



# SLOVENSKI STANDARD

## SIST EN 300 908 V8.2.1:2003

01-december-2003

---

8 [[ ]HJb]`W] b]`h`Y`ca i b]`UW]`g\_]`g]ghYa `fZuU&ZL`E`Ai `h]d`Y`g]fUb`Y]b]`j`Y`\_fUtb]`  
Xcghcd`bUfUX]`g\_]`dch]`f] GA`\$)`\$&zfUh`] ]WJ, "&`%z]nXUU%`--`Ł

Digital cellular telecommunications system (Phase 2+) (GSM); Multiplexing and multiple access on the radio path (GSM 05.02 version 8.2.1 Release 1999)

**iteh STANDARD PREVIEW**  
**(standards.iteh.ai)**

Ta slovenski standard je istoveten z: **EN 300 908 Version 8.2.1**

SIST EN 300 908 V8.2.1:2003  
<https://standards.iteh.ai/catalog/standards/sist/1a883dce-79bc-4d09-9560-a6f814fe50f1/sist-en-300-908-v8-2-1-2003>

---

**ICS:**

33.070.50	Globalni sistem za mobilno telekomunikacijo (GSM)	Global System for Mobile Communication (GSM)
-----------	---	--

**SIST EN 300 908 V8.2.1:2003**

**en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN 300 908 V8.2.1:2003](https://standards.iteh.ai/catalog/standards/sist/1a883dcc-79bc-4d69-95b0-a6f814fe50f1/sist-en-300-908-v8-2-1-2003)

<https://standards.iteh.ai/catalog/standards/sist/1a883dcc-79bc-4d69-95b0-a6f814fe50f1/sist-en-300-908-v8-2-1-2003>

# ETSI EN 300 908 V8.2.1 (2000-06)

*European Standard (Telecommunications series)*

**Digital cellular telecommunications system (Phase 2+);  
Multiplexing and multiple access on the radio path  
(GSM 05.02 version 8.2.1 Release 1999)**

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

**GSM**®  
GLOBAL SYSTEM FOR  
MOBILE COMMUNICATIONS

[SIST EN 300 908 V8.2.1:2003](https://standards.iteh.ai/catalog/standards/sist/1a883dcc-79bc-4d69-95b0-a6f814fe50f1/sist-en-300-908-v8-2-1-2003)

<https://standards.iteh.ai/catalog/standards/sist/1a883dcc-79bc-4d69-95b0-a6f814fe50f1/sist-en-300-908-v8-2-1-2003>



---

**Reference**

REN/SMG-020502Q8

---

**Keywords**Digital cellular telecommunications system,  
Global System for Mobile communications (GSM)**ETSI**650 Route des Lucioles  
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C  
Association à but non lucratif enregistrée à la  
Sous-Préfecture de Grasse (06) N° 7803/88**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**SIST EN 300 908 V8.2.1:2003<https://standards.iteh.ai/catalog/standards/sist/1a883dcc-79bc-4d69-95b0-a6f814fe50f1/sist-en-300-908-v8-2-1-2003>

---

**Important notice**

Individual copies of the present document can be downloaded from:

<http://www.etsi.org>

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF).

In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at <http://www.etsi.org/tb/status/>

If you find errors in the present document, send your comment to:  
editor@etsi.fr

---

**Copyright Notification**

No part may be reproduced except as authorized by written permission.  
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2000.  
All rights reserved.

# Contents

Intellectual Property Rights .....	6
Foreword .....	6
1 Scope .....	7
1.1 References .....	7
1.2 Abbreviations .....	8
2 General .....	8
3 Logical channels .....	8
3.1 General .....	8
3.2 Traffic channels .....	8
3.2.1 General .....	8
3.2.2 Speech traffic channels .....	9
3.2.3 Circuit switched data traffic channels .....	9
3.2.4 Packet data traffic channels (PDTCH) .....	9
3.3 Control channels .....	9
3.3.1 General .....	9
3.3.2 Broadcast channels .....	10
3.3.2.1 Frequency correction channels (FCCH and CFCH) .....	10
3.3.2.2 Synchronization channels .....	10
3.3.2.2.1 Synchronization channel (SCH) .....	10
3.3.2.2.2 COMPACT synchronization channel (CSCH) .....	10
3.3.2.3 Broadcast control channel (BCCH) .....	11
3.3.2.4 Packet Broadcast Control Channels .....	11
3.3.2.4.1 Packet Broadcast Control Channel (PBCCH) .....	11
3.3.2.4.2 COMPACT Packet Broadcast Control Channel (CPBCCH) .....	12
3.3.3 Common control type channels .....	12
3.3.3.1 Common control type channels, known when combined as a common control channel (CCCH) .....	12
3.3.3.2 Packet Common control channels .....	12
3.3.3.2.1 Packet Common Control Channels (PCCCCH) .....	12
3.3.3.2.2 COMPACT Common Control Channels (CPCCCCH) .....	13
3.3.4 Dedicated control channels .....	13
3.3.4.1 Circuit switched dedicated control channels .....	13
3.3.4.2 Packet dedicated control channels .....	13
3.3.5 Cell Broadcast Channel (CBCH) .....	13
3.3.6 CTS control channels .....	14
3.3.6.1 CTS beacon channel (BCH) .....	14
3.3.6.2 CTS paging channel (CTSPCH) .....	14
3.3.6.3 CTS access request channel (CTSARCH) .....	14
3.3.6.4 CTS access grant channel (CTSAGCH) .....	14
3.4 Combination of channels .....	14
4 The physical resource .....	14
4.1 General .....	14
4.2 Radio frequency channels .....	15
4.2.1 Cell allocation and mobile allocation .....	15
4.2.2 Downlink and uplink .....	15
4.3 Timeslots, TDMA frames, and time groups .....	15
4.3.1 General .....	15
4.3.2 Timeslot number .....	15
4.3.3 TDMA frame number .....	16
4.3.4 Time group .....	16
5 Physical channels .....	16
5.1 General .....	16
5.2 Bursts .....	16
5.2.1 General .....	16

5.2.2	Types of burst and burst timing .....	17
5.2.3	Normal burst (NB) .....	17
5.2.4	Frequency correction burst (FB) .....	19
5.2.5	Synchronization Burst (SB) .....	19
5.2.6	Dummy burst .....	20
5.2.7	Access burst (AB) .....	20
5.2.8	Guard period .....	21
5.3	Physical channels and bursts .....	21
5.4	Radio frequency channel sequence .....	21
5.5	Timeslot and TDMA frame sequence .....	21
5.6	Parameters for channel definition and assignment .....	22
5.6.1	General .....	22
5.6.2	General parameters .....	22
5.6.3	Specific parameters .....	22
6	Mapping of logical channels onto physical channels .....	22
6.1	General .....	22
6.2	Mapping in frequency of logical channels onto physical channels .....	23
6.2.1	General .....	23
6.2.2	Parameters .....	23
6.2.3	Hopping sequence generation .....	24
6.2.4	Specific cases .....	25
6.2.5	Change in the frequency allocation of a base transceiver station .....	25
6.2.6	Frequency assignment in CTS .....	25
6.3	Mapping in time of logical channels onto physical channels .....	25
6.3.1	Mapping in time of circuit switched logical channels onto physical channels .....	25
6.3.1.1	General .....	25
6.3.1.2	Key to the mapping table of clause 7 .....	26
6.3.1.3	Mapping of BCCH data .....	26
6.3.1.4	Mapping of SID Frames .....	27
6.3.2	Mapping in time of packet logical channels onto physical channels .....	27
6.3.2.1	General .....	27
6.3.2.2	Mapping of the uplink channels .....	28
6.3.2.2.1	Mapping of uplink packet traffic channel (PDTCH/U) and PACCH/U .....	28
6.3.2.2.2	Mapping of the Packet Timing Advance Control Channel (PTCCH/U) .....	28
6.3.2.2.3	Mapping of the uplink PCCCH i.e. PRACH .....	29
6.3.2.2.3a	Mapping of the COMPACT uplink CPCCCH i.e. CPRACH .....	29
6.3.2.3	Mapping of the downlink channels .....	29
6.3.2.3.1	Mapping of the (PDTCH/D) and PACCH/D .....	29
6.3.2.3.2	Mapping of the PTCCH/D .....	29
6.3.2.3.3	Mapping of the PBCCH .....	29
6.3.2.3.3a	Mapping of the COMPACT CPBCCH .....	29
6.3.2.3.4	Mapping of the PCCCH .....	29
6.3.2.3.4a	Mapping of the COMPACT CPCCCH .....	30
6.3.2.4	Mapping of PBCCH data .....	30
6.3.2.4a	Mapping of COMPACT CPBCCH data .....	31
6.3.3	Mapping in time of CTS control channels onto physical channels .....	31
6.3.3.1	CTSBCH timeslot assignment .....	31
6.3.3.2	CTSPCH, CTSARCH and CTSAGCH timeslot assignment .....	33
6.4	Permitted channel combinations .....	33
6.4.1	Permitted channel combinations onto a basic physical channel .....	33
6.4.2	Multislot configurations .....	34
6.4.2.1	Multislot configurations for circuit switched connections .....	34
6.4.2.2	Multislot configurations for packet switched connections .....	35
6.5	Operation of channels and channel combinations .....	35
6.5.1	General .....	35
6.5.2	Determination of CCCH_GROUP and PAGING_GROUP for MS in idle mode .....	37
6.5.3	Determination of specific paging multiframe and paging block index .....	38
6.5.4	Short Message Service Cell Broadcast (SMSCB) .....	38
6.5.5	Voice group and voice broadcast call notifications .....	38
6.5.6	Determination of PCCCH_GROUP and PAGING_GROUP for MS in GPRS attached mode .....	39

6.5.7	Determination of CTS_PAGING_GROUP and specific paging 52-multiframe for MS in CTS mode.....	40
<b>Annex A (normative): Phase 2 mobiles in a Phase 1 infrastructure .....</b>		<b>59</b>
A.1	Scope .....	59
A.2	Implementation options for TCH channels .....	59
A.2.1	C0 filling on the TCH.....	59
A.2.1.1	A dummy burst with (BN61, BN62, BN86) = training sequence bits of normal bursts.....	59
A.2.1.2	A dummy burst with the "C0 filling training sequence .....	59
A.2.1.3	A dummy burst with ( BN61, BN62, BN86) mapped from the TSC bits of normal bursts according to the table; below .....	59
A.2.1.4	Partial SID information.....	59
A.2.2	Half burst filling .....	59
A.2.2.1	Partial SID information from any associated SID frame; or .....	60
A.2.2.2	The mixed bits of the dummy bursts (encrypted or not encrypted).....	60
A.2.3	Dummy burst Stealing flag .....	60
A.2.4	Half burst Filling Stealing flag .....	60
A.2.5	Allowed combinations .....	60
A.3	Idle Channels.....	60
<b>Annex B (normative): Multislot capability.....</b>		<b>61</b>
B.1	MS classes for multislot capability .....	61
B.2	Constraints imposed by the service selected.....	63
B.3	Network requirements for supporting MS multislot classes .....	63
<b>Annex C (Informative): CTSBCH Timeslot shifting example.....</b>		<b>66</b>
<b>Annex D (Informative): COMPACT multiframe structure examples.....</b>		<b>67</b>
<b>Annex E (informative): Change control history.....</b>		<b>75</b>
History .....		77

## Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<http://www.etsi.org/ipr>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

## Foreword

This European Standard (Telecommunications series) has been produced by the Special Mobile Group (SMG).

The present document defines the physical channels of the radio sub-system required to support the logical channels of the digital mobile cellular and personal communication systems operating in the 900 MHz and 1 800 MHz band (GSM 900 and DCS 1 800).

The contents of the present document are subject to continuing work within SMG and may change following formal SMG approval. Should SMG modify the contents of the present document it will then be republished by ETSI with an identifying change of release date and an increase in version number as follows:

Version 8.x.y

where:

- 8 indicates release 1999 of GSM Phase 2+.
- x the second digit is incremented for changes of substance, i.e. technical enhancements, corrections, updates, etc.
- y the third digit is incremented when editorial only changes have been incorporated in the specification.

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)

SIST EN 300 908 V8.2.1:2003

<https://standards.iteh.ai/catalog/standards/sist/1a885dce-79bc-4d09-9500-a6f814fe50f1/sist-en-300-908-v8-2-1-2003>

### National transposition dates

Date of adoption of this EN:	12 May 2000
Date of latest announcement of this EN (doa):	31 August 2000
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	28 February 2001
Date of withdrawal of any conflicting National Standard (dow):	28 February 2001



# 1 Scope

The present document defines the physical channels of the radio sub-system required to support the logical channels. It includes a description of the logical channels and the definition of frequency hopping, TDMA frames, timeslots and bursts.

## 1.1 References

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.
- For this Release 1999 document, references to GSM documents are for Release 1999 versions (version 8.x.y).

- [1] GSM 01.04: "Digital cellular telecommunications system (Phase 2+); Abbreviations and acronyms".
- [2] GSM 03.03: "Digital cellular telecommunications system (Phase 2+); Numbering, addressing and identification".
- [3] GSM 04.03: "Digital cellular telecommunications system (Phase 2+); Mobile Station - Base Station System (MS - BSS) interface - Channel structures and access capabilities".
- [4] GSM 04.06: "Digital cellular telecommunications system (Phase 2+); Mobile Station - Base Station System (MS - BSS) interface - Data Link (DL) layer specification".
- [5] GSM 04.08: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3 specification".
- [6] GSM 05.03: "Digital cellular telecommunications system (Phase 2+); Channel coding".
- [7] GSM 05.04: "Digital cellular telecommunications system; Modulation".
- [8] GSM 05.05: "Digital cellular telecommunications system (Phase 2+); Radio transmission and reception".
- [9] GSM 05.08: "Digital cellular telecommunications system (Phase 2+); Radio subsystem link control".
- [10] GSM 05.10: "Digital cellular telecommunications system (Phase 2+); Radio subsystem synchronization".
- [11] GSM 03.64: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Overall description of the GPRS Radio Interface; Stage 2".
- [12] GSM 04.60: "Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Mobile Station (MS) - Base Station System (BSS) interface; Radio Link Control (RLC) and Medium Access Control (MAC) Layer Specification".
- [13] GSM 03.52: "Digital cellular telecommunications system (Phase 2+); GSM Cordless Telephony System (CTS), Phase 1; Lower layers of the CTS Radio Interface; Stage 2".
- [14] GSM 04.56: "Digital cellular telecommunications system (Phase 2+); GSM Cordless Telephony System (CTS), Phase 1; CTS radio interface layer 3 specification".
- [15] GSM 05.56: "Digital cellular telecommunications system (Phase 2+); GSM Cordless Telephony System (CTS), Phase 1; CTS-FP radio subsystem".

## 1.2 Abbreviations

Abbreviations used in the present document are listed in GSM 01.04 [1].

---

## 2 General

The radio subsystem is required to support a certain number of logical channels that can be separated into two categories as defined in GSM 04.03:

- i) The traffic channels (TCH's)
- ii) The control channels

More information is given about these logical channels in clause 3 which also defines a number of special channels used by the radio sub-system.

Clause 4 of this document describes the physical resource available to the radio sub-system, clause 5 defines physical channels based on that resource and clause 6 specifies how the logical channels shall be mapped onto physical channels. Figure 1 depicts this process.

---

## 3 Logical channels

### 3.1 General iTeh STANDARD PREVIEW

This clause describes the logical channels that are supported by the radio subsystem.

### 3.2 Traffic channels SIST EN 300 908 V8.2.1:2003 <https://standards.iteh.ai/catalog/standards/sist/1a883dcc-79bc-4d69-95b0-a6f814fe50f1/sist-en-300-908-v8-2-1-2003>

#### 3.2.1 General

Traffic channels (TCH's) are intended to carry either encoded speech or user data in circuit switched mode. Two general forms of traffic channel are defined:

- i) Full rate traffic channel (TCH/F). This channel carries information at a gross rate of 22,8 kbit/s.
- ii) Half rate traffic channel (TCH/H). This channel carries information at a gross rate of 11,4 kbit/s.
- iii) Enhanced circuit switched full rate traffic channel (E-TCH/F). This channel carries information at a gross rate of 69.6 kbit/s including the stealing symbols.

Packet data traffic channels (PDTCH's) are intended to carry user data in packet switched mode. For the purpose of this EN, any reference to traffic channel does not apply to PDTCH unless explicitly stated.

All traffic channels are bi-directional unless otherwise stated. Unidirectional downlink full rate channels, TCH/FD, are defined as the downlink part of the corresponding TCH/F.

Multiple full rate channels can be allocated to the same MS. This is referred to as multislot configurations, which is defined in subclause 6.4.2.1.

Multiple packet data traffic channels can be allocated to the same MS. This is referred to as multislot packet configurations, as defined in subclause 6.4.2.2.

The specific traffic channels available in the categories of speech and user data are defined in the subclauses following.

### 3.2.2 Speech traffic channels

The following traffic channels are defined to carry encoded speech:

- i) Full rate traffic channel for speech (TCH/FS).
- ii) Half rate traffic channel for speech (TCH/HS).
- iii) Enhanced full rate traffic channel for speech (TCH/EFS).
- iv) Adaptive full rate traffic channel for speech (TCH/AFS).
- v) Adaptive half rate traffic channel for speech (TCH/AHS).

### 3.2.3 Circuit switched data traffic channels

The following traffic channels are defined to carry user data:

- i) Full rate traffic channel for 9,6 kbit/s user data (TCH/F9.6).
- ii) Full rate traffic channel for 4,8 kbit/s user data (TCH/F4.8).
- iii) Half rate traffic channel for 4,8 kbit/s user data (TCH/H4.8).
- iv) Half rate traffic channel for  $\leq 2,4$  kbit/s user data (TCH/H2.4).
- v) Full rate traffic channel for  $\leq 2,4$  kbit/s user data (TCH/F2.4).
- vi) Full rate traffic channel for 14,4 kbit/s user data (TCH/F14.4).
- vii) Enhanced circuit switched full rate traffic channel for 28,8 kbit/s user data (E-TCH/F28.8)
- viii) Enhanced circuit switched full rate traffic channel for 32,0 kbit/s user data (E-TCH/F32.0)
- ix) Enhanced circuit switched full rate traffic channel for 43,2 kbit/s user data (E-TCH/F43.2)

### 3.2.4 Packet data traffic channels (PDTCH)

A PDTCH corresponds to the resource allocated to a single MS on one physical channel for user data transmission. Due to the dynamic multiplexing onto the same physical channel of different logical channels (see subclause 6.3.2), a PDTCH using GMSK modulation carries information at an instantaneous bit rate ranging from 0 to 22.8 kbit/s. A PDTCH using 8PSK modulation carries information (including stealing symbols) at an instantaneous bit rate ranging from 0 to 69.6 kbit/s.

All packet data traffic channels are uni-directional, either uplink (PDTCH/U), for a mobile originated packet transfer or downlink (PDTCH/D) for a mobile terminated packet transfer.

## 3.3 Control channels

### 3.3.1 General

Control channels are intended to carry signalling or synchronization data. Four categories of control channel are defined: broadcast, common, dedicated and CTS control channels. Specific channels within these categories are defined in the subclauses following.

## 3.3.2 Broadcast channels

### 3.3.2.1 Frequency correction channels (FCCH and CFCCH)

The frequency correction channel carries information for frequency correction of the mobile station. It is required only for the operation of the radio sub-system. Different mapping is used for FCCH and COMPACT CFCCH (see Clause 7).

### 3.3.2.2 Synchronization channels

The synchronization channel carries information for frame synchronization of the mobile station and identification of a base transceiver station. It is required only for the operation of the radio sub-system. Different channels are used for SCH and COMPACT CSCH.

#### 3.3.2.2.1 Synchronization channel (SCH)

Specifically the synchronization channel (SCH) shall contain two encoded parameters:

- a) Base transceiver station identity code (BSIC): 6 bits (before channel coding) consists of 3 bits of PLMN colour code with range 0 to 7 and 3 bits of BS colour code with range 0 to 7 as defined in GSM 03.03.
- b) Reduced TDMA frame number (RFN): 19 bits (before channel coding) =

T1 (11 bits) range 0 to 2047 = FN div (26 x 51)

T2 (5 bits) range 0 to 25 = FN mod 26

T3' (3 bits) range 0 to 4 = (T3 - 1) div 10

where

T3 (6 bits) range 0 to 50 = FN mod 51

and

FN = TDMA frame number as defined in subclause 4.3.3.

iTEH STANDARD PREVIEW  
(standards.iteh.ai)

[SIST EN 300 908 V8.2.1:2003](https://standards.iteh.ai/catalog/standards/sist/1a883dcc-79bc-4d69-95b0-a6814fe50f1/sist-en-300-908-v8-2-1-2003)

[https://standards.iteh.ai/catalog/standards/sist/1a883dcc-79bc-4d69-95b0-](https://standards.iteh.ai/catalog/standards/sist/1a883dcc-79bc-4d69-95b0-a6814fe50f1/sist-en-300-908-v8-2-1-2003)

[a6814fe50f1/sist-en-300-908-v8-2-1-2003](https://standards.iteh.ai/catalog/standards/sist/1a883dcc-79bc-4d69-95b0-a6814fe50f1/sist-en-300-908-v8-2-1-2003)

GSM 04.06 and GSM 04.08 specify the precise bit ordering, GSM 05.03 the channel coding of the above parameters and GSM 05.10 defines how the TDMA frame number can be calculated from T1, T2, and T3'.

#### 3.3.2.2.2 COMPACT synchronization channel (CSCH)

The COMPACT packet synchronization channel CSCH shall contain two encoded parameters:

- a) Base transceiver station identity code (BSIC): 6 bits (before channel coding) consists of 3 bits of PLMN colour code with range 0 to 7 and 3 bits BS colour code with range 0 to 7 as defined in GSM 03.03.
- b) Reduced TDMA frame number (RFN): 19 bits (before channel coding) =

R1 (10 bits) range 0 to 1023 = FN div (51 x 52)

R2 (6 bits) range 0 to 50 = (FN div 52) mod 51

TG (2 bits) range 0 to 3

Reserved (1 bit)

where

FN = TDMA frame number as defined in subclause 4.3.3

and

TG = time group as defined in subclause 4.3.4.

GSM 04.06 and GSM 04.08 specify the precise bit ordering, GSM 05.03 the channel coding of the above parameters and GSM 05.10 defines how the TDMA frame number can be calculated from R1 and R2.

### 3.3.2.3 Broadcast control channel (BCCH)

The broadcast control channel broadcasts general information on a base transceiver station per base transceiver station basis. Of the many parameters contained in the BCCH, the use of the following parameters, as defined in GSM 04.08 are referred to in subclause 6.5:

- a) CCCH\_CONF which indicates the organization of the common control channels:

From this parameter, the number of common control channels (BS\_CC\_CHANS) and whether or not CCCH or SDCCH are combined (BS\_CCCH\_SDCCH\_COMB = true or false) are derived as follows:

CCCH_CONF	BS_CC_CHANS	BS_CCCH_SDCCH_COMB
000	1	false
001	1	true
010	2	false
100	3	false
110	4	false

- b) BS\_AG\_BLK\_RES which indicates the number of blocks on each common control channel reserved for access grant messages:

3 bits (before channel coding) range 0 to 7.

- c) BS\_PA\_MFRMS which indicates the number of 51-multiframes between transmission of paging messages to mobiles of the same paging group:

3 bits (before channel coding) range 2 to 9.

- d) support of GPRS

[SIST EN 300 908 V8.2.1:2003](https://standards.iteh.ai/catalog/standards/sist/1a883dcc-79bc-4d69-95b0-a6814f50f1/sist-en-300-908-v8-2-1-2003)

[https://standards.iteh.ai/catalog/standards/sist/1a883dcc-79bc-4d69-95b0-](https://standards.iteh.ai/catalog/standards/sist/1a883dcc-79bc-4d69-95b0-a6814f50f1/sist-en-300-908-v8-2-1-2003)

The BCCH shall indicate whether or not packet switched traffic is supported. If packet switched traffic is supported and if the PBCCH exists, then the BCCH shall broadcast the position of the packet data channel (PDCH), as defined in subclause 6.3.2.1, carrying the PBCCH.

### 3.3.2.4 Packet Broadcast Control Channels

#### 3.3.2.4.1 Packet Broadcast Control Channel (PBCCH)

The PBCCH broadcasts parameters used by the MS to access the network for packet transmission operation. In addition to those parameters the PBCCH reproduces the information transmitted on the BCCH to allow circuit switched operation, such that a MS in GPRS attached mode monitors the PBCCH only, if it exists. The existence of the PBCCH in the cell is indicated on the BCCH. In the absence of PBCCH, the BCCH shall be used to broadcast information for packet operation.

Of the many parameters contained in the PBCCH, the use of the following parameters, as defined in GSM 04.60 are referred to in subclause 6.5 and 6.3.2:

- a) BS\_PBCCH\_BLK (1,...,4) indicates the number of blocks allocated to the PBCCH in the multiframe. The position of the PBCCH blocks is based on the ordered list as defined in subclause 6.3.2.1.
- b) BS\_PCC\_CHANS indicates the number of physical channels carrying PCCCHs including the physical channel carrying the PBCCH
- c) BS\_PAG\_BLK\_RES indicates the number of blocks on each PDCH carrying PCCCH per multiframe where neither packet paging nor PBCCH should appear. This number corresponds therefore to the number of blocks reserved for PAGCH, PNCH, PDTCH and PACCH. The position of these blocks is based on the ordered list as defined in subclause 6.3.2.1.

- d) BS\_PRACH\_BLKs indicates the number of blocks reserved in a fixed way to the PRACH channel on any PDCH carrying PCCCH. The position of the PRACH blocks is based on the ordered list as defined in subclause 6.3.2.1.

### 3.3.2.4.2 COMPACT Packet Broadcast Control Channel (CPBCCH)

The CPBCCH is a stand-alone packet control channel for COMPACT. The CPBCCH broadcasts parameters used by the MS to access the network for packet transmission operation.

Of the many parameters contained in the CPBCCH, the use of the following parameters, as defined in GSM 04.60 are referred to in subclause 6.5 and 6.3.3:

- a) BS\_PBCCH\_BLKs (1,...,4) indicates the number of blocks allocated to the CPBCCH in the multiframe. The position of the CPBCCH blocks is based on the ordered list as defined in subclause 6.3.2.1.
- b) BS\_PCC\_CHANs indicates the number of radio frequency channels per cell carrying CPCCCHs including the radio frequency channel carrying the CPBCCH.
- c) BS\_PAG\_BLKs\_RES indicates the number of blocks on each radio frequency channel carrying CPCCCH per multiframe where neither packet paging nor CPBCCH should appear. This number corresponds therefore to the number of blocks reserved for CPAGCH, CPNCH, PDTCH, and PACCH. The position of these blocks is based on the ordered list as defined in subclause 6.3.2.1. BS\_PAG\_BLKs\_RES cannot be greater than 8.
- d) BS\_PRACH\_BLKs indicates the number of blocks reserved in a fixed way to the CPRACH channel on any radio frequency channel carrying CPCCCH. The position of the CPRACH blocks is based on the ordered list as defined in subclause 6.3.2.1.
- e) NIB\_CPBCCH\_0, NIB\_CPBCCH\_1, NIB\_CPBCCH\_2, and NIB\_CPBCCH\_3 indicate the number of downlink blocks per multiframe designated as idle to protect CPBCCH blocks for non-serving time groups. The downlink position is based on the ordered list as defined in subclause 6.3.2.1 and rotates according to GSM 05.10.
- f) NIB\_CPCCCH\_0, NIB\_CPCCCH\_1, NIB\_CPCCCH\_2, and NIB\_CPCCCH\_3 indicate the number of downlink blocks per multiframe designated as idle to protect CPCCCH for non-serving time groups. The downlink position is based on the order of the paging channel blocks (see Clause 7 table 7) and rotates according to GSM 05.10.
- g) LARGE\_CELL\_OP indicates which type of cell size is used: nominal or large.

## 3.3.3 Common control type channels

### 3.3.3.1 Common control type channels, known when combined as a common control channel (CCCH)

- i) Paging channel (PCH): Downlink only, used to page mobiles.
- ii) Random access channel (RACH): Uplink only, used to request allocation of a SDCCH.
- iii) Access grant channel (AGCH): Downlink only, used to allocate a SDCCH or directly a TCH.
- iv) Notification channel (NCH): Downlink only, used to notify mobile stations of voice group and voice broadcast calls.

### 3.3.3.2 Packet Common control channels

#### 3.3.3.2.1 Packet Common Control Channels (PCCCH)

- i) Packet Paging channel (PPCH): Downlink only, used to page MS.
- ii) Packet Random access channel (PRACH): Uplink only, used to request allocation of one or several PDTCHs (for uplink or downlink direction).
- iii) Packet Access grant channel (PAGCH): Downlink only, used to allocate one or several PDTCH.
- iv) Packet Notification channel (PNCH): Downlink only, used to notify MS of PTM-M call.

If a PCCCH is not allocated, the information for packet switched operation is transmitted on the CCCH. If a PCCCH is allocated, it may transmit information for circuit switched operation.

### 3.3.3.2.2 COMPACT Common Control Channels (CPCCCH)

- i) Packet Paging channel (CPPCH): Downlink only, used to page MS.
- ii) Packet Random access channel (CPRACH): Uplink only, used to request allocation of one or several PDTCHs (for uplink or downlink direction).
- iii) Packet Access grant channel (CPAGCH): Downlink only, used to allocate one or several PDTCH.
- iv) Packet Notification channel (CPNCH): Downlink only, used to notify MS of PTM-M call.

## 3.3.4 Dedicated control channels

### 3.3.4.1 Circuit switched dedicated control channels

- i) Slow, TCH/F or E-TCH/F associated, control channel (SACCH/TF).
- ii) Fast, TCH/F associated, control channel (FACCH/F).
- iii) Slow, TCH/H associated, control channel (SACCH/TH).
- iv) Fast, TCH/H associated, control channel (FACCH/H).
- v) Stand alone dedicated control channel (SDCCH/8).
- vi) Slow, SDCCH/8 associated, control channel (SACCH/C8).
- vii) Stand alone dedicated control channel, combined with CCCH (SDCCH/4).
- viii) Slow, SDCCH/4 associated, control channel (SACCH/C4).
- ix) slow, TCH/F or E-TCH/F associated, control channel for multislot configurations (SACCH/M).
- x) slow, TCH/F associated, control channel for CTS (SACCH/CTS).
- xi) Fast, E-TCH/F associated, control channel (E-FACCH/F).
- xii) Inband, E-TCH/F associated, control channel (E-IACCH/F).

All associated control channels have the same direction (bi-directional or unidirectional) as the channels they are associated to. The unidirectional SACCH/MD is defined as the downlink part of SACCH/M.

### 3.3.4.2 Packet dedicated control channels

- i) The Packet Associated Control channel (PACCH): The PACCH is bi-directional. For description purposes PACCH/U is used for the uplink and PACCH/D for the downlink.
- ii) Packet Timing advance control channel uplink (PTCCH/U): Used to transmit random access bursts to allow estimation of the timing advance for one MS in packet transfer mode.
- iii) Packet Timing advance control channel downlink (PTCCH/D): Used to transmit timing advance updates for several MS. One PTCCH/D is paired with several PTCCH/U's.

## 3.3.5 Cell Broadcast Channel (CBCH)

The CBCH, downlink only, is used to carry the short message service cell broadcast (SMS CB). The CBCH uses the same physical channel as the SDCCH.