i) BCCH

ii) CCCH

iii) UPCH

iv) DCCH

v) TCH + ACCH

Configuration i) is defined for the state in which a unique physical channel is not allocated to an MS and a unidirectional communication is provided (i.e., upon power-on or after extended interruption of the physical connection due to poor propagation conditions).

Configuration ii) is defined for the state in which a unique physical channel is not allocated to an MS, the MS is not idle and a bidirectional communication is required.

Configuration iii) is defined for the state in which a unique physical channel is not allocated to an MS but the MS may support user packet data on the common physical channels.

Configuration iv) is defined for the state in which a unique physical channel is allocated to an MS and a dedicated control channel is provided.

Configuration v) is defined for the state in which a unique physical channel is allocated to an MS and a traffic channel and an associated control channel are provided.

FIGURE 1/Q.1063

Channel types

MS access capability may include a UPCH and/or a DCCH and/or a TCH + ACCH.

8Channel configurations

8.1At any point in time an MS accesses a unique physical set of channels that are available on its radio interface. Examples of the channel configuration are identified below. The actual combination is dependent on the physical BS configuration.

A UPCH is a point-to-multipoint, bidirectional control channel. A UPCH is primarily intended to support user packet data.

A UPCH uses a layered protocol to be defined in a separate Recommendation. In particular, the UPCH is a common resource available to more than one MS within a specific geographic area. In this way the UPCH is managed and allocated based on specific random access techniques.

5.4.4 Associated control channel

An ACCH is a point-to-point, bidirectional control channel that supports both signalling and user packet data. The ACCH is always associated with the TCH, and provides for call control mobility management and RF transmission management signalling. The ACCH uses a layered protocol to be defined in a separate Recommendation.

5.4.5 Dedicated control channel

A DCCH is a point-to-point, bidirectional control channel that supports both signalling and user packet data. The DCCH is not associated with an TCH. The DCCH uses a layered protocol to be defined in a separate Recommendation.

5.4.6 Sets of functional channels

5.4.6.1 Common access channels

The functional channels defined in §§ 5.4.1, 5.4.2 and 5.4.3 are classified as Common Access Channels (CAC).

5.4.6.2 User specific channels

The functional channels described in §§ 5.4.4 and 5.4.5 are classified as user specific channels.

6Base station access capability

The base station access capability provides the means to describe the actual BS access arrangement (i.e. the type and functional groups of channels supported by the BS).

6.1The BS access capability is a combination of functional channels defined in § 5.4. Each group operates independently.

6.2For example a BS access capability may consist of the following combination:

One BCCH; n1 (CCCH), n2 (UPCH), n3 (DCCH) and n4 (TCH + ACCH).

Specific access capabilities are an area for further study.

7Mobile station access capability

The mobile station access capability provides the means to describe the actual MS access arrangement (i.e. the type and functional groups of channels supported by the MS).

7.1The MS access capability is defined by a combination of functional channels defined in § 5.4.

fic, or where only unidirectional communication to an MS is required.

5.4.2 Common control channel

A CCCH is a point-to-multipoint, bidirectional control channel. A CCCH is primarily intended to support signalling information for call control, mobility management and RF transmission management.

A CCCH uses a layered protocol to be defined in a separate Recommendation. In particular the CCCH is a common resource available to more than one MS within a specific geographic area. In this way the CCCH is managed and allocated based on specific random access techniques.

4.1 TCH

Traffic channels are physical gross rate channels, accompanied with timing.

Traffic channels are intended to carry a wide variety of user information streams.

The provision of these information streams is to be defined in a separate Recommendation.

TCHSs may be used to provide access to a variety of communications modes within the PLMN and the networks it provides access to. Examples of these are:

i) circuit switched communications; and

ii) packet switched communications, supporting packet mode terminals.

In case i), the PLMN can provide either a transparent connection, or a connection specifically suited to a particular service, such as telephony.

In case ii), the traffic channel carries protocols at layers 2 and 3 according to Recommendation X.25, or other packet-mode standardized protocols.

5Channel usage for control

5.1Control channels are used to provide active Mobile Stations and Base Stations a means of signalling communication across the radio interface.

5.2A Mobile Station channel configuration contains one or more control channels. These control channels change depending on the required channel configuration. RF transmission management signalling functions ensure the continuity of communication when a change in the control channel type occurs.

Control channels are classified by control channel types, which have common characteristics.

Control channels are primarily intended to carry signalling information for call control, mobility management and RF transmission management.

5.3In addition to signalling information, control channels may also carry user packet data (e.g. for Short Message Service).

5.4 Control channels

5.4.1 Broadcast control channel

The BCCH provides the broadcast capability for a variety of information streams from Base Stations to Mobile Stations, including information necessary for the MS to register in the system (e.g. synchronization data or CCCH coordinates).

agement. This signalling information is carried by other types of channels, e.g. control channels.

3.2 Control channel

The Control Channel (CCH) consists of the Associated Control Channel (ACCH), Dedicated Control Channel (DCCH), Common Control Channel (CCCH), Broadcast Control Channel (BCCH) and User Packet Channel (UPCH). These channels carry signalling information for call control, MS management, RF transmission management, and other functions.

DIGITAL PLMN CHANNEL STRUCTURES AND ACCESS CAPABILITIES AT THE RADIO INTERFACE (Um REFERENCE POINT)

1General

This Recommendation defines a limited set of channel types, access capabilities and channel configurations with respect to the Um reference point (i.e. the radio interface, see Recommendation Q.1062).

2Definitions

A **channel** represents a specific portion of the information carrying capability of an interface.

2.1Channels are classified by types according to common characteristics. Channel types appearing at the radio interface are identified in sections 3 and 4.

2.2The **complete interface between a Base Station (BS) and its associated Mobile Stations (MS)** is defined by the interface structure at a given point in time. This interface may change over time.

2.3An **MS channel configuration** is defined by the interface structure that the MS actually uses to transmit or receive information with respect to the BS at a given point in time. This interface structure may change over time.

2.4An **access capability** defines possible access arrangements with respect to the number and type of channels that can be supported by an equipment. In this way an MS access capability is the set of possible channel configurations supported by the equipment. Similarly, the BS access capability may be considered to be a super-set with respect to the MS.

The access capability is thus a fixed attribute of an equipment.

3Functional channel types

In this Recommendation the functional channel types are defined relative to the radio interface. This channels are used to carry information streams defined at the Sm reference point, and which are to be specified in a separate Recommendation.

3.1 Traffic channel

The Traffic Channel (TCH) is intended to carry a wide variety of user information streams. A distinguishing characteris-