Section 1

Safety and regulatory information

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Chapter 1 Introduction

This section contains important safety and regulatory information. Other sections refer to this section when applicable.

Chapter 1	:	*Introduction* Introduces you to this document
Chapter 2	:	*Safety* Informs you about the precautions to take during installation of the DCT1800-GAP system, the lithium battery on the CPU board and the use of the cordless phone.
Chapter 3	:	*Protection against electrostatic discharge* Informs you about the precautions to take to avoid damage to electrostatic discharge sensitive products and components.
Chapter 4	:	*'Safety aspects of the DCT1800-GAP system'* Lists the safety standards and characteristics that are met by the DCT1800-GAP system.
Chapter 6	:	*Regulatory information* Informs you about country dependent installation restrictions for the DCT1800-GAP system.
Chapter 7	:	*CE marking* Informs you about which products comply with European Council Directives.

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Chapter 2 Safety

2.1 Safety rules

- Ensure that the voltage and frequency of the mains power socket matches the voltage and frequency inscribed on the equipment's electrical rating label.
- Never install telephone wiring during a thunderstorm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch un-insulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.

Note: *Avoid touching or punching down the Base Station signal and power pairs as there is -48Vdc present on these wires at all times.*

- Use caution and observe all relevant safety standards when installing or modifying telephone lines.
- Always install conform relevant national installation rules.
- Only mount the radio exchange to a wall.
- Do not mount the modular cabinet to a drywall using insertable plastic drywall plugs. These will not safely support the cabinet. See Installation section for recommended mounting.
- Suitable for mounting on concrete or other non-combustible surface only. [This refers to the floor covering/ material beneath the cabinet(s)].
- Disconnect all power sources before servicing equipment.
- Make sure that the radio exchange is connected to telecom or protective ground.
- Avoid using a telephone (other than a cordless type) during a thunderstorm. There may be a remote risk of electric shock from lightning.
- Do not use the telephone to report a gas leak in the vicinity of the leak.
- In areas with potentially explosive atmospheres only cordless phones may be used. Use of other types of cordless phones in such areas may cause a risk of explosion.
- The Modular Cabinet must be mounted in a restricted area.
- The power source must be short circuit protected (15 A maximum).
- For the Modular Cabinet use Class II power sources, double insulated conforms to (EN60950 (Europe) Uout ≤ 42 Vac rms or ≤ 58 Vdc) or (UL1950 (US & Canada) Uout ≤ 58 Vdc) only.
  The power source branch circuit over current protection must be rated 15A. The power source must be short circuit protected (15A maximum).
- Use only approved spare parts and accessories. The operation of non-approved parts cannot be guaranteed and may even cause damage or danger.
- Service is to be performed by qualified personnel only.
- A readily accessible disconnect device, that is suitably approved and rated, shall be incorporated in the field wiring.
- Connect to a reliably grounded -48Vdc SELV source.
- Use minimum 14 AWG copper conductors.

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- Torque power supply terminal block screws to 7 in. - lbs
- For the safety status of the different interconnection points of the system refer to *“* on page 8.

2.2 Safety symbols

For your protection and to avoid damage to the DCT1800-GAP system you will find stickers where applicable. The stickers have the following symbols and meaning:

Caution

Read and follow the safety rules and warning messages in this manual.
If the instructions are not followed, there is risk of damage to the equipment.

Caution

Read and follow the handling instructions described in chapter 3.2 *‘ESD handling’*.
Boards which contain Electrostatic Sensitive Devices (ESD) are indicated by this sign.
If the instructions are not followed, there is risk of damage to the equipment.

For handling these boards see *Chapter 3 "Protection against electrostatic discharge (ESD)" on page 7.*

Warning

Read and follow the safety rules and warning messages in this manual.
Hazardous voltages are present.
If the instructions are not followed, there is risk of electrical shock and danger to personal health.

2.3 Lithium battery on CPU board

The following warning is applicable for the Lithium battery on the CPU board.

CAUTION!

DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE EQUIPMENT MANUFACTURER. DISPOSE OF USED BATTERIES ACCORDING TO MANUFACTURER’S INSTRUCTIONS

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ATTENTION!

IL Y A DANGER D'EXPLOSION S'IL Y A REMPLACEMENT INCORRECT DE LA BATTERIE. REMPLACER UNIQUEMENT AVEC UNE BATTERIE DU MÊME TYPE OU D'UN TYPE RECOMMANDÉ PAR LE CONSTRUCTEUR. METTRE AU RÉBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS DU FABRICANT.

VARNING!

EXPLOSIONSFARA VID FELAKTIGT BATTERIBYTE.
ANVÄND SAMMA BATTERITYP ELLER EN EKVIVALENT TYP SOM REKOMMENDERAS AV APPARATTILLVERKAREN KASSERA ANVÄNT BATTERI ENLIGT FABRIKANTENS INSTRUKTION.

ADVARSEL!

LITHIUMBATTERI – EKSPLOSIONSFARE VED FEJLAGTIG HÅNDTERING. UDSKIFTNING MÅ KUN SKE MED BATTERI AF SAMME FABRIKAT OG TYPE. LEVÉR DET BRUGTE BATTERI TILBAGE TIL LEVERANDOREN.

VAROITUS!

PARISTO VOI RÄJÄHTÄÄ, JOS SE ON VIRHEELLISESTI ASENNETTU. VAIHDA PARISTO AINOASTAAN LAITEVALMISTAJAN SUOSISTELEMAAN TYYPPIN. HÄVITÄ KÄYTETTY PARISTO VALMISTAJAN OHJEIDEN MUKAISESTI.

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ADVARSEL!

LITHIUMBATTERI – EKSPLOSJONSFARE. VED UTSKIFTING BENYTTES KUN BATTERI SOM ANBEFALT AV APPARATFABRIKANTEN. BRUKT BATTERI RETURNERES APPARATLEVERANDOREN.

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Chapter 3 Protection against electrostatic discharge (ESD)

3.1 General

Integrated circuits are sensitive to ESD.

To avoid damage caused by ESD, service engineers and other people must handle equipment and boards carefully.

Electronic equipment has become more resistive to ESD, but we see an increase of situations where static electricity can build up. This is caused by an increasing application of man–made fibres like nylon, acrylic, etc. which are capable of generating ESD of 10,000 Volts and more.

Walking across a nylon carpet, even for a few feet, could cause a person to be charged–up to more than 10,000 Volts.
Under these conditions, if a system board or a (C)MOS device is touched it could easily be damaged. Although the device may not be totally defective, it is often degraded, causing it to fail at a later date without apparent reason.

To make sure that equipment and parts are well protected during shipment, special packaging materials are utilized. System boards will be shipped in anti–static bags and (C)MOS devices and other sensitive parts in small shielded boxes.

3.2 ESD handling

In the interest of quality and reliability, it is advisable to observe the following rules when handling system boards and parts:

- Service personnel should ground themselves by using a wrist strap when exchanging system boards in a cabinet.
- Keep system boards and sensitive parts in their protective packaging until they are needed.
- When returning system boards or parts like EEPROMS to the factory, use the protective packaging as described.
- Never underestimate the damaging power ESD can have and be especially careful when temperatures are below freezing point and during very warm weather in combination with low humidity. Make sure that the environmental conditions remain within the limits specified in Section 3, “Product Specifications” in this book.

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PROTECT ESD SENSITIVE DEVICES

Boards with static sensitive devises can be recognized by the sign.
Observe special handling rules.

Exchanging system boards requires
a grounded wrist strap

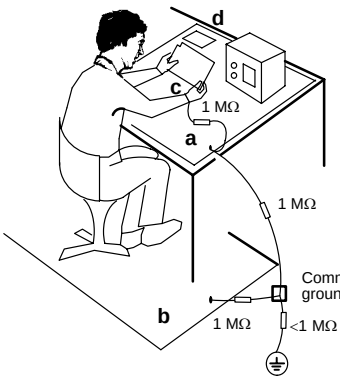
Some of the benefits of protection are:

- less failures/service calls,
- reduced maintenance costs,
- high customer satisfaction.

CAUTION
Static sensitive components handle only at static safe workstation

In the interest of quality and reliability system boards and other parts returned for exchange or credit may be refused if the proper protective packaging is omitted.

Put PCB in static shielding bag for protection during transportation. Avoid unnecessary handling.



For a completely safe repair environment use:

a Anti-static (conductive) table top/mat.
b Conductive floor mat.
c Wrist strap.
d Conductive trays.

For your personal safety use approved wrist strap !

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Fig. 1 Handling of ESD sensitive devices

IMPORTANT NOTE

In the interest of quality and reliability system boards and other parts returned for exchange or credit may be refused if the proper protective packaging is omitted!

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Chapter 4 Safety aspects of the DCT1800-GAP system

The DCT1800-GAP system meets the safety standards EN41003 and EN60950/IEC950. The system is a pluggable equipment class A according to EN60950/IEC950. The system is class I equipment, with class II insulation between primary and secondary circuits. Connection to protective earth is necessary for safety reasons.

The secondary circuits are SELV circuits according EN60950/IEC950. The ‘common’ of the secondary SELV circuits is connected to earth.

The safety status of the different interconnection points of the system is as follows:

- RS232A, RS232B port: SELV circuits
- Analogue Line Termination Unit (LTU) connections: TNV circuits
- Power failure and general alarm contacts: SELV circuits
- Digital Trunk Unit (DTU) connection: TNV circuits *)
- Base station connections: TNV circuits *)
- Battery power supply connections: SELV circuit

The analogue line termination circuits are separated from the secondary SELV circuit by basic insulation.

*) Operating within the limits of SELV circuits.

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Chapter 5 Legal restrictions for the Line Termination Unit, LTU – REX-BRD0019

5.1 Line Termination Unit, LTU – REX-BRD0019 (ROFNB 157 25/2)

The table below gives an overview of where LTU REX-BRD0019 (ROFNB 157 25/2) can be used. As can be observed it can be used in most cases.

LTU board	EC and EFTA countries			Non EC nor EFTA countries	
	PBX		PSTN	PBX	PSTN
	TBR21 required	No TBR21 required	TBR21 always required		
ROFNB 157 25/2	Must be used	Recommended	Must be used	Recommended	Recommended

Table 1 Use of LTU REX-BRD0019 (ROFNB 157 25/2)

5.2 Legal restriction when directly connecting to PSTN

The DCT1800-GAP system can be connected to the PSTN, with a legal restriction per country.

5.2.1 Legal restriction for EC and EFTA countries

When in the European Community (EC) and European Free Trade Association (EFTA) countries the LTU REX-BRD0019 (ROFNB 157 25/2) is connected directly to the PSTN, this LTU board is not nationally type approved for use of the ‘pulse dialling’ and ‘register recall’ functions. Both functions are not intended to be used for direct PSTN connection. If the LTU REX-BRD0019 is connected directly to the PSTN and these functions are used, the CE marking on the LTU REX-BRD0019 does not cover these functions.

All other LTU REX-BRD0019 functions that take care of cordless phone to PSTN interworking are covered by European standards. These functions can be used without legal restrictions when directly connected to the PSTN.

The equipment has been approved in accordance with Council Decision 98/482/EC for pan-European single terminal connection to the public switched telephone network (PSTN). However, due to differences between the individual PSTNs provided in different countries, the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point.

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Chapter 6 Standards and Regulations for US

6.1 Standards and Regulations

The DCT1800 System adheres to the following standards and regulations:

- FCC Part 15
- IEC 60950-1
- UL 60950
- UTAM, Inc.
- ANSI/IEEE C95.1

6.2 Radio Equipment: Handsets and Base Stations

- FCC Part 15, Subpart B - “Unintentional Radiators”
- FCC Part 15, Subpart D - “FCC Rules for Radio Frequency Devices”
- FCC Part 68.316, 68.317 - “FCC Compatibility With Hearing Aids
- ANSI/IEEE 95.1 - “Safety Levels with Respect to Human Exposure to Radio Frequency
- Electromagnetic Fields, 3KHz to 30GHz”

6.3 Fixed Position System Equipment: Radio Exchange Cabinet and Power Adapters

- UL 60950
- FCC Part 15 - “FCC Rules for Radio Frequency Devices.”

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6.4 Regulatory Compliance Statements

FCC CLASS B NOTICE

This equipment complies with part 15 of the FCC rules. Operation is subject to the following conditions: 1) This equipment may not cause harmful interference, and 2) This equipment must accept any interference received, including interference that may cause undesired operation.

NOTE: 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 installtion. 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 the 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.**

MODIFICATIONS: Any modifications not expressly approved by Ascom could void the user's authority to operate the equipment.

UTAM REQUIREMENTS

INSTALLATION OF THIS EQUIPMENT IS SUBJECT TO NOTIFICATION AND COORDINATION WITH UTAM, INC. ANY RELOCATION OF THIS EQUIPMENT MUST BE COORDINATED THROUGH, AND APPROVED BY UTAM. IF THERE ARE ANY INTERFERENCE PROBLEMS, UTAM MAY BE CONTACTED AT 1-800-429-8826 (UTAM).

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The term “IC:” before the radio certification number only signifies that industry of canada technical specification were met.

DO NOT TAMPER WITH THE WARRANTY SEAL ON THE BACK OF YOUR PHONE. TAMPERING WITH THIS SEAL CAN VOID YOUR WARRANTY. DO NOT ATTEMPT TO TAKE YOUR PHONE APART. DOING SO WILL VOID YOUR WARRANTY. YOUR PHONE DOES NOT CONTAIN CONSUMER SERVICEABLE COMPONENTS. SERVICE SHOULD ONLY BE PERFORMED BY AUTHORIZED SERVICE CENTERS.

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EXPOSURE TO RADIO FREQUENCY SIGNALS (SAR)

The wireless phone is a radio transmitter and receiver. It is designed and manufactured not to exceed the emission limit for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the US government and Canada. These limits are part of comprehensive guidelines and established permitted levels of RF energy for the general population. These guidelines are based on the safety standards previously set by both US and international standard bodies. These standards include a substantial safety margin designed to assure the safety of all persons, regardless of age and health.

The exposure standards for wireless mobile phones employs a unit of measure known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC and Canada is 1.6W/kg averaged over one gram of tissue.

Tests for SAR are conducted using standard operating positions specified by the FCC with the phone transmitting at its highest certified power level in all tested frequency bands. Although the SAR is determined at the highest certified power level, the actual SAR level of the phone while operating can be well below the maximum value. This is because the phone is designed to operate at multiple power levels. Before a phone model is available for sale to the public, it must be tested and certified to the FCC that it does not exceed the limit established by government-adopted requirement for safe exposure. The tests are performed in positions and locations (for example, at the ear and worn on the body) as required by the FCC for each model.

The highest SAR value for the OfficeT telephone when tested for use is 0.081 W/kg, and for OfficeM 0.067 W/kg. While there may be differences between the SAR levels of various phones and at various positions, they all meet the government requirement for safe exposure.

For body worn operation, to maintain compliance with FCC RF exposure guidelines, use only Ascom approved accessories. When carrying the phone while it is on, use only the specific Ascom belt clip that has been tested for compliance. Use of non-Ascom-approved accessories may violate the FCC RF exposure guidelines and should be avoided.

The FCC has granted an equipment authorization for the Ascom OfficeT and OfficeM phones with all reported SAR levels evaluated as in compliance with the FCC RF emissions guidelines.

RFExposure:

The internal/external antennas used for BS330 must provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

This device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE Std. C95.1-1992 and had been tested in accordance with the measurement procedures specified in FCC/OET Bulletin 65 Supplement C (2001) and IEEE Std. 1528-2003 December 2003).

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Chapter 7 CE-marking

7.1 General

A number of DCT1800-GAP products are CE-marked.

Products marked with the label CE comply with the following European Council Directives:

- 99/5/EEC, concerning Radio- and Telecommunications Terminal Equipment (RTTE)
- 73/23/EEC, concerning electrical safety
- 89/336/EEC and 92/31/EEC, concerning electromagnetic compatibility
- 93/68/EEC, concerning CE marking

Refer to the section 'Product Specifications' to see which products are CE-marked.

Declarations of Conformity of the products are available at the webpage: www.ascom.com

7.2 CE-marking radio exchange

The radio exchange complies with the European Council Directives 73/23/EEC and 89/336/EEC and is marked with a CE label when using modular cabinets with revision R3 or later. For CE-marking the following restrictions are applicable:

- When using LTU REX-BRD00nn[1] (ROFNB 157 04/n[2]) use the LTU/MDF cable set REX-CAB0002 (NTM/TSRNB 101 31) with revision R2, or LTU/MDF cable set long REX-CAB0004 (NTM/TSRNB 101 44) with revision R2.
- When using a DTU all jumpers on the MCCB must be set such that the screens of both the receiving and the transmission cables of the PBX cable are connected to ground on the MCCB (see the section 'Installation instructions').

1. nn = 08, 09, 10, 11, 12 or 13
2. n = 2, 3, 4, 5, 6 or 9

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