THE BRU1 IN CANADA:

The BRU1 does not exceed the Class B limits for radio noise emissions from digital apparatus set in the radio interference regulations of the Canadian Department of Communications.

4.4 BRU1 Changes or Modifications

The authority to operate the BRU1 is conditioned by the requirement that no changes or modifications will be made to the BRU1 equipment unless the changes or modifications are expressly approved by Ericsson.