

**TCH/EFS  
(Enhanced full  
rate speech TCH)**

speech frame  
244 bits  
**3.1**

cyclic code  
+ repetition  
in: 244 bits  
out: 260 bits  
**3.1.1**

**TCH/HS  
(half rate  
speech TCH)**

speech frame  
112 bits  
**3.2**

**TCH/FS  
(full rate  
speech TCH)**

speech frame  
260 bits  
**3.1**

SACCH, FACCH,  
BCCH, CBCH, PCH  
AGCH, SDCCH  
CTSAGCH, CTSPCH

**PRACH  
PTCCH/U**

RACH,  
SCH  
CTSBCCH-SB,  
CTSARCH

PDTCH(1-4),  
PBCCCH, PAGCH,  
PPCH, PNCH,  
PTCCH/D

message  
P0 bits  
**4.6, 4.7, 5.3.2**

**RLC block  
Q0 bits  
5.1.n.1**

interface  
0

interface  
1

interface  
2

interface  
3

interface  
4

**data TCHs**

message  
184 bits  
**4.1.1**

data frame  
N0 bits  
**3.n.1**

message  
P0 bits  
**4.6, 4.7, 5.3.2**

**RLC block  
Q0 bits  
5.1.n.1**

cyclic code  
+ tail  
in: 112 bits  
out: 121 bits  
**3.2.1**

cyclic code  
+ tail  
in: 260 bits  
out: 267 bits  
**3.1.1**

Fire code  
+tail  
in: 184 bits  
out: 228 bits  
**4.1.2**

+tail  
in: N0 bits  
out: N1 bits  
**3.n.2**

cyclic code  
+ tail  
in: P0 bits  
out: P1 bits  
**4.6, 4.7, 5.3.2**

cyclic code  
+ tail  
in: Q0 bits  
out: Q1 bits  
**5.1.n.2**

convolutional  
code  
k=7, 2 classes  
in: 121 bits  
out: 228 bits  
**3.2.2**

convolutional  
code  
k=5, 2 classes  
in: 267 bits  
out: 456 bits  
**3.1.2**

convolutional  
code  
k=5, rate 1/2  
in: 228 bits  
out: 456 bits  
**4.1.3**

convolutional  
code  
k=5, rate r  
in: N1 bits  
out: 456 bits  
**3.n.3**

convolutional  
code  
k=5, rate r  
in: P1  
out: P2 bits  
**4.6, 4.7, 5.3.2**

convolutional  
code  
k=5, rate r  
in: Q1 bits  
out: 456 bits  
**5.1.n.3**

others

CS-4

TCH/F2.4 others

reordering and partitioning  
+stealing flag  
in: 228 bits  
out: 4 blocks  
**3.2.3**

reordering and partitioning  
+stealing flag  
in: 456 bits  
out: 8 blocks  
**3.1.3, 4.1.4, 4.3.4**

reordering and partitioning  
+code identifier  
in: 456 bits  
out: 8 blocks  
**4.1.4**

others

block diagonal  
interleaving  
in: 4 blocks  
out: pairs of  
blocks  
**3.2.3**

block diagonal  
interleaving  
in: 8 blocks  
out: pairs of  
blocks  
**3.1.3, 4.3.4**

block rectangular  
interleaving  
in: 8 blocks  
out: pairs of  
blocks  
**4.1.4**

diagonal interleaving  
+ stealing flags  
in: 456 bits  
out: 4 blocks  
diagonally interleaved  
to depth 19, starting  
on consecutive bursts  
**3.n.4**

encryption unit

**Figure 1a: Channel Coding and Interleaving Organization**