

**NOKIA**

# **Grounding Principles For BSC2/ TCSM2 Racks**

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## Summary of changes

Changes between document issues are cumulative. Therefore, the latest document issue contains all changes made to previous issues.

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# 1 About this document

## 1.1 Introduction

This documents describes the recommended ways to connect (ground) the racks to the ground bar of the site. The grounding principles of the DX 200 station are described in the *BSC2/TCSM2 Engineering Descriptions* manual.

## 1.2 Where to find more information

For information on the power distribution, site requirements, cabling and dimensioning principles of the BSC2, see the followin manuals:

*BSC2 Engineering Descriptions* manual.

*Installation of Rack - Cartridge Mechanics* manual

*Installation of BSC* manuals

For information on the actual delivery of the BSC unit, see the *BSC2A*, *BSC2E* *BSC2i Site Documents*.

## 1.3 Typographic conventions

The following Table presents the conventions used in this document.

Table 1. Typographic conventions.

<i>Italic font</i>	Indicates a reference to a manual, chapter or section, for example: See chapter 3 <i>Installation</i>
<b>Bold font</b>	Indicates a word or phrase that is emphasized, for example: referring to <i>any</i> version



# 2 Recommended grounding methods

## 2.1 Introduction

This recommendation is based on the ITU Standard K27 and ETSI Standard ETS 300 253.

This chapter describes briefly the connection of the grounding cables, Section 2.2. and the recommended grounding methods (Alternatives 1 and 2), Sections 2.3 to 2.5.

The grounding cables should meet the requirements of the UL 1459 standard and the National Electrical Code ANSI/NFPA No.70. Strain relief is required for the main cable before can be connected to the BSC2/TCSM2 racks.

## 2.2 Connecting the grounding cables

Connect the insulated 25 mm<sup>2</sup> (AWG2) grounding cable to the 6 mm bolt at the vertical busbar of the first rack in the row (type BCBE in the BSC2), using round terminals (not two legged spades; see Figure 1). Connect the other end of the cable to the ground bar of the site.

Establish a galvanic connection between the grounding cable and the main grounding busbar of the rack at the grounding element at the top of the rack, by stripping the cable jacket and pressing the grounding element tapes firmly against the bare cable.

Connect the ground potentials of the adjacent racks using three prefabricated ground straps (referred to as 'Ground strap B' in the figures 2 and 3 below). The main grounding point is marked with a label on the rack as shown in Figure 1. Repeat the steps above with the other racks of the row, if it contains more racks.

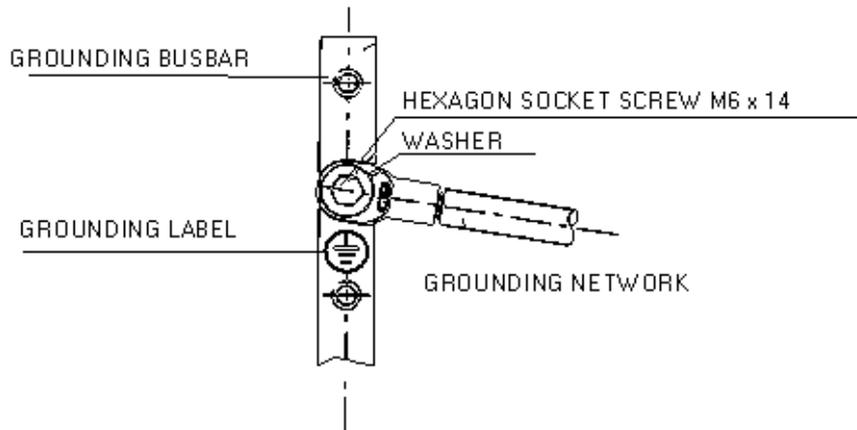


Figure 1. An example of connecting the grounding cable to the rack.

## 2.3 Grounding alternatives

There are two recommended alternative ways to ground the DX 200 racks (BSC, BSC2, TCSM2) at the installation site, as described in sections 2.4 and 2.5 below.

### Grounding alternative 1, section 2.4:

This alternative applies to installations when the two-rack (or one-rack) BSC(2) or TCSM2 application forms an entity (EMC-shielded space), where the side panels, the front and rear doors are mounted. The two racks of each BSC are connected together (grounded) with ground straps, as shown in Figure 2. Each entity (BSC1 to BSC3) is grounded with a separate cable to main grounding bar of the installation site.

### Grounding alternative 2, section 2.5:

This alternative applies to installations when all the BSC (or TCSM2) racks in a row form one entity (EMC-shielded space), where the side panels are mounted only at the end of the rows. Naturally all the front and rear doors are mounted. Then this entity (BSC1 to BSC3) is grounded with one cable to main grounding bar of the installation site. All the racks of each BSC(2) are connected together (grounded) with ground straps, as shown in Figure 3.

## 2.4 Alternative 1, two-rack BSCs with side panels

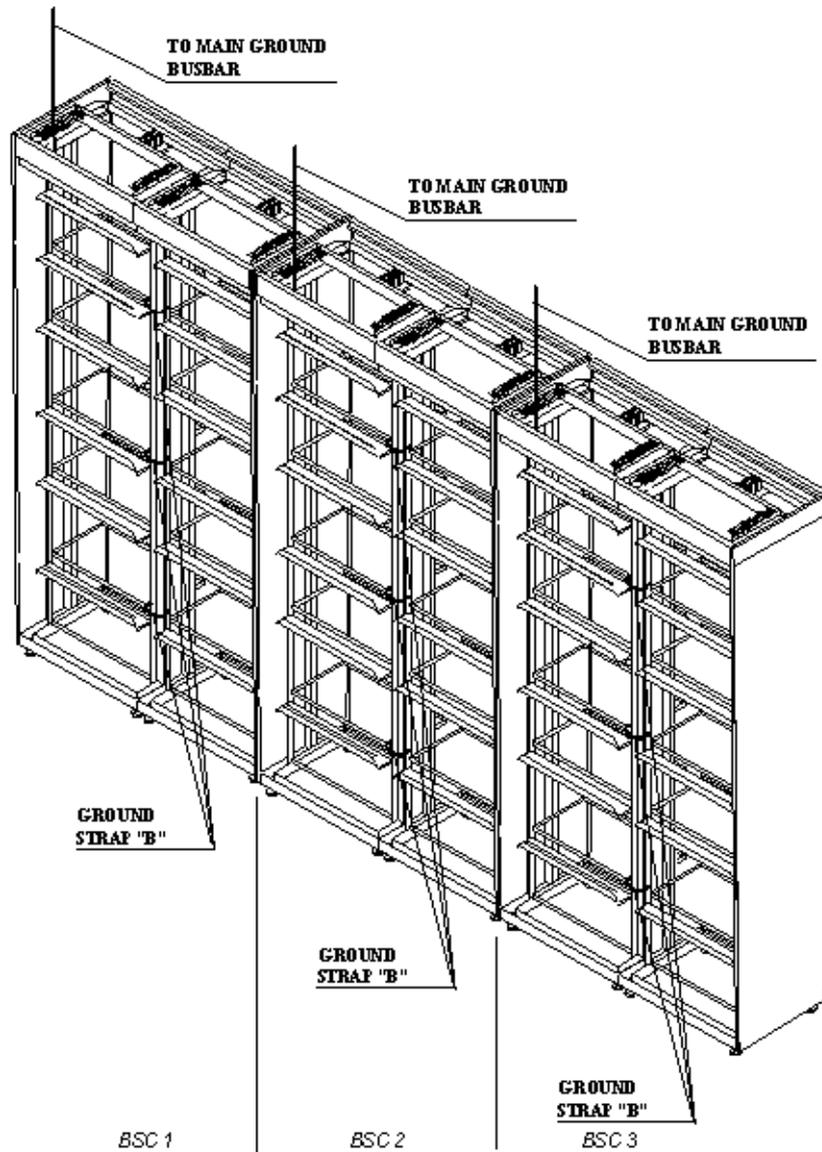


Figure 2. Alternative 1: Grounding the racks when the two-rack BSCs (1-3) are separate entities; the side panels installed for each BSC. Note that the cartridges and doors are not shown in figure.

## 2.5 Alternative 2, two-rack BSCs without side panels

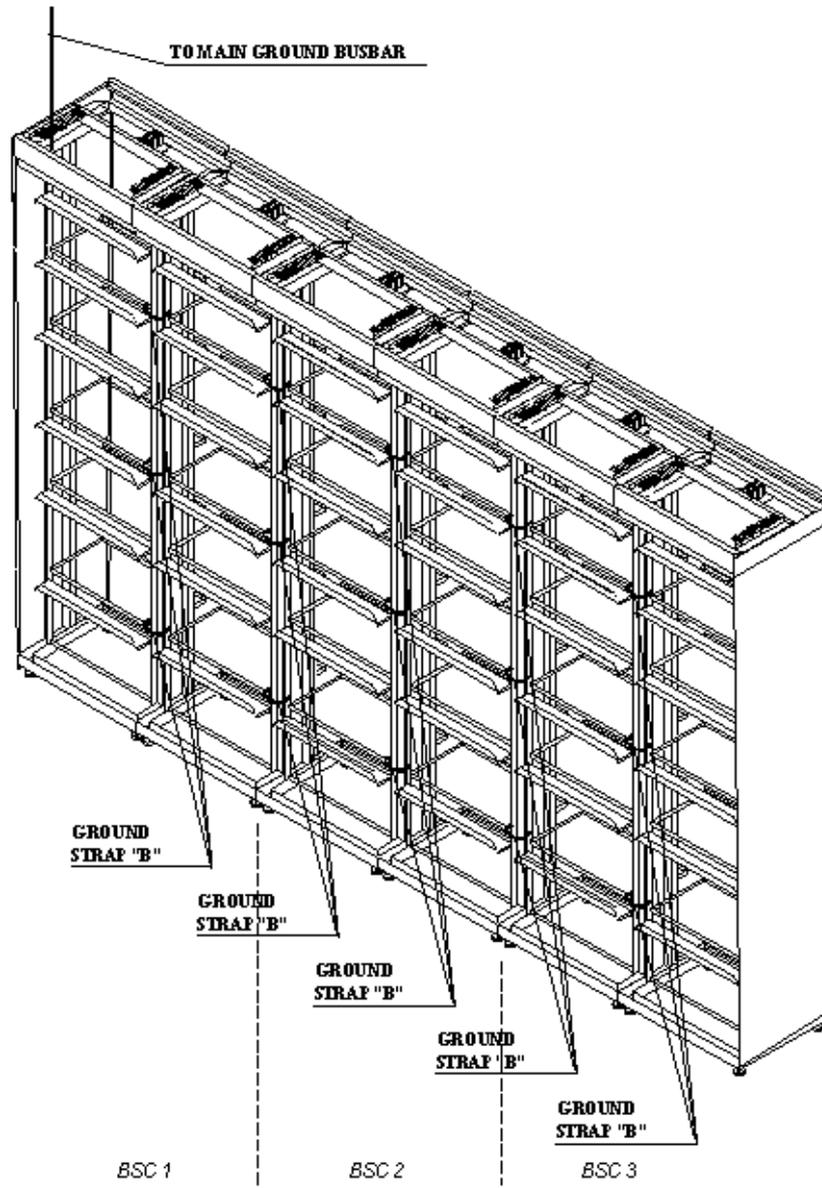


Figure 3. Alternative 2: Grounding the racks when BSCs (1-3) are mounted in the same EMC space; the side panels installed only at the end of rows. Note that the cartridges and doors are not shown in figure.