

NOKIA

Equipment List for TCSM2A

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.

This documentation and the product it describes are considered protected by copyright according to the applicable laws.

NOKIA logo is a registered trademark of Nokia Corporation.

Other product names mentioned in this documentation may be trademarks of their respective companies, and they are mentioned for identification purposes only.

Copyright © Nokia Corporation 2005. All rights reserved.

Contents

	Contents	3
	List of tables	4
	List of figures	5
	Summary of changes	7
1	About this document	9
1.1	Notations used in Equipment lists	9
2	Equipping rules	11
2.1	Unit configurations	11
2.2	Equipping the ET1TC Cartridges with plug-in units in TCSM2A configurations	12
2.3	Equipping the TC1C Cartridges with plug-in units	13
2.4	Configuring the TC1C and ET1TC cartridges for FR, EFR, HR and HSCSD use	14
2.5	Cartridge and unit positions	15
3	Equipment lists	17
3.1	Equipping Lists for common items	17
3.2	Equipping list for additional items	27
3.3	Equipping list for optional items	28

List of tables

- Table 1. Maximum configuration of the TCSM2A application **11**
- Table 2. Interfaces available at ET2A plug-in units. Interfaces 5, 6 and 7 are available in the HR application **12**
- Table 3. The maximum numbers of TR12-T plug-in units (in TC1C cartridge) required for different types of traffic **15**
- Table 4. Maximum numbers of ET2A/ET2A-T/ET2A-TB plug-in units (in ET1TC cartridge) required for different types of traffic (S11 or later) **15**

List of figures

- Figure 1. Equipping of ET1TC in the TCSM2A application (maximum configuration) **13**
- Figure 2. Equipping of TC1C cartridge in the TCSM2A application (maximum configuration) **14**
- Figure 3. Unit and cartridge positions in TCSM2A configurations **16**

Summary of changes

Summary of changes

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

Changes between Issues 4-1 and 4-0

From January 2006 onwards, the following changes take place in S11.5 and S11 first deliveries:

- new ET2 variants ET2E-TB and ET2E-TCB (from 01/2006 onwards),
- ET2A-TB (from 02/2006 onwards)

From February 2006 onwards, the new ET2 variants will also be included in S10.5 first deliveries.

Changes between Issues 4-0 and 3-0

Release S11.5 or later: Editorial changes made and information on TCSM2A-C removed. Therefore, the name of the document has been changed to *Equipment List for TCSM2A*.

Changes between Issues 3-0 and 2-2

Release S11 or later: Information added on ET2A-T, ET2E-T and ET2E-TC plug-in units. Glossary removed.

1 About this document

This document provides a list of all hardware (HW) products (rack mechanics, cartridges, plug-in units and required accessories) of standard DX 200 TCSM2A. The actual equipping list - in section *Equipment lists* - includes the physical positions of hardware items inside the rack. The document is used both as guidance when building the TCSM2As either in the factory or on customer's site and as a document in *Site Documentation*.

TCSM2 is a general name for the second generation Transcoder (Submultiplexer) equipment, and TCSM2A stands for an ANSI (US) version, and TCSM2E stands for an ETSI (EU) version of the transcoder. The names TCSM2 and TCSM2A are interchangeable in this document.

Note

The name TCSM2A is used in two meanings:

- TCSM2A unit: The unit (group of cartridges and their plug-in units) responsible for transcoding and submultiplexing the traffic channels carried by a single T1 line (PCM circuit) between the BSC and the transcoding site.
- TCSM2A equipment: The assembly of racks housing the TCSM2A units of one or more BSCs.

Functionally, the TCSM2A units are functional units of the BSC, but geographically the equipment can be located either on BSC (Base Station Controller) site or MSC (Mobile Switching Center) site.

1.1 Notations used in Equipment lists

The positions are presented in a form of a table. The table (in section *Equipment lists*) has the following six columns:

- *Position* shows the coordinates inside the rack and the number of the slot in the cartridge. (F = Front, B = Back, R = Upper, S = Lower)
- *Identification* shows the identification code of the rack, cartridge, plug-in unit or accessory.
- *Name* shows the abbreviated name of the HW product for the identification code in the previous column.
- *Cartridge* shows either the name and number of the cartridge or Functional Unit (TCSM2Ax) equipped into the cartridge in this particular position
- *FU* shows the name and number of the Functional Unit, which contains the plug-in units listed below and equipped in this cartridge position
- *Notes* column includes additional information, for example, the number of the plug-in unit 0 - 7 (13).

2

Equipping rules

The TCSM2A is composed of one TC2E type rack, which includes all the units of the TCSM2A. When delivered from the factory, the TC2E rack is equipped with all cartridges and internal cables needed in the maximum configuration. The total number of ET2s can be chosen by the customer and the plug-in units of the cartridges are equipped according to that choice.

This section provides information on the equipping rules of the TCSM2A racks and an introduction to equipping listings shown in the following chapter.

2.1 Unit configurations

The maximum configuration of the TC2E rack is up to eight TCSM2A units. The maximum configuration of each TCSM2A unit is shown in the table below.

Table 1. Maximum configuration of the TCSM2A application

Minimum	Maximum
one PSC1 or PSC1-S	one PSC1 or PSC1-S
one TRCO	one TRCO
two TR12s	fourteen (14) TR12s
one ET2A; one ET2A-T/-TB in new deliveries (S11 or later)	four ET2As; four ET2A-T/-TBs in new deliveries (S11 or later)

2.2 Equipping the ET1TC Cartridges with plug-in units in TCSM2A configurations

The ET1TC cartridge consists of a varying number of plug-in units depending on the channel type, as described in section *Configuring the TC1C and ET1TC cartridges for FR, EFR, HR and HSCSD use*.

Equip the ET2A plug-in units into the ET1TC cartridge in the following order:

Table 2. Interfaces available at ET2A plug-in units. Interfaces 5, 6 and 7 are available in the HR application

T1 interface number for TCSM2A	Upper and lower row in ET1TC
0 / BSC and 1 / MSC	ET2A 0; ET2A-T/-TB 0 in new deliveries (S11 or later)
2 / MSC and 3 / MSC	ET2A 1; ET2A-T/-TB 1 in new deliveries (S11 or later)
4 / MSC 5 / MSC	ET2A 2; ET2A-T/-TB 2 in new deliveries (S11 or later)
6 / MSC 7 / MSC	ET2A 3 ; ET2A-T 3 in new deliveries (S11 or later)

The ET2A 0 / ET2A-T/-TB 0 unit handles the traffic channels for BSC trunk (T1 interface number 0) and the channels for the first MSC trunk. ET2A 1 / ET2A-T/-TB 1 handles the traffic channels for MSC trunks 2 and 3, and ET2A 2 / ET2A-T/-TB 2 handles the traffic channel 4, and interface 5 in the HR application. ET2A 3 / ET2A-T/-TB 3 is needed in the HR application (8 kbit/s submultiplexing).

The configuration of the ET1TC is shown in the figure below. The cartridge consists of upto eight ET2A/ET2A-T/ET2A-TB plug-in units, four per each TCSM2A.

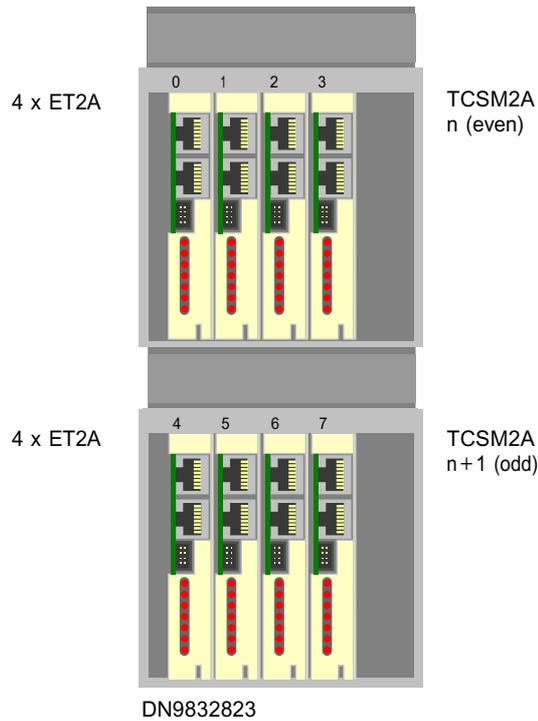


Figure 1. Equipping of ET1TC in the TCSM2A application (maximum configuration)

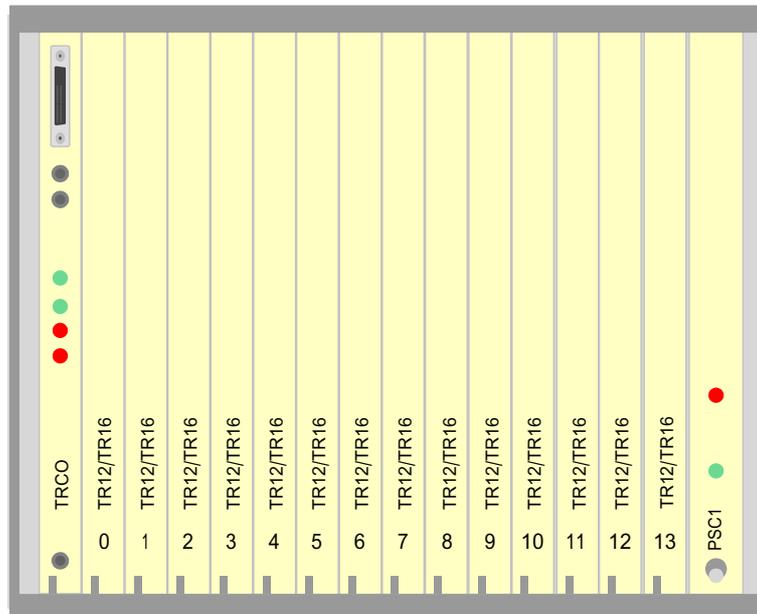
Note

In first deliveries after 02/2006, ET2A and ET2A-TB plug-in units are replaced with the ET2A-TB plug-in units.

2.3 Equipping the TC1C Cartridges with plug-in units

The standard TCSM2A configuration of the TC1C is shown in the figure below. The cartridge consists of a varying number of plug-in units depending on the channel type, as described in section *Configuring the TC1C and ET1TC cartridges for FR, EFR, HR and HSCSD use*.

Note that after each plug-in unit name in an equipment list, there may be a letter, for example, S or T, meaning the variant of the plug-in unit.



DN04191851

Figure 2. Equipping of TC1C cartridge in the TCSM2A application (maximum configuration)

2.4 Configuring the TC1C and ET1TC cartridges for FR, EFR, HR and HSCSD use

Listed in the tables below are the maximum numbers of the Exchange Terminal and Transcoder plug-in units required for processing full-rate (FR), enhanced full-rate (EFR), half-rate (HR) and HSCSD (HS2 and HS4) traffic. The configurations given in the tables represent the special cases when the whole TCSM2 unit is allocated to handle calls of the same type, with the maximum traffic channel capacity in use.

For mixed allocations and configurations where the capacity of the TCSM2 is only partially utilised, the exact number of plug-in units needed must be determined separately, as it depends on the types of calls processed and the number of lines allocated to calls of each type, as well as on the number of active traffic channels.

Table 3. The maximum numbers of TR12-T plug-in units (in TC1C cartridge) required for different types of traffic

Channel type	Maximum number of TR12-T plug-in units
FR/EFR	8
HR	14
HS2	4
HS4	2

Table 4. Maximum numbers of ET2A/ET2A-T/ET2A-TB plug-in units (in ET1TC cartridge) required for different types of traffic (S11 or later)

Channel type	Maximum number of ET2A/ET2A-T/ET2A-TB plug-in units
FR/EFR	3
HR	4
HS2	2
HS4	1

2.5 Cartridge and unit positions

The figure below shows the cartridge and functional unit and cartridge positions for a one-rack configuration.

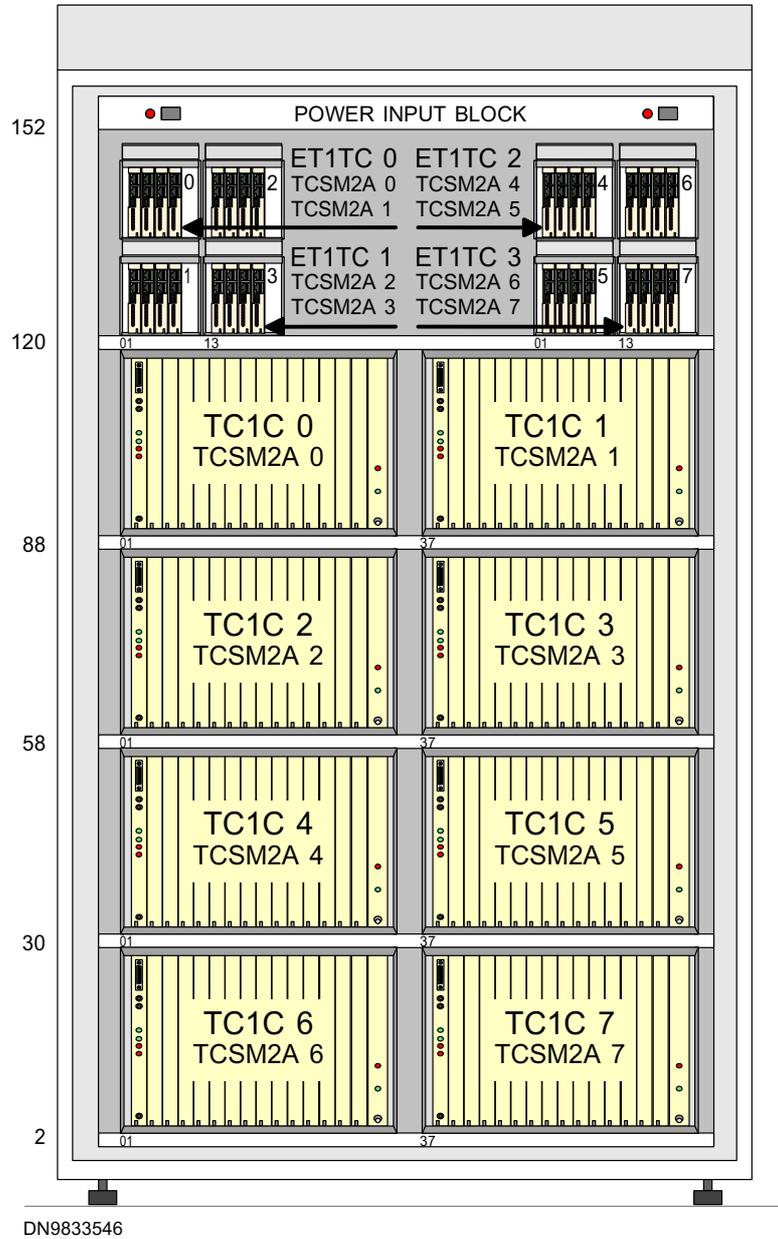


Figure 3. Unit and cartridge positions in TCSM2A configurations

3 Equipment lists

This section provides the equipping lists for (one-rack) configuration of the TC2E items.

3.1 Equipping Lists for common items

TC2E items

Position		Identification	Name	Cartridge	FU	Notes
TC2E	1A					
		C28980	R198A-T			
161.00.	F00	C28580	UFS81-S			
162.37.	F00	C22074	PSCG5			
152.13.	F00	C29336	PSA20-T			
152.43.	F00	C29336	PSA20-T			
148.07.	B00	C29337	PSFP-T			
148.45.	B00	C29337	PSFP-T			
146.00.	B00	C19874	CSS82			
120.00.	F00	C23696	CS8A-T			
114.00.	B00	C22762	CSS80			
088.00.	F00	C23696	CS8A-T			
082.00.	B00	C22762	CSS80			
058.00.	F00	C23696	CS8A-T			
052.00.	B00	C22762	CSS80			

Position		Identification	Name	Cartridge	FU	Notes
030.00.	F00	C23696	CS8A-T			
024.00.	B00	C22762	CSS80			
002.00.	F00	C23696	CS8A-T			

ET1TC configurations

Note

ET2A-TB is the only variant in first deliveries from 02/2006 onwards.

Position		Identification	Name	Cartridge	FU	Notes
120.01		C08787	ET1TC	ET1TC0		
	F00.R	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A		TCSM2A 0	0
	F01.R	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			1
	F02.R	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			2
	F03.R	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			3
	F04.S	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A		TCSM2A 1	0
	F05.S	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			1

Position		Identification	Name	Cartridge	FU	Notes
	F06.S	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			2
	F07.S	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			3
120.13.		C08787	ET1TC	ET1TC 1		
	F00.R	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A		TCSM2A 2	0
	F01.R	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			1
	F02.R	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			2
	F03.R	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			3
	F04.S	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A		TCSM2A 3	0
	F05.S	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			1
	F06.S	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			2
	F07.S	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			3

Position		Identification	Name	Cartridge	FU	Notes
120.49.		C08787	ET1TC	ET1TC 2		
	F00.R	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A		TCSM2A 4	0
	F01.R	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			1
	F02.R	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			2
	F03.R	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			3
	F04.S	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A		TCSM2A 5	0
	F05.S	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			1
	F06.S	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			2
	F07.S	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			3
120.61		C08787	ET1TC	ET1TC 3		
	F00.R	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A		TCSM2A 6	0

Position		Identification	Name	Cartridge	FU	Notes
	F01.R	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			1
	F02.R	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			2
	F03.R	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			3
	F04.S	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A		TCSM2A 7	0
	F05.S	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			1
	F06.S	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			2
	F07.S	C110380 C105509 C08781	ET2A-TB/ ET2A-T/ ET2A			3

TC1C configurations

Position		Identification	Name	Cartridge	FU	Notes
TC1C configurations for TCSMA:						
088.01		C08783	TC1C	TC1C 0	TCSM2A 0	
	F00	C08773	TRC0			
	F01	C08840	TR12-T			0
	F02	C08840	TR12-T			1
	F03	C08840	TR12-T			2

Position		Identification	Name	Cartridge	FU	Notes
	F04	C08840	TR12-T			3
	F05	C08840	TR12-T			4
	F06	C08840	TR12-T			5
	F07	C08840	TR12-T			6
	F08	C08840	TR12-T			7
	F09	C08840	TR12-T			8
	F10	C08840	TR12-T			9
	F11	C08840	TR12-T			10
	F12	C08840	TR12-T			11
	F13	C08840	TR12-T			12
	F14	C08840	TR12-T			13
	F15	C08544/	PSC1/			
	F15	C08860	PSC1-S			New deliveries
088.37		C08783	TC1C	TC1C 1	TCSM2A 1	
	F00	C08773	TRC0			
	F01	C08840	TR12-T			0
	F02	C08840	TR12-T			1
	F03	C08840	TR12-T			2
	F04	C08840	TR12-T			3
	F05	C08840	TR12-T			4
	F06	C08840	TR12-T			5
	F07	C08840	TR12-T			6
	F08	C08840	TR12-T			7
	F09	C08840	TR12-T			8
	F10	C08840	TR12-T			9

Position		Identification	Name	Cartridge	FU	Notes
	F11	C08840	TR12-T			10
	F12	C08840	TR12-T			11
	F13	C08840	TR12-T			12
	F14	C08840	TR12-T			13
	F15	C08544/	PSC1/			
	F15	C08860	PSC1-S			New deliveries
058.01.		C08783	TC1C	TC1C 2	TCSM2A 2	
	F00	C08773	TRC0			
	F01	C08840	TR12-T			0
	F02	C08840	TR12-T			1
	F03	C08840	TR12-T			2
	F04	C08840	TR12-T			3
	F05	C08840	TR12-T			4
	F06	C08840	TR12-T			5
	F07	C08840	TR12-T			6
	F08	C08840	TR12-T			7
	F09	C08840	TR12-T			8
	F10	C08840	TR12-T			9
	F11	C08840	TR12-T			10
	F12	C08840	TR12-T			11
	F13	C08840	TR12-T			12
	F14	C08840	TR12-T			13
	F15	C08544/	PSC1/			
	F15	C08860	PSC1-S			New deliveries
058.37.		C08783	TC1C	TC1C 3	TCSM2A 3	

Position		Identification	Name	Cartridge	FU	Notes
	F00	C08773	TRC0			
	F01	C08840	TR12-T			0
	F02	C08840	TR12-T			1
	F03	C08840	TR12-T			2
	F04	C08840	TR12-T			3
	F05	C08840	TR12-T			4
	F06	C08840	TR12-T			5
	F07	C08840	TR12-T			6
	F08	C08840	TR12-T			7
	F09	C08840	TR12-T			8
	F10	C08840	TR12-T			9
	F11	C08840	TR12-T			10
	F12	C08840	TR12-T			11
	F13	C08840	TR12-T			12
	F14	C08840	TR12-T			13
	F15	C08544/	PSC1/			
	F15	C08860	PSC1-S			New deliveries
030.01.	C08783	TC1C		TC1C 4	TCSM2A 4	
	F00	C08773	TRC0			
	F01	C08840	TR12-T			0
	F02	C08840	TR12-T			1
	F03	C08840	TR12-T			2
	F04	C08840	TR12-T			3
	F05	C08840	TR12-T			4
	F06	C08840	TR12-T			5

Position		Identification	Name	Cartridge	FU	Notes
	F07	C08840	TR12-T			6
	F08	C08840	TR12-T			7
	F09	C08840	TR12-T			8
	F10	C08840	TR12-T			9
	F11	C08840	TR12-T			10
	F12	C08840	TR12-T			11
	F13	C08840	TR12-T			12
	F14	C08840	TR12-T			13
	F15	C08544/	PSC1/			
	F15	C08860	PSC1-S			New deliveries
030.37.		C08783	TC1C	TC1C 5	TCSM2A 5	
	F00	C08773	TRC0			
	F01	C08840	TR12-T			0
	F02	C08840	TR12-T			1
	F03	C08840	TR12-T			2
	F04	C08840	TR12-T			3
	F05	C08840	TR12-T			4
	F06	C08840	TR12-T			5
	F07	C08840	TR12-T			6
	F08	C08840	TR12-T			7
	F09	C08840	TR12-T			8
	F10	C08840	TR12-T			9
	F11	C08840	TR12-T			10
	F12	C08840	TR12-T			11
	F13	C08840	TR12-T			12

Position		Identification	Name	Cartridge	FU	Notes
	F14	C08840	TR12-T			13
	F15	C08544/	PSC1/			
	F15	C08860	PSC1-S			New deliveries
002.01.		C08783	TC1C	TC1C 6	TCSM2A 6	
	F00	C08773	TRC0			
	F01	C08840	TR12-T			0
	F02	C08840	TR12-T			1
	F03	C08840	TR12-T			2
	F04	C08840	TR12-T			3
	F05	C08840	TR12-T			4
	F06	C08840	TR12-T			5
	F07	C08840	TR12-T			6
	F08	C08840	TR12-T			7
	F09	C08840	TR12-T			8
	F10	C08840	TR12-T			9
	F11	C08840	TR12-T			10
	F12	C08840	TR12-T			11
	F13	C08840	TR12-T			12
	F14	C08840	TR12-T			13
	F15	C08544/	PSC1/			
	F15	C08860	PSC1-S			New deliveries
002.37		C08783	TC1C	TC1C 7	TCSM2A 7	
	F00	C08773	TRC0			
	F01	C08840	TR12-T			0
	F02	C08840	TR12-T			1

Position		Identification	Name	Cartridge	FU	Notes
	F03	C08840	TR12-T			2
	F04	C08840	TR12-T			3
	F05	C08840	TR12-T			4
	F06	C08840	TR12-T			5
	F07	C08840	TR12-T			6
	F08	C08840	TR12-T			7
	F09	C08840	TR12-T			8
	F10	C08840	TR12-T			9
	F11	C08840	TR12-T			10
	F12	C08840	TR12-T			11
	F13	C08840	TR12-T			12
	F14	C08840	TR12-T			13
	F15	C08544/	PSC1/			
	F15	C08860	PSC1-S			New deliveries

3.2 Equipping list for additional items

The following items are always needed for the TC2E rack assembly and they are included in the equipment delivery (see section *Equipping Lists for common items.*)

Item	Name	Identification	Description	Note
DS198	Door Set	C22226	2 doors, hinges, accessories	2 sets for one rack (R198A-T)
SP19A-S	Side Plate Assembly	C23711	2 plates, accessories	For one rack or a rack row
SP01A	Side Strip Assembly	C22281	2 plates, accessories	For UFS61-S, UFS81-S

Item	Name	Identification	Description	Note
TCSM2A	Label Set	C29465	Marking and warning labels	For one (two) rack (s)

3.3 Equipping list for optional items

The following items are optional, and the number of items required depends on the installation.

Item	Name	Identification	Description	Note
R2A1-S	Cabling Rack Assembly	C23709	Rack assembly with cable supports, grounding combs	For raised floor installation (WxD: 200 x 450 mm)
DS192	Door Set	C23515	2 doors, hinges, accessories	For Cabling Rack R2A1-S
CC19V	Cabling Conduit	C23517	1 end plate + 2 side plates + accessories	For raised floor installation (W = 140 mm)
USS1A	Upper Support Set for Racks	C23002	2 supports, accessories	To support the rack to wall or ceiling