

CR-Formv3	
CHANGE REQUEST	
✎ 25.944 CR 05 ✎ rev 1 ✎ Current version: 3.3.0 ✎	

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ✎ symbols.

Proposed change affects: ✎ (U)SIM ME/UE Radio Access Network Core Network

Title:	✎ 1.28 Mcps TDD related changes to 25.944		
Source:	✎ Siemens AG, CATT		
Work item code:	✎ LCRTDD	Date:	✎ 21.02.2001
Category:	✎ B	Release:	✎ REL-4
	Use <u>one</u> of the following categories: F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	✎ Inclusion of the Workitem LCRTDD in release 4		
Summary of change:	✎ This CR describes coding and multiplexing examples for 1.28Mcps TDD. In revision 1, the CR has been extended by the FPACH – coding (4.3.1.3) and by a 64kbps streaming example (4.3.1.4.2.5 and 4.3.2.2.5). Additionally the TrBlk Sizes in the “Example for PCH and FACH” (4.3.1.2) have been aligned with TSG T1 cf. Tdoc T1S-010029 for 34.108.		
Consequences if not approved:	✎ Incompleteness of TR25.944 with respect to LCR-TDD (1.28 Mcps TDD)		

Clauses affected:	✎ 4.2 (only heading), 4.3 (new section)		
Other specs affected:	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	✎	
Other comments:	✎		

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

4.2 TDD mode – 3.84Mcps TDD option

4.3 TDD mode – 1.28Mcps TDD option

4.3.1 Downlink

4.3.1.1 BCH

Table XX: Parameters for BCH

Transport block size	246 bit
CRC	16 bit
Coding	CC, coding rate = 1/3
TTI	20 ms
Codes and time slots	SF = 16 x 2 codes x 1 time slot
TFCI	0 bit
TPC	0 bit

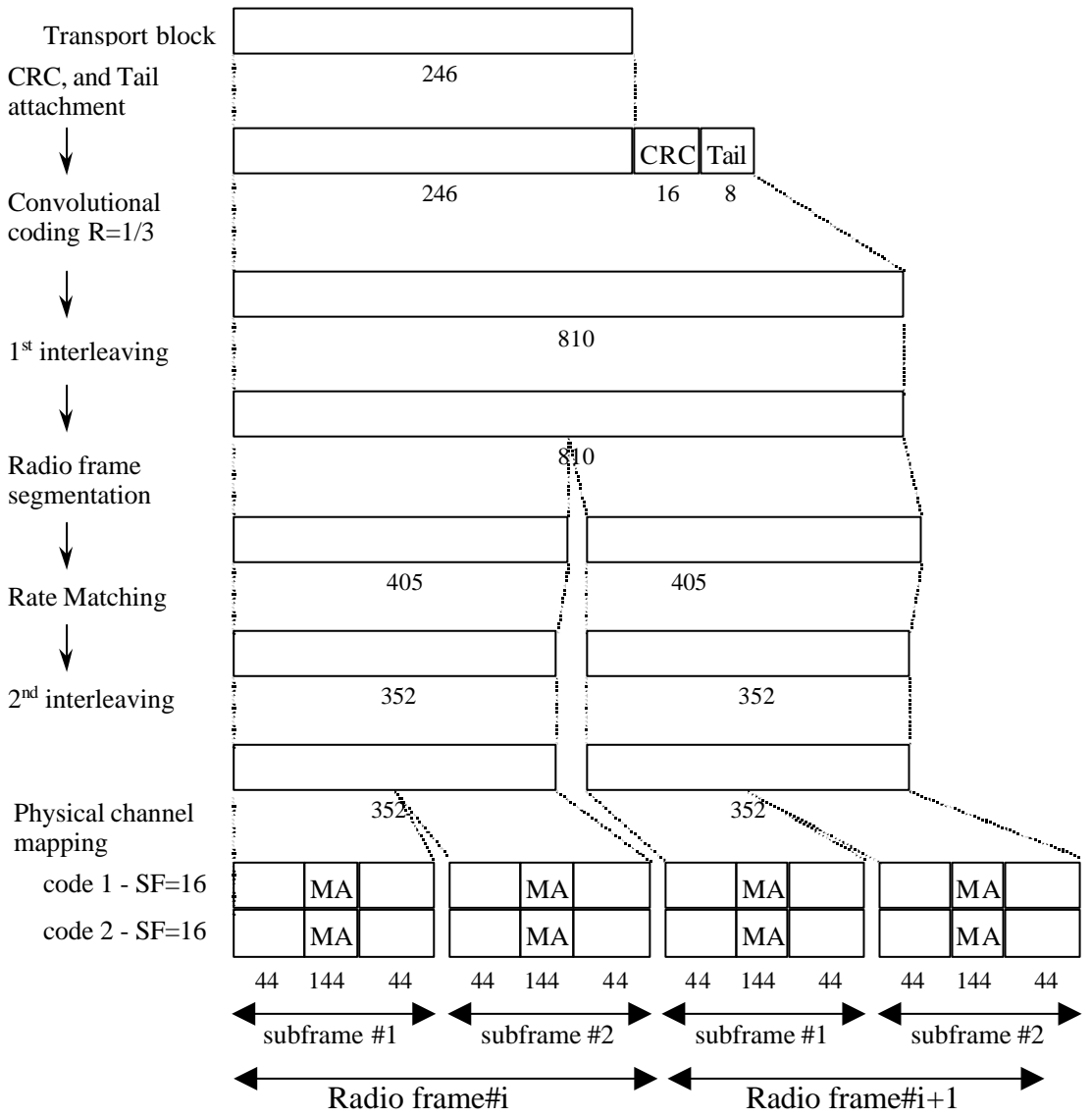


Figure XX: Channel coding for BCH

4.3.1.2 Example for PCH and FACH

Table XX: Parameters for PCH and FACH

<u>Transport block size</u>	<u>PCH</u>	<u>$N_{PCH}=80$ or <u>240 bit</u></u>
	<u>FACH1</u>	<u>363 bit</u>
	<u>FACH2</u>	<u>171 bit</u>
<u>Transport block set size</u>	<u>PCH</u>	<u>$80 \cdot B_{PCH}$ or $240 \cdot B_{PCH}$ bit ($B_{PCH}=0,1$)</u>
	<u>FACH1</u>	<u>$363 \cdot B_{FACH1}$ bit ($B_{FACH1}=0,1$)</u>
	<u>FACH2</u>	<u>$171 \cdot B_{FACH2}$ bit ($B_{FACH2}=0,1,2$)</u>
<u>Coding</u>	<u>PCH, FACH2</u>	<u>CC, coding rate = 1/2</u>
	<u>FACH1</u>	<u>TC</u>
<u>TTI</u>		<u>10 ms</u>
<u>Codes and time slots</u>		<u>SF = 16 x 6 codes x 1 time slot</u>
<u>IFCI</u>		<u>16 bit</u>
<u>TPC</u>		<u>0 bit</u>

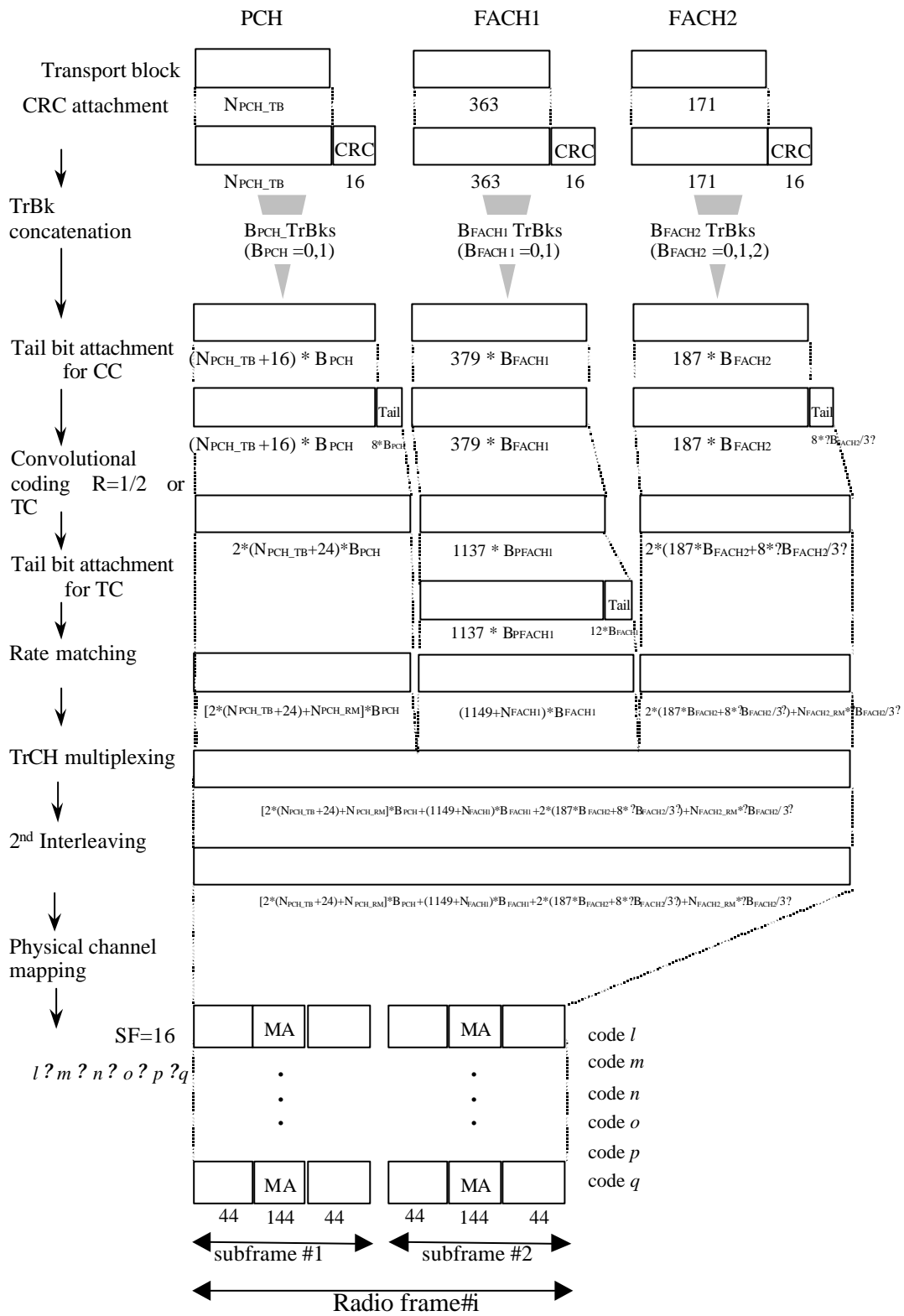


Figure XX: Channel coding and multiplexing example for PCH and FACH

4.3.1.3 Coding of FPACH

Table XX: Parameters for FPACH

<u>FPACH block size</u>	<u>32 bit</u>
<u>Coding</u>	<u>CC 1/2</u>
<u>TTI</u>	<u>5 ms, 1 subframe</u>
<u>Codes and time slots</u>	<u>SF = 16 x 1 codes x 1 time slot x 1 subframe</u>
<u>CRC</u>	<u>8 bit</u>

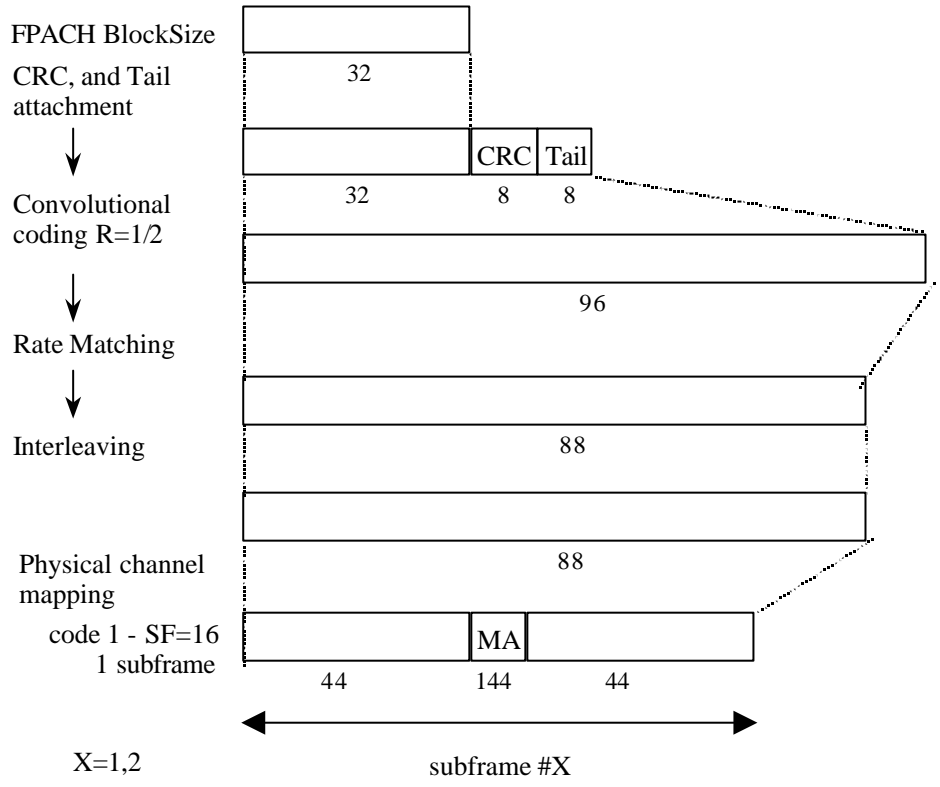


Figure XX: Coding for FPACH

4.3.1.4 Example for DCH

4.3.1.4.1 DCH-> Radio frame segmentation

The channel coding and multiplexing for DCH is common with the 3.84Mcps TDD option [cf. 4.2.1.3.1 'DCH-> Radio frame segmentation']

4.3.1.4.2 TrCH multiplexing -> Physical channel mapping

4.3.1.4.2.1 Example for Stand-alone mapping of 3.4 kbps data

NOTE: This example can be applied to Stand-alone mapping of DCCH.

Table XX shows example of physical channel parameters for Stand-alone mapping of 3.4 kbps data.

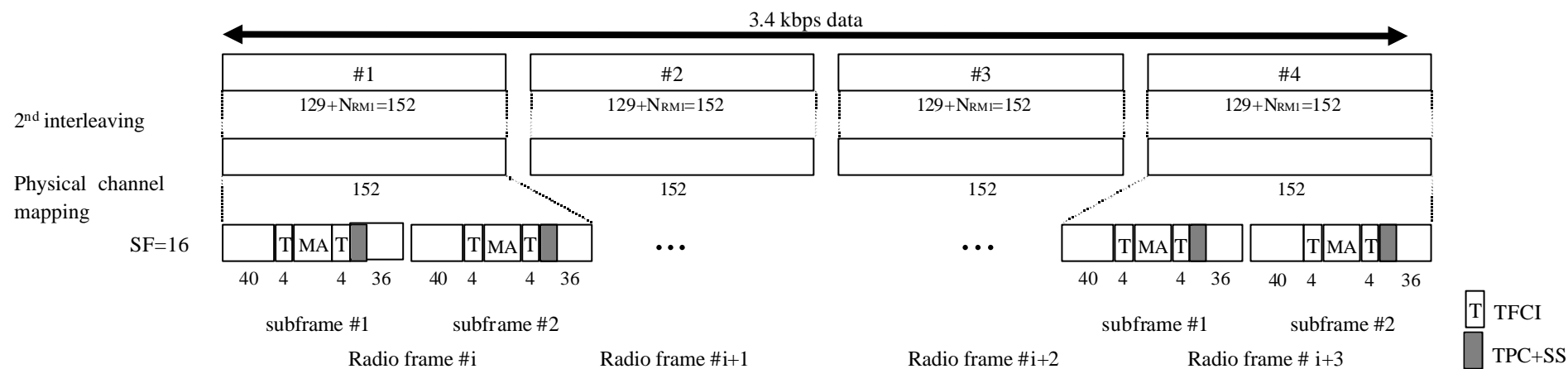


Figure XX: Channel coding and multiplexing example for Stand-alone mapping of 3.4 kbps data

Table XX: Physical channel parameters for Stand-alone mapping of 3.4 kbps data

Codes and time slots	SF16 x 1 code x 1 time slot
TFCI	16 bit
TPC + SS	2 bit + 2bit

4.3.1.4.2.2 Example for multiplexing of 12.2 kbps data and 3.4 kbps data

NOTE: This example can be applied to multiplexing AMR speech and DCCH.

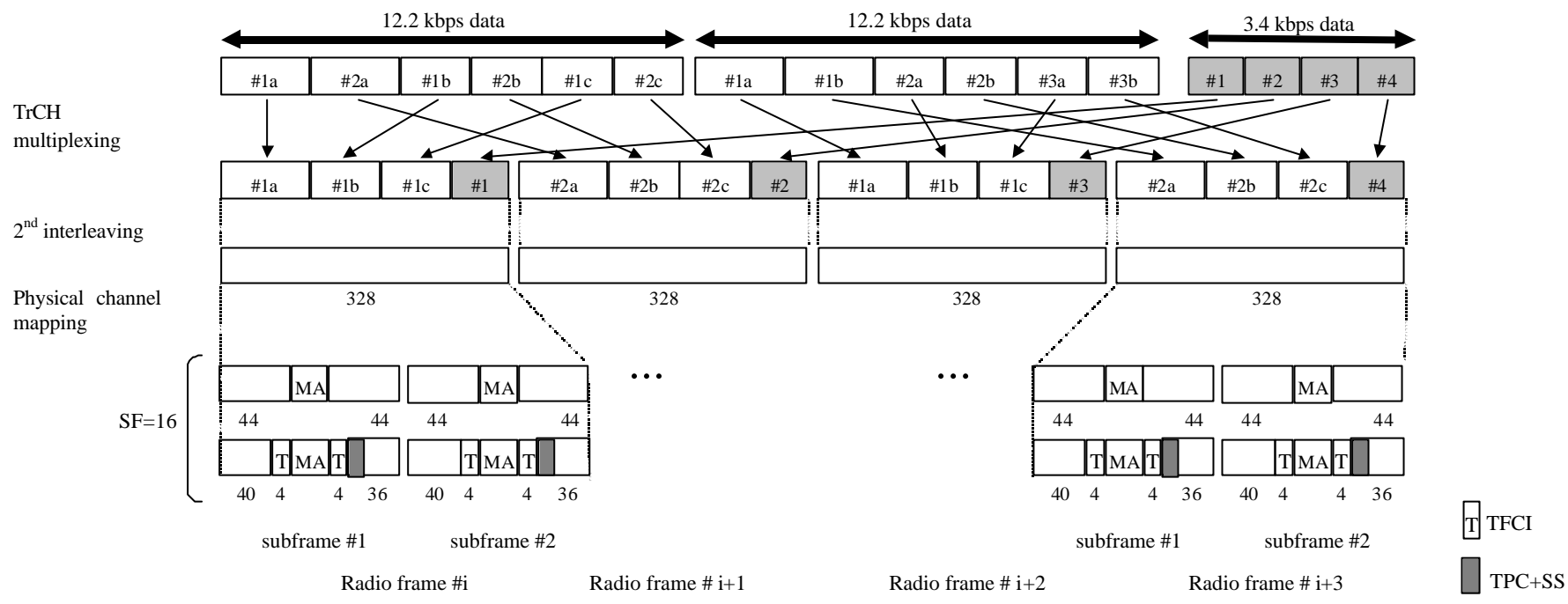


Figure XX: Channel coding and multiplexing example for multiplexing of 12.2 kbps data and 3.4 kbps data

Table XX: Physical channel parameters for multiplexing of 12.2 kbps data and 3.4 kbps data

Codes and time slots	SF16 x 2 codes x 1 time slot
TFCI	16 bit
TPC + SS	2 bit+ 2bit

4.3.1.4.2.3 Example for multiplexing of 28.8/57.6 kbps data 3.4 kbps data

NOTE: This example can be applied to multiplexing of Modem/FAX and DCCH.

Table XX shows example of physical channel parameters for multiplexing of 28.8/57.6 kbps data and 3.4 kbps data.

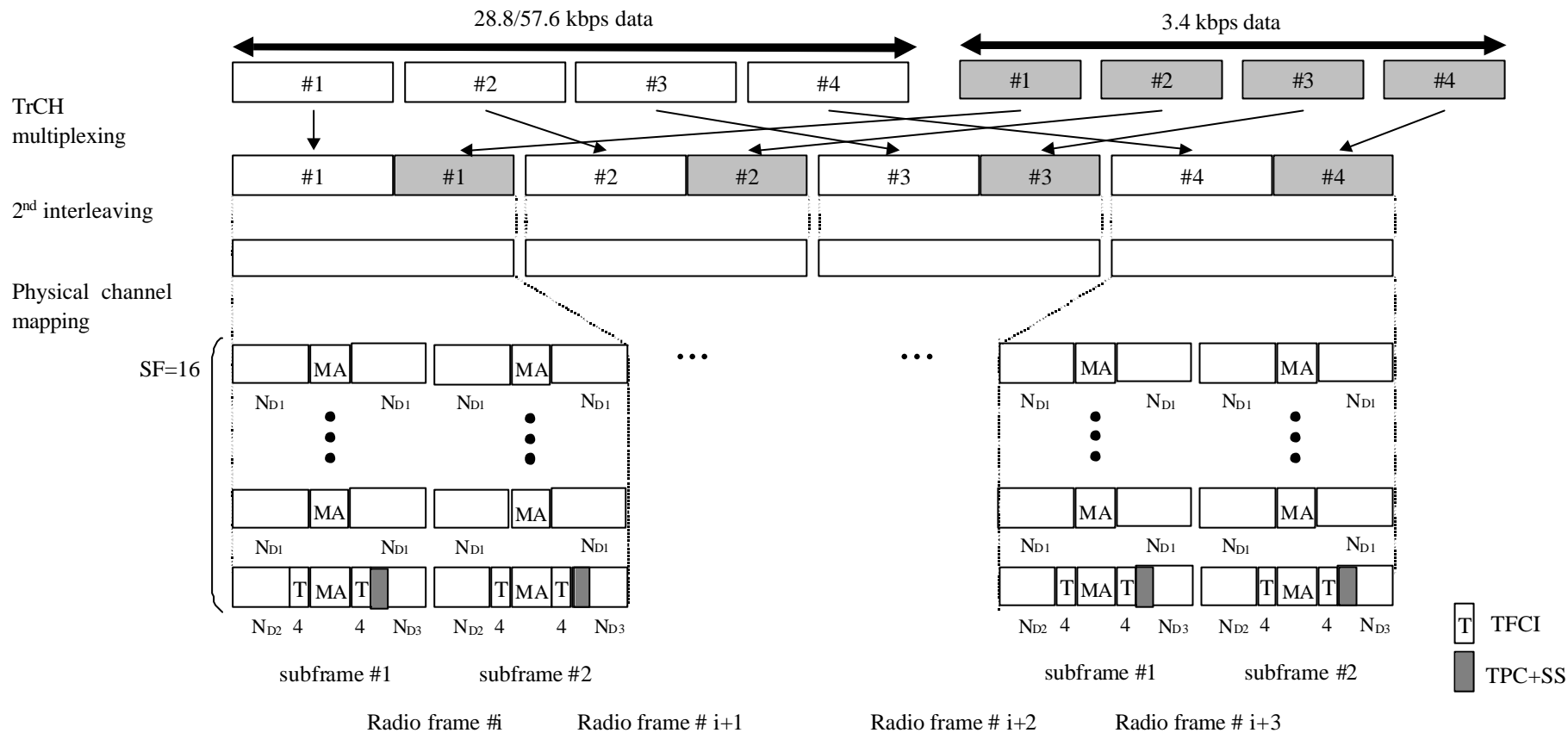


Figure XX: Channel coding and multiplexing example for multiplexing 28.8/57.6 kbps data and 3.4 kbps data

Table XX: Physical channel parameters for multiplexing of 28.8/57.6 kbps packet data and 3.4 kbps data

N_{D1}, N_{D2}, N_{D3}	28.8/57.6 kbps	44 bit, 40 bit, 36 bit
Code & time	28.8 kbps	SF16 x 3 codes x 1 time slot
slots	57.6 kbps	SF16 x 6 codes x 1 time slot
TFCI		16 bit
TPC + SS		2 bit + 2bit

4.3.1.4.2.4 Example for multiplexing of 64/128/144/384 kbps packet data and 3.4 kbps data

NOTE: This example can be applied to multiplexing 64/128/144/384 kbps packet data and DCCH.

Table XX shows example of physical channel parameters for multiplexing of 64/128/144/384 kbps packet data and 3.4 kbps data.

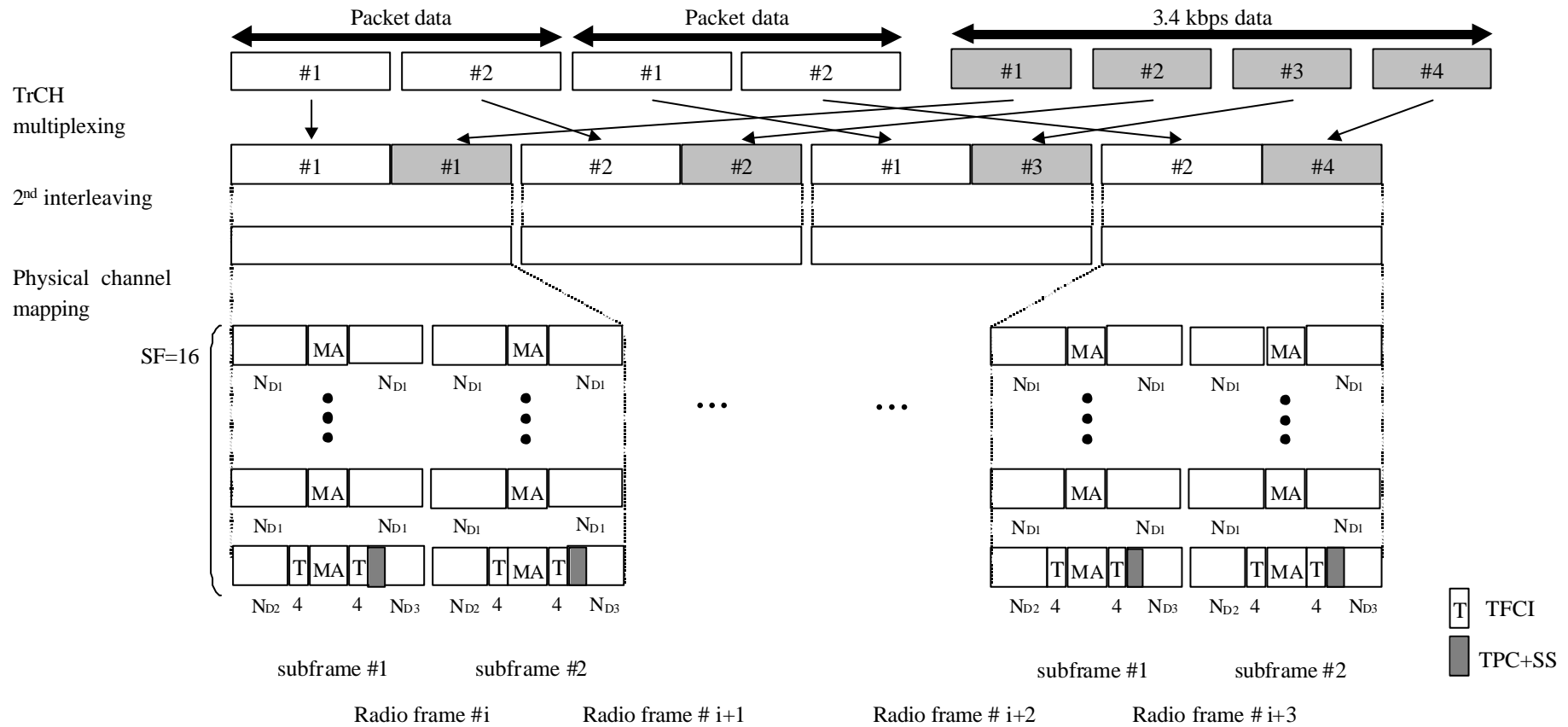


Figure XX: Channel coding and multiplexing example for multiplexing of 64/128/144/384 kbps packet data and 3.4 kbps data

Table XX: Physical channel parameters for multiplexing of 64/128/144/384 kbps packet data and 3.4 kbps data

<u>N_{D1}, N_{D2}, N_{D3}</u>	<u>64 & 128 & 144 & 384 kbps</u>	<u>44 bit, 40 bit, 36 bit</u>
<u>Code & time</u>	<u>64 kbps</u>	<u>SF16 x 8 codes x 1 time slot</u>
<u>slots</u>	<u>128 kbps</u>	<u>SF16 x 14 codes x 1 time slot</u>
	<u>144 kbps</u>	<u>SF16 x 8 codes x 2 time slots</u>
	<u>384 kbps</u>	<u>SF16 x 10 codes x 4 time slots</u>
<u>TFCI</u>		<u>16 bit</u>
<u>TPC + SS</u>		<u>2 bit + 2bit</u>

4.3.1.4.2.5 Example for multiplexing of 64 kbps data and 3.4 kbps data

NOTE: This example can be applied to multiplexing ISDNs data and DCCH.

Table XX shows example of physical channel parameters for multiplexing of 64 kbps data and 3.4 kbps data.

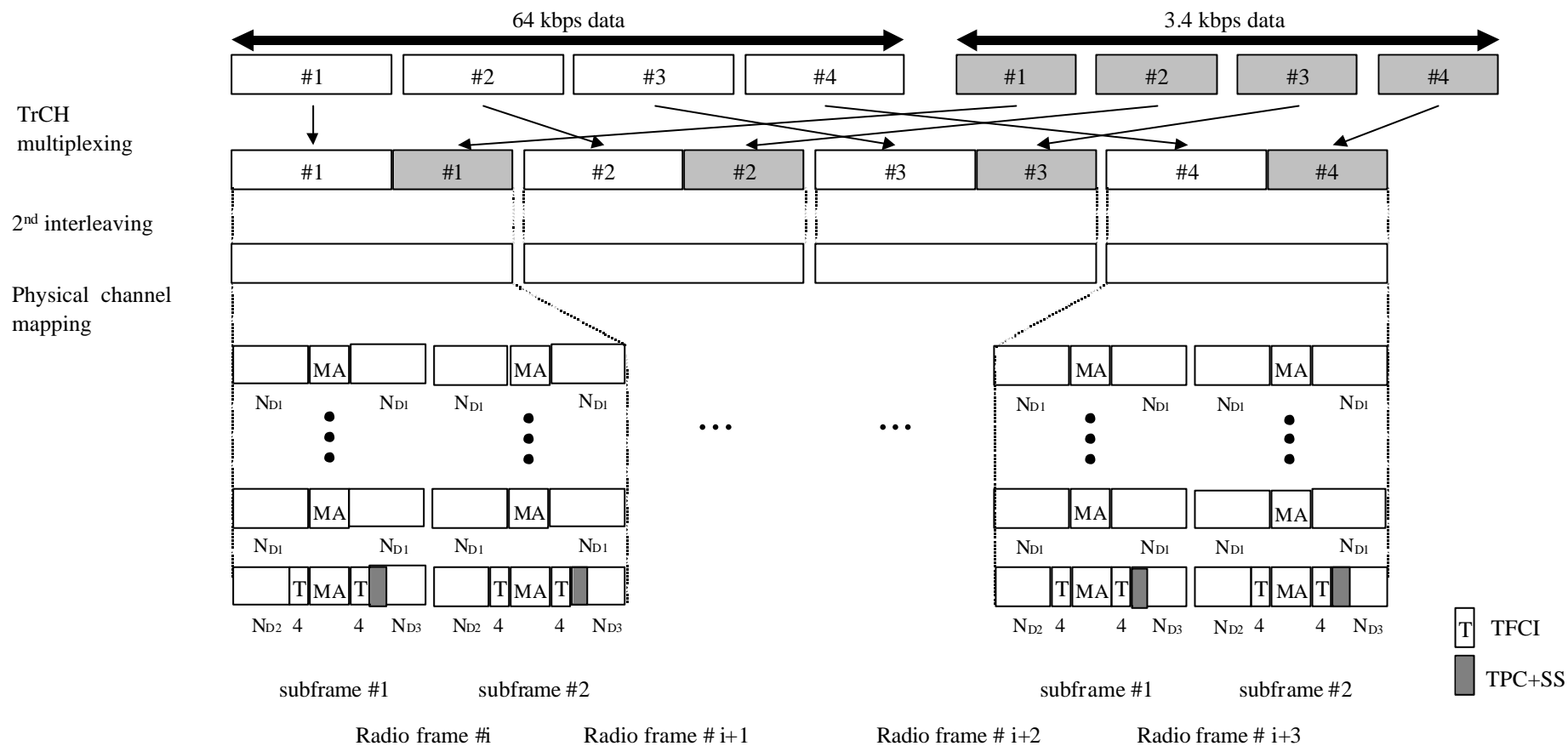


Figure XX: Channel coding and multiplexing example for multiplexing of 64 kbps data and 3.4 kbps data

Table XX: Physical channel parameters for multiplexing of 64 kbps packet data and 3.4 kbps data

<u>N_{D1}, N_{D2}, N_{D3}</u>	<u>44 bit, 40 bit, 36 bit</u>
<u>Code & time slots</u>	<u>SF16 x 8 codes x 1 time slot</u>
<u>TFCI</u>	<u>16 bit</u>
<u>TPC + SS</u>	<u>2 bit + 2bit</u>

4.3.1.4.2.6 Example for multiplexing of 12.2 kbps data, 64/128/144/384 kbps packet data and 3.4 kbps data

NOTE: This example is corresponding to multiplexing of AMR speech, 64/128/144/384 kbps packet and DCCH.

Table XX shows example of physical channel parameters for multiplexing of 12.2 kbps data, 64/128/144/384 kbps packet data and 3.4 kbps data.

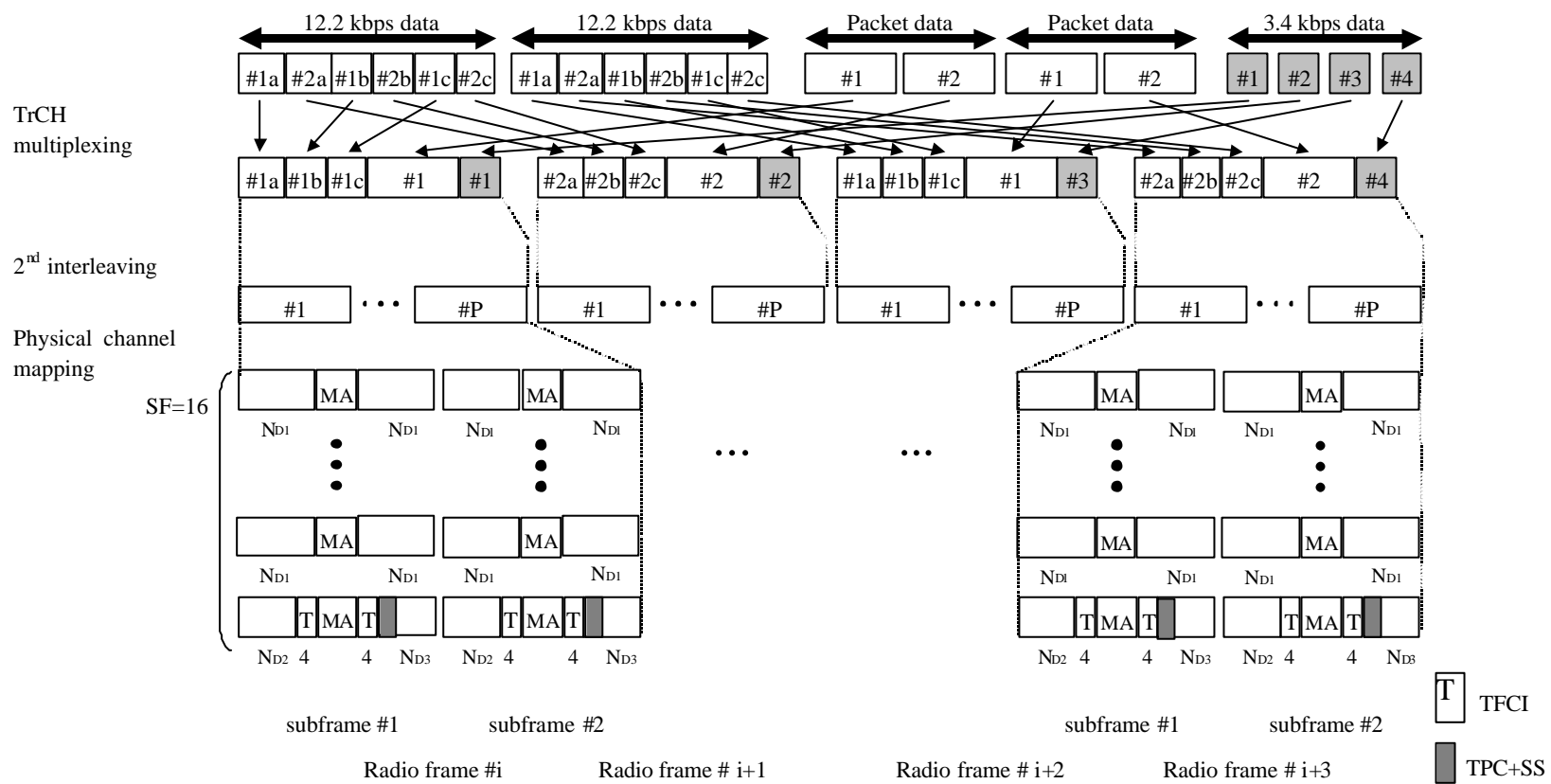


Figure XX: Channel coding and multiplexing example for multiplexing of 12.2 kbps data, 64/128/144/384 kbps packet data and 3.4 kbps data

Table XX Physical channel parameters for multiplexing of 12.2 kbps data, 64/128/144/384 kbps packet data and 3.4 kbps data

<u>Data rate (kbps)</u>	<u>No. of timeslots</u>	<u>No. of physical channels with SF16 per used TS</u>	<u>N_{TFCI}</u>	<u>N_{TPC} + N_{TPC}</u>
<u>64</u>	<u>1</u>	<u>8</u>	<u>16</u>	<u>2 + 2</u>
<u>128</u>	<u>1</u>	<u>14</u>	<u>16</u>	<u>2 + 2</u>
<u>144</u>	<u>2</u>	<u>8</u>	<u>16</u>	<u>2 + 2</u>
<u>384</u>	<u>4</u>	<u>10</u>	<u>16</u>	<u>2 + 2</u>

4.3.2 Uplink

4.3.2.1 RACH

Table XX: Parameters for RACH

<u>Transport block size</u>	<u>$N_{RACH}=168$</u>
<u>CRC</u>	<u>16 bit</u>
<u>Coding</u>	<u>CC, coding rate = 1/2</u>
<u>TTI</u>	<u>10 ms</u>
<u>Codes and time slots</u>	<u>SF = 8 x 1 x 1 code x 1 time slot</u>
<u>TFCI</u>	<u>0 bit</u>
<u>TPC</u>	<u>0 bit</u>

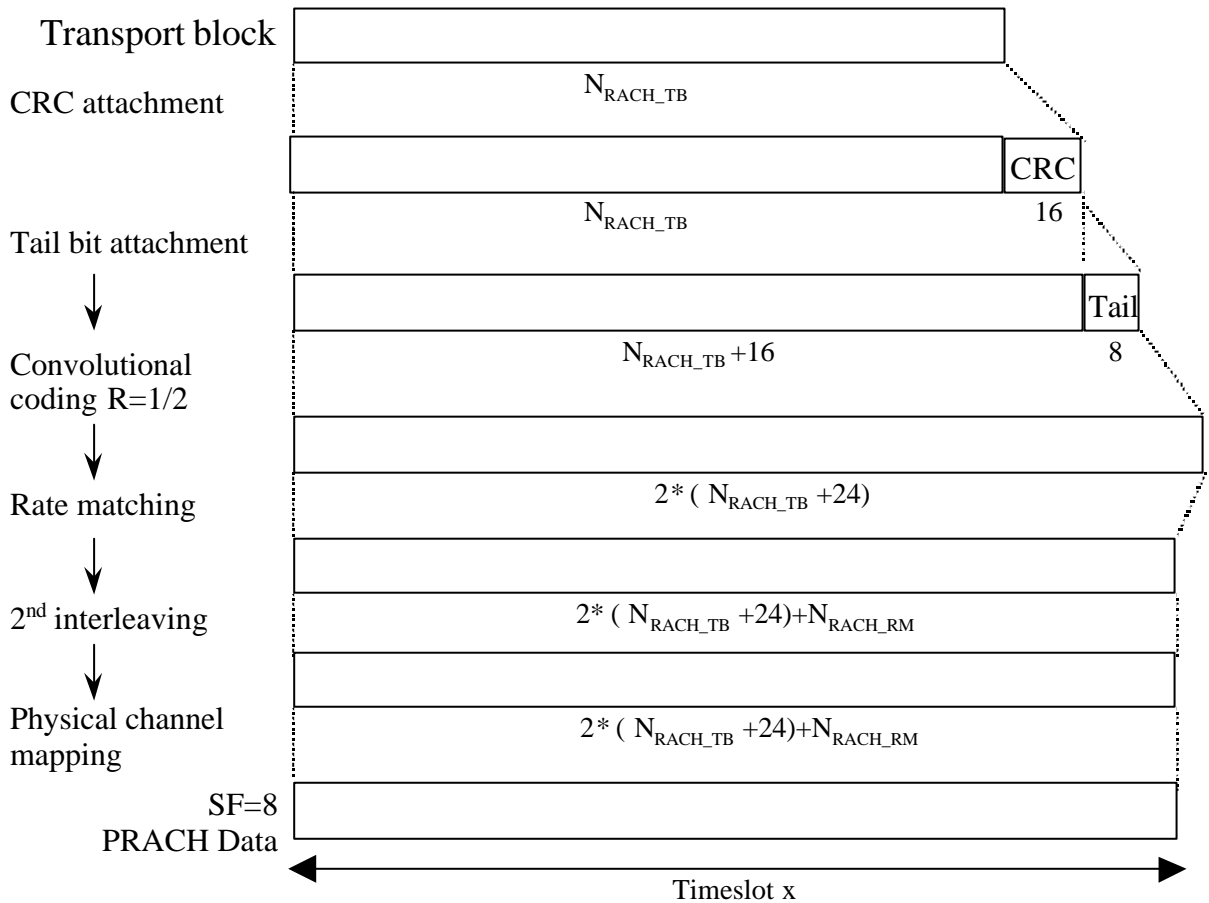


Figure XX: Channel coding and multiplexing example for PRACH

4.3.2.2 Example for DCH

4.3.2.2.1 DCH-> Radio frame segmentation

See 4.3.1.3.1

4.3.2.2.2 TrCH multiplexing -> Physical channel mapping

4.3.2.2.2.1 Example for Stand-alone mapping of 3.4 kbps data

NOTE: This example can be applied to Stand-alone mapping of DCCH.

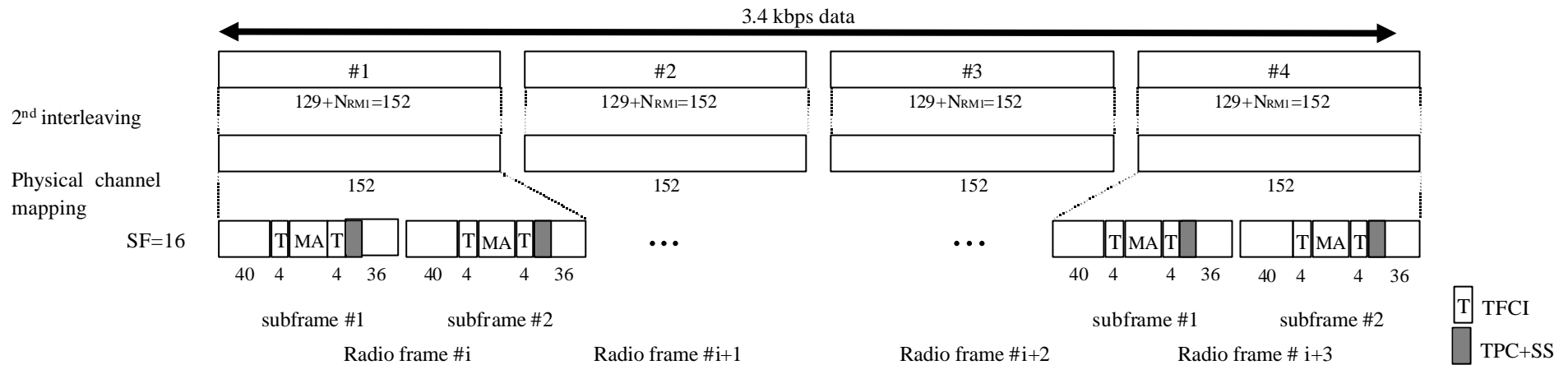


Figure XX: Channel coding and multiplexing example for Stand-alone mapping of 3.4 kbps data

4.3.2.2.2.2 Example for multiplexing of 12.2 kbps data and 3.4 kbps data

NOTE: This example can be applied to multiplexing AMR speech and DCCH.

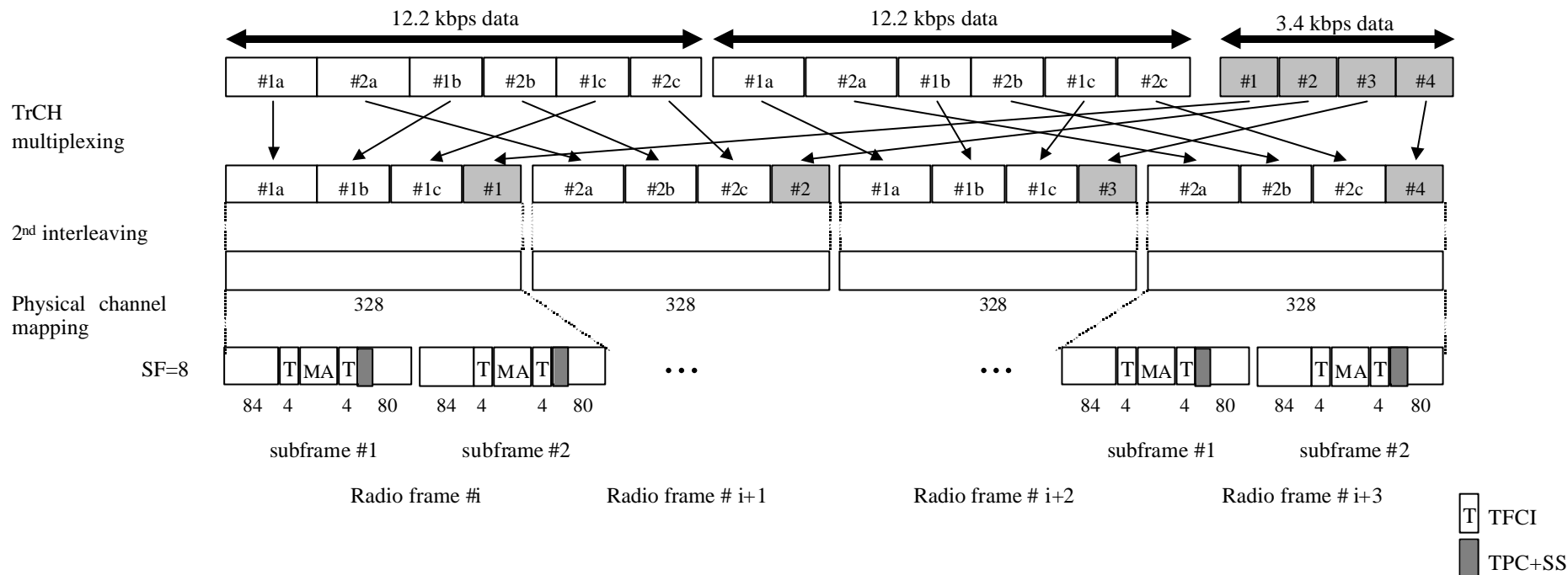


Figure XX: Channel coding and multiplexing example for multiplexing of 12.2 kbps data and 3.4 kbps data

Table XX: Physical channel parameters for multiplexing of 12.2 kbps data and 3.4 kbps data

<u>Codes and time slots</u>	<u>SF8 x 1 code x 1 time slot</u>
<u>TFCI</u>	<u>16 bit</u>
<u>TPC + SS</u>	<u>2 bit + 2bit</u>

4.3.2.2.2.3 Example for multiplexing of 28.8/57.6 kbps data and 3.4 kbps data

NOTE: This example can be applied to multiplexing of Modem/FAX and DCCH.

Table XX shows example of physical channel parameters for multiplexing of 28.8/57.6 kbps data and 3.4 kbps data.

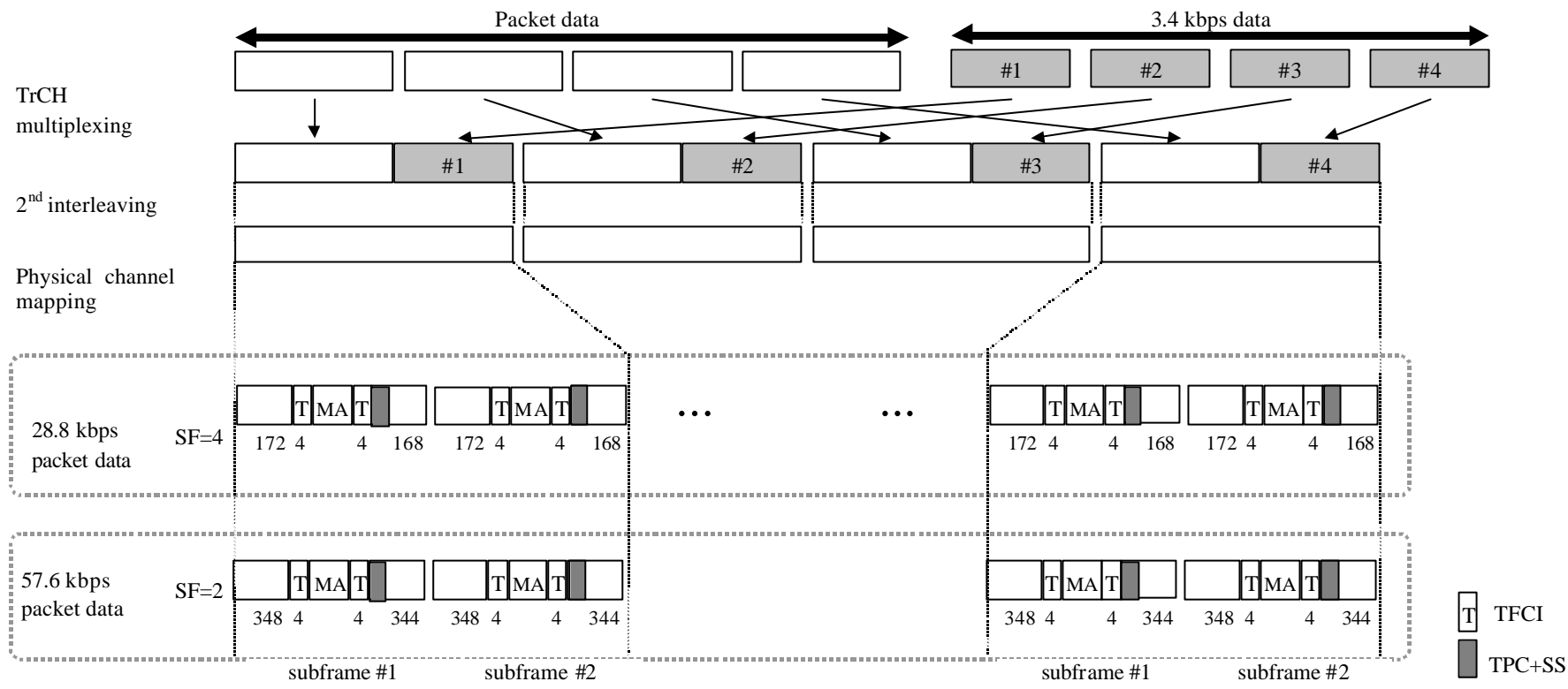


Figure XX: Channel coding and multiplexing example for multiplexing of 28.8/57.6 kbps data and 3.4 kbps data

Table XX: Physical channel parameters for multiplexing of 28.8/57.6 kbps data and 3.4 kbps data

Codes & time slots	28.8 kbps	(SF4 x 1 code) x 1 time slot
	57.6 kbps	(SF2 x 1 code) x 1 time slot
TFCI	16 bit	
TPC + SS	2 bit + 2bit	

4.3.2.2.4 Example for multiplexing of 64/128/144/384 kbps packet data and 3.4 kbps data

NOTE: This example can be applied to multiplexing 64/128/ 144/384 kbps packet data and DCCH.

Table XX shows example of physical channel parameters for multiplexing of 64/128/ 144/384 kbps packet data and 3.4 kbps data.

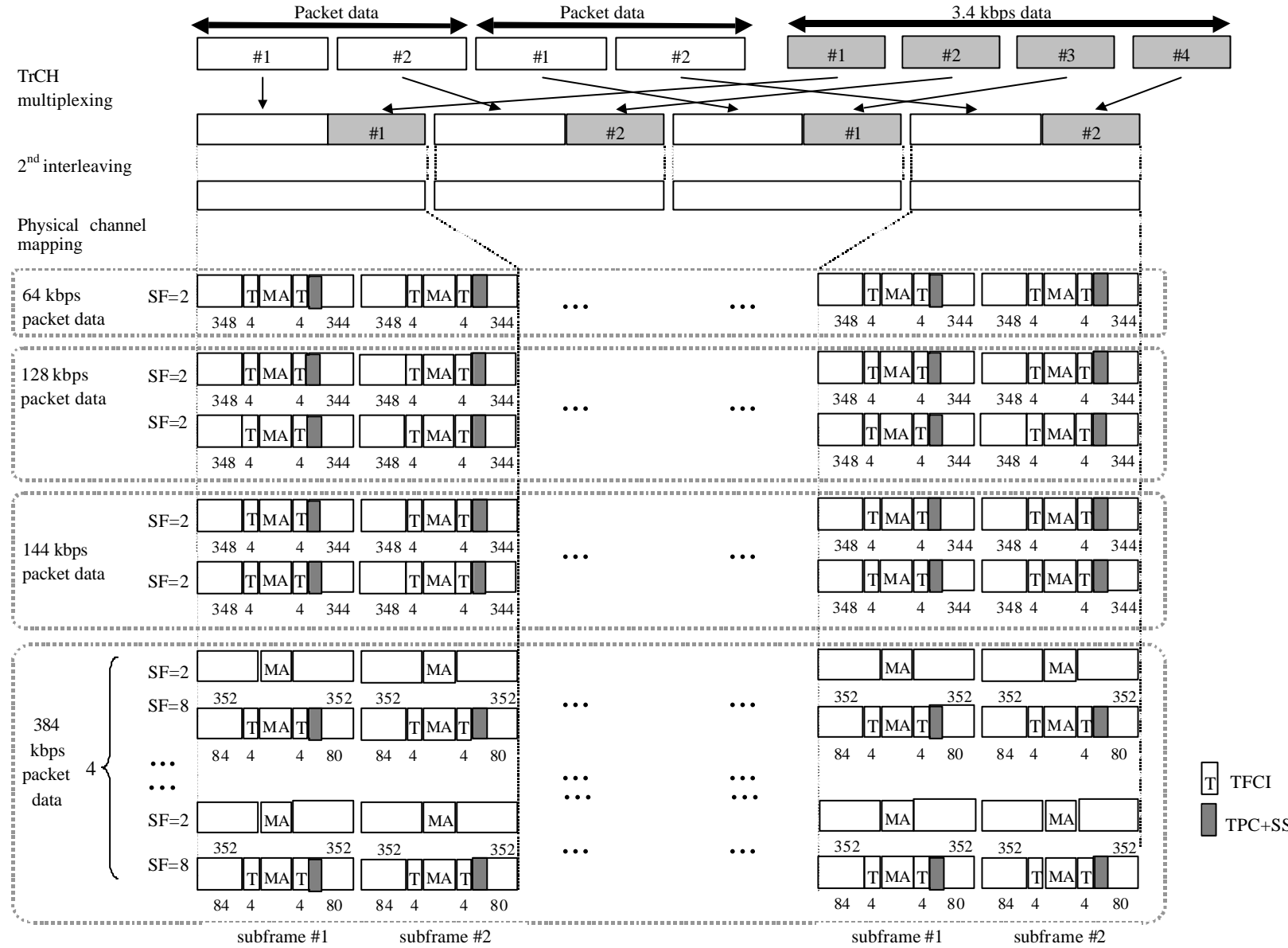


Figure XX: Channel coding and multiplexing example for multiplexing of 64/128/144/384 kbps packet data and 3.4 kbps data

Table XX: Physical channel parameters for multiplexing of 64/128/144/384 kbps packet data and 3.4 kbps data

<u>Codes & time</u>	<u>64 kbps</u>	<u>(SF2 x 1 code) x 1 time slot</u>
<u>slots</u>	<u>128 kbps</u>	<u>(SF2 x 1 code) x 2 time slots</u>
	<u>144 kbps</u>	<u>(SF2 x 1 code) x 2 time slots</u>
	<u>384 kbps</u>	<u>{(SF8 x 1code) + (SF2 x 1 code)} x 4 time slots</u>
<u>TFCI</u>		<u>16 bit</u>
<u>TPC + SS</u>		<u>2 bit + 2bit</u>

4.3.2.2.2.5 Example for multiplexing of 64 kbps data and 3.4 kbps data

NOTE: This example can be applied to multiplexing ISDNs data and DCCH.

Table XX shows example of physical channel parameters for multiplexing of 64 kbps data and 3.4 kbps data.

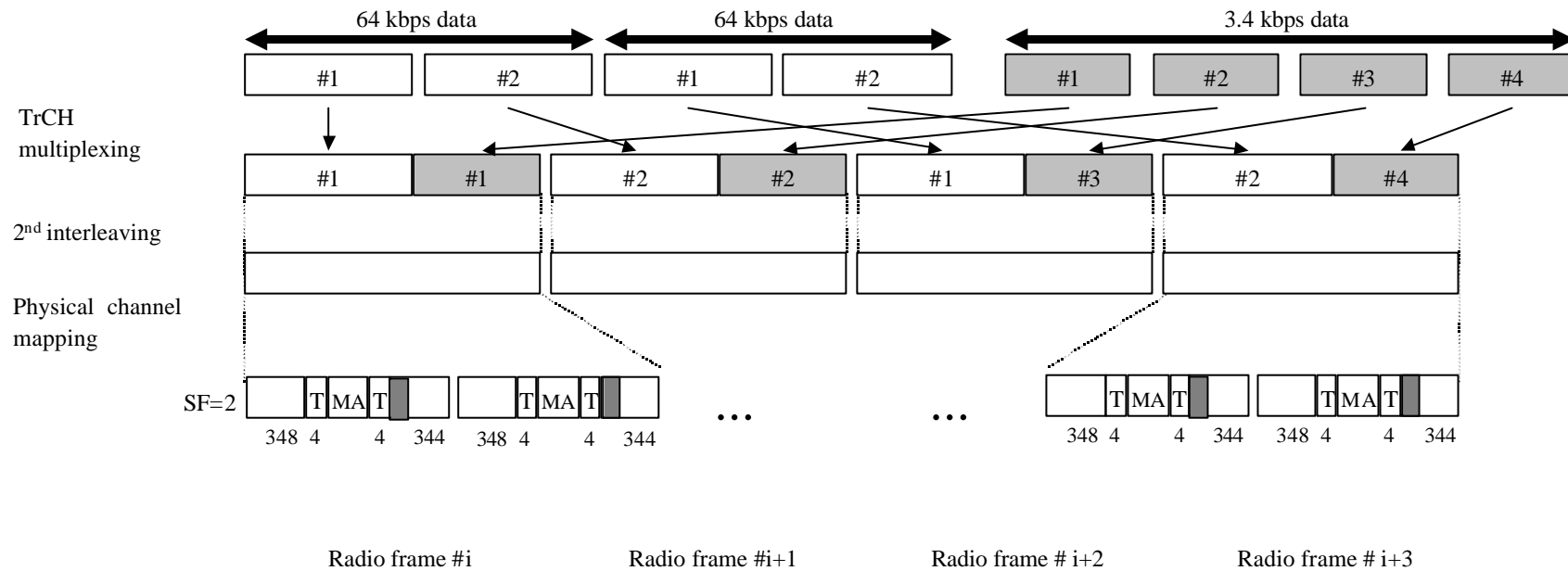


Figure XX: Channel coding and multiplexing example for multiplexing of 64 kbps packet data and 3.4 kbps data

Table XX: Physical channel parameters for multiplexing of 64 kbps packet data and 3.4 kbps data

<u>Codes & time slots</u>	<u>(SF2 x 1 code) x 1 time slot</u>
<u>TFCI</u>	<u>16 bit</u>
<u>TPC + SS</u>	<u>2 bit+ 2bit</u>