

## 8.7 MBMS specific procedures

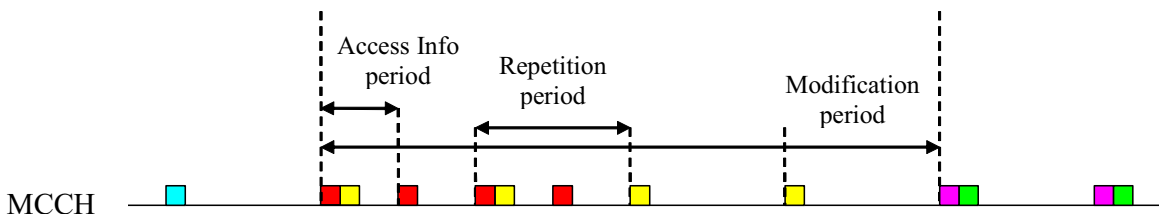
### 8.7.1 Reception of MBMS control information

#### 8.7.1.1 General

The procedure for receiving MBMS control information is used by a UE to receive information from UTRAN concerning the way it provides MBMS services the UE has joined. The procedure applies to all UEs supporting MBMS, irrespective of its state (idle, URA\_PCH, CELL\_PCH, CELL\_FACH and CELL\_DCH).

Most MBMS control information is provided on the MCCH. The information on MCCH is transmitted using a fixed schedule, which is common for all services. MCCH information other than MBMS ACCESS INFORMATION message is transmitted periodically based on a repetition period. This MCCH information is repeated a configurable number of times with exactly the same content; the period in which the content of MCCH information other than MBMS ACCESS INFORMATION message remains unchanged is called the modification period. MBMS ACCESS INFORMATION message may be transmitted more frequently, based on the Access Info period. The transmissions of MBMS ACCESS INFORMATION message within a modification period need not have exactly the same content (the value of some parameters eg. IE 'Access probability factor – Idle' may change). Nevertheless, the transmissions of MBMS ACCESS INFORMATION message within a modification period should concern the same MBMS service(s), although information for a service may be removed eg. upon completion of the counting for that service.

The general principles are illustrated in figure 8.7.1-1, in which different colours indicate potentially different content of the MCCH information.



**Figure 8.7.1-1: Scheduling of MCCH Information**

For services provided via a p-t-m radio bearer scheduling information may be provided on an MSCH mapped on the same S-CCPCH as the p-t-m radio bearer(s). For some of the services provided p-t-m this scheduling information may be provided by signalling an MBMS SCHEDULING INFORMATION message at every scheduling period, while for others the MBMS SCHEDULING INFORMATION message may be signalled less frequently i.e. after a multiple of the scheduling period. In general, the UE is neither required to acquire MSCH information nor to act on it.

In case the UE shall acquire MCCH information that is scheduled at the same time as MSCH information, the reception of the MCCH information shall take precedence.

In order to minimise the time the UE needs to read MCCH upon notification as specified in 8.7.3 to acquire the required information, UTRAN should schedule the MCCH messages in a specific order i.e. any message that needs to be read by any UE due to the reception of the MBMS MODIFIED SERVICES INFORMATION message should be scheduled prior to the remaining messages. More specifically, the UE may assume that UTRAN schedules the MCCH messages in the following order:

MBMS MODIFIED SERVICES INFORMATION,

followed by messages that needs to be read by any UE due to the content of the MBMS MODIFIED SERVICES INFORMATION message in the following order: MBMS GENERAL INFORMATION, MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION, one or more MBMS NEIGHBOURING CELL P-T-M RB INFORMATION,

MBMS UNMODIFIED SERVICES INFORMATION,

followed by messages that do not need to be read by any UE due to the content of the MBMS MODIFIED SERVICES INFORMATION message in the following order: MBMS GENERAL INFORMATION, MBMS COMMON P-T-M

RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION, one or more MBMS NEIGHBOURING CELL P-T-M RB INFORMATION

### 8.7.1.2 Initiation

The requirements concerning which MBMS control information the UE shall acquire in the different cases is specified in other subclauses. This section specifies common requirements concerning the reception of MCCH information and MSCH information.

### 8.7.1.3 UE requirements on reading of MCCH information

When requested to acquire MBMS control information other than the MBMS ACCESS INFORMATION message, the UE shall:

- 1> if requested to start reading MCCH at the next modification period:
  - 2> start reading MCCH at the beginning of the next modification period.
- 1> otherwise
  - 2> start reading MCCH at the beginning of the next repetition period.
- 1> if requested to stop reading MCCH at the end of the modification period:
  - 2> continue reading MCCH until the required MBMS control information is received or until the UE detects a TTI in which no MCCH information is transmitted, whichever is first;
  - 2> continue reading MCCH in this manner at every subsequent repetition period, until the information is received correctly or until the end of the modification period.
- 1> otherwise:
  - 2> continue reading MCCH until the required MBMS control information is received or until the UE detects a TTI in which no MCCH information is transmitted, whichever is first;
  - 2> continue reading MCCH in this manner at every subsequent repetition period, until the information is received correctly.

NOTE 1: The UE may combine information received at different repetition periods within a modification period.

When requested to acquire the MBMS ACCESS INFORMATION message, the UE shall:

- 1> if requested to start reading MCCH at the next modification period:
  - 2> start reading MCCH at the beginning of the next modification period.
- 1> otherwise:
  - 2> start reading MCCH at the beginning of the next access info period.
- 1> continue reading MCCH in this manner at every subsequent access info period, until the message is received correctly or until the end of the modification period.

If the UE is CELL\_DCH and has a compressed mode pattern that overlaps with the period in which it needs to read MCCH, the UE may temporarily refrain from receiving MCCH unless it is capable of simultaneous operation. If the UE is CELL\_FACH and has a measurement occasion that overlaps with the period in which it needs to read MCCH, the UE may temporarily refrain from receiving MCCH unless it is capable of simultaneous operation. A UE in CELL\_FACH may omit performing measurements during a measurement occasion in order to receive MCCH provided that this does not prevent it from fulfilling the measurement performance requirements as specified in [19]. In Idle mode as well as in CELL\_PCH and URA\_PCH states the UE may temporarily refrain from receiving MCCH if needed to fulfil the measurements performance requirements as specified in [19].

NOTE 2: The UTRAN should endeavour to ensure that for each UE in CELL\_FACH the assigned measurement occasions do not overlap constantly with the periodic MCCH transmissions.

If the UE selects to another cell, the UE shall re-establish the RLC entity used for MCCH reception.

#### 8.7.1.4 UE requirements on reading of MSCH information

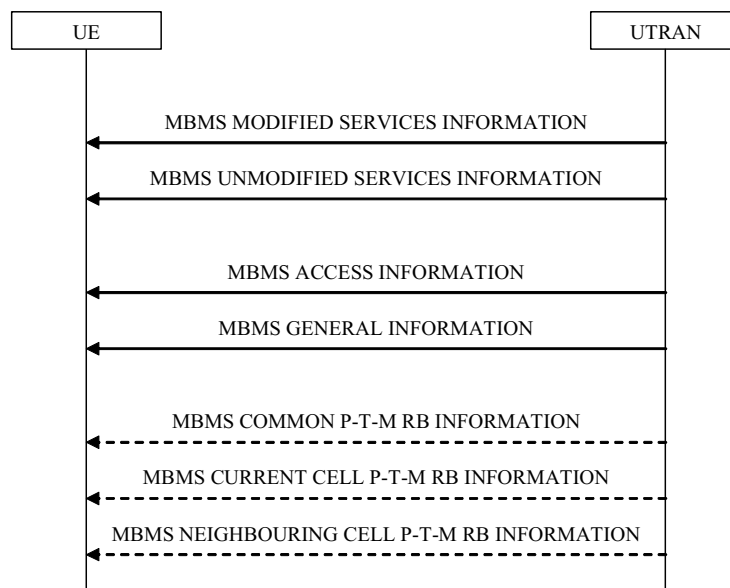
If the UE supports reception of MSCH, UE shall:

- 1> if the UE needs to acquire MCCH information that is transmitted at the same time as the MSCH information and the UE does not support simultaneous reception:
- 2> refrain from reading MSCH.

If the UE supports reception of MSCH, UE should:

- 1> start reading MSCH at the beginning of the next scheduling period;
- 1> continue reading MSCH until the required MBMS control information is received or until the UE detects a TTI in which no MSCH information is transmitted, whichever is first.

### 8.7.2 MCCH acquisition



**Figure 8.7.2-1: MCCH acquisition, normal**

#### 8.7.2.1 General

The UE applies the MCCH acquisition procedure to determine the MBMS services available in the cell and to initiate reception of the services that the UE has joined. The procedure applies to all UEs supporting MBMS, irrespective of their state (idle, URA\_PCH, CELL\_PCH, CELL\_FACH and CELL\_DCH).

#### 8.7.2.2 Initiation

If the variable MBMS\_ACTIVATED\_SERVICES is not empty, the UE shall apply the MCCH acquisition procedure upon selecting (eg. upon power on) or re-selecting a cell supporting MBMS, upon change of MBMS controlling cell (eg. due to an active set update or hard handover), upon entering UTRA from another RAT, upon release of a MBMS PTP RB for the purpose of changing transfer mode, upon return from loss of coverage and upon receiving an indication from upper layers that the set of activated services has changed.

#### 8.7.2.3 MCCH information to be acquired by the UE

The UE shall detect the available MBMS services by acquiring the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages without delaying reading of MCCH until the

next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3.

The UE shall immediately acquire the MBMS ACCESS INFORMATION and the MBMS GENERAL INFORMATION messages ie. it shall not delay reception of these messages until it has completed the acquisition of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages. Likewise, the UE should immediately acquire the MBMS CURRENT CELL P-T-M RB INFORMATION and MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information eg. both the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION message should be acquired in the same modification period.

#### 8.7.2.4 Reception of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION by the UE

If the UE is receiving an MBMS service that is not included in variable MBMS\_ACTIVATED\_SERVICES and that is using a p-t-m radio bearer, the UE shall:

- 1> stop receiving the concerned MBMS service and clear all service specific information applicable for the concerned service.

Upon completing the reception of the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages, the UE shall

- 1> act as follows for each of the services included in these messages provided that the service is included in variable MBMS\_ACTIVATED\_SERVICES and upper layers indicate that the session has not yet been received correctly (referred to as 'applicable services');
- 1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following;
- 1> if one or more preferred frequency applies for the applicable services:
  - 2> delay acting upon the "MBMS Preferred frequency information" until receiving the relevant MCCH information i.e. the MBMS GENERAL INFORMATION message;
  - 2> act upon the "MBMS Preferred frequency information" as specified in subclause 8.6.9.4 for the service(s) that upper layers indicate to have highest priority.
- 1> perform the service prioritisation procedure as specified in subclause 8.5.26;
- 1> if the UE receives an MBMS service using a p-t-m radio bearer and the received messages do not contain an IE "MBMS required UE action" set to "Acquire PTM RB info" or set to "Acquire counting info- PTM RBs unmodified" for that service then the UE shall:
  - 2> stop receiving the concerned MBMS service and clear all service specific information applicable for the concerned service.

#### 8.7.2.5 Reception of the other MBMS messages by the UE

Upon receiving the MBMS ACCESS INFORMATION message, the UE shall act as specified in subclause 8.7.4.3.

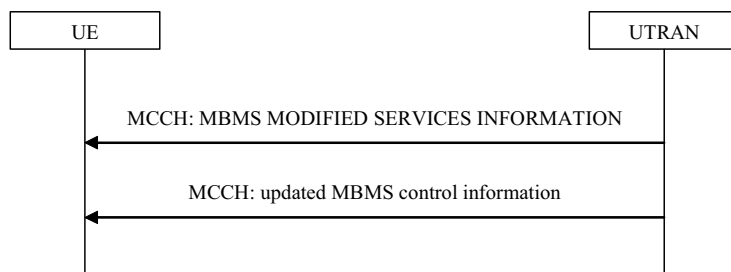
Upon receiving the MBMS GENERAL INFORMATION message, the UE should store all relevant IEs included in this message. The UE shall also:

- 1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following.

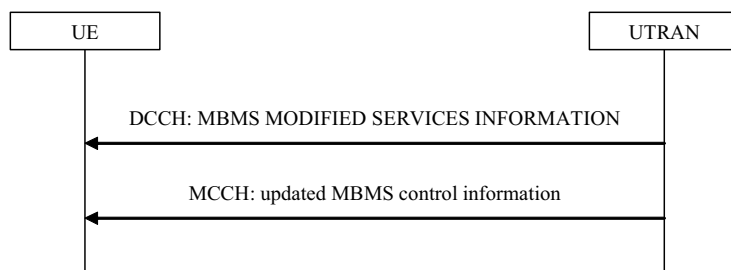
Upon receiving the MBMS CURRENT CELL P-T-M RB INFORMATION and MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages, the UE shall act as specified in subclauses 8.7.5.3 and subclause 8.7.5.4 respectively.

The procedure ends.

## 8.7.3 MBMS Notification



**Figure 8.7.3-1: MBMS notification on MCCH**



**Figure 8.7.3-2: MBMS notification on DCCH**

### 8.7.3.1 General

The MBMS notification procedure is used by the UE to respond to a notification provided by UTRAN, indicating a change applicable for one or more MBMS services the UE has joined. The procedure applies to all UEs supporting MBMS, irrespective of their state (idle and connected mode: URA\_PCH, CELL\_PCH, CELL\_FACH and CELL\_DCH). The actual notification mechanism to be used depends on the UE state.

### 8.7.3.2 Initiation

UTRAN initiates the notification procedure to inform UEs about a change applicable for one or more MBMS services available in a cell. Some types of MBMS service changes e.g. the establishment of a p-t-m radio bearer, involve a modification of MCCH messages other than the MBMS MODIFIED SERVICES INFORMATION message.

NOTE 1: On MCCH, the MBMS MODIFIED SERVICES INFORMATION as well as the MBMS UNMODIFIED SERVICES INFORMATION messages are signalled even if no services are contained in the message.

NOTE 2: A service remains in the MBMS MODIFIED SERVICES INFORMATION message until it enters a 'steady state', upon which it moves to the MBMS UNMODIFIED SERVICES INFORMATION message. In case counting is used, the service remains in the MBMS MODIFIED SERVICES INFORMATION message through the moment UTRAN has decided the transfer mode.

### 8.7.3.3 Receiving the MBMS Notification information

#### 8.7.3.3.1 Reception via MCCH

The UE may:

- 1> if in idle mode, URA\_PCH, CELL\_PCH or CELL\_FACH state; and
- 1> if not receiving an MBMS service provided via a p-t-m radio bearer:
  - 2> monitor the MBMS notification Indicator Channel (MICH).

- 2> if a notification on the MICH for one or more of the MBMS services included in the variable MBMS\_ACTIVATED\_SERVICES is detected:
  - 3> acquire the MBMS MODIFIED SERVICES INFORMATION message with delaying the reading of MCCH until the next modification period and with stopping at the end of the modification period, in accordance with subclause 8.7.1.3;
  - 3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

The UE shall:

- 1> if in idle mode, URA\_PCH, CELL\_PCH or CELL\_FACH state:
  - 2> if receiving an MBMS service that is provided via a p-t-m radio bearer; or
  - 2> if not receiving an MBMS service that is provided via a p-t-m radio bearer and not monitoring MICH:
    - 3> acquire the MBMS MODIFIED SERVICES INFORMATION message from MCCH at the start of every modification period, in accordance with subclause 8.7.1.3;
    - 3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.
- 1> if in CELL\_DCH state:
  - 2> if receiving an MBMS service that is provided via a p-t-m radio bearer:
    - 3> acquire the MBMS MODIFIED SERVICES INFORMATION message from MCCH at the start of every modification period, in accordance with subclause 8.7.1.3;
    - 3> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

#### 8.7.3.3.2 Void

#### 8.7.3.3.3 Reception via DCCH

Notification via DCCH is used to notify the UE about the start of a session for which a PL applies, to notify the UE about the establishment of a p-t-m radio bearer and to request a UE in PMM\_idle state to establish a PMM connection to enable reception of a service provided via a p-t-p radio bearer.

Upon receiving the MBMS MODIFIED SERVICES INFORMATION message via DCCH, a UE in CELL\_DCH shall:

- 1> handle the MBMS MODIFIED SERVICES INFORMATION message as specified in subclause 8.7.3.4.

#### 8.7.3.4 UE action upon receiving MBMS MODIFIED SERVICES INFORMATION message

Upon receiving the MBMS MODIFIED SERVICES INFORMATION message, the UE shall act as follows for each of the services included in this messages provided that the service is included in variable MBMS\_ACTIVATED\_SERVICES and upper layers indicate that the session has not yet been received correctly (referred to as 'applicable services'):

- 1> if the IE "MBMS all unmodified p-t-m services" is included in the MBMS MODIFIED SERVICES INFORMATION messages:
  - 2> for all services listed in the message UNMODIFIED SERVICES INFORMATION, provided that the service is included in variable MBMS\_ACTIVATED\_SERVICES, upper layers indicate that the session has not yet been received correctly (referred to as 'applicable services') and the IE "MBMS required UE action" in the message MBMS UNMODIFIED SERVICES INFORMATION is set to "Acquire PTM RB info":
    - 3> continue acquiring the MBMS UNMODIFIED SERVICES INFORMATION, MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION, and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION messages without delaying reading of MCCH

until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3;

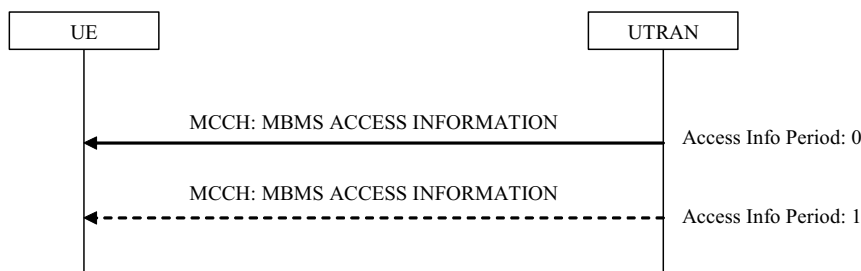
- 3> act upon the MBMS UNMODIFIED SERVICES INFORMATION MBMS COMMON P-T-M RB INFORMATION, MBMS CURRENT CELL P-T-M RB INFORMATION and the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION message, if received, in accordance with subclause 8.7.5, and assuming the p-t-m configuration indicated in these messages is valid from the start of the next modification period, unless the IE "MBMS p-t-m activation time" is included in the MBMS MODIFIED SERVICES INFORMATION message.
- 2> if the UE receives an MBMS service using a p-t-m radio bearer and the messages MBMS UNMODIFIED SERVICES INFORMATION and MBMS MODIFIED SERVICES INFORMATION do not contain an IE "MBMS required action" set to "Acquire PTM RB info" or set to "Acquire counting info – PTM RBs unmodified" for that service then the UE shall:
  - 3> stop receiving the concerned MBMS service and clear all service specific information applicable for the concerned service.
- 1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following
  - 1> if one or more preferred frequency applies for the applicable services:
    - 2> if the UE is in CELL\_FACH state:
      - 3> acquire the MBMS GENERAL INFORMATION message;
      - 3> act as specified in subclause 8.6.9.2 upon the IE "MBMS PL Service Restriction information" for the corresponding preferred frequency, as received in the MBMS GENERAL INFORMATION message.
    - 2> delay acting upon the "MBMS Preferred frequency information" until receiving the relevant MCCH information i.e. the MBMS GENERAL INFORMATION message;
    - 2> act upon the "MBMS Preferred frequency information" as specified in 8.6.9.2 for the service(s) that upper layers indicate to have highest priority.
  - 1> perform the service prioritisation procedure as specified in subclause 8.5.26;
  - 1> if applicable, use a single MBMS MODIFICATION REQUEST to request release of radio bearers corresponding with lower priority MBMS services provided p-t-p and/or to request a move to the preferred frequency and/or to inform RNC about a change of the MBMS Selected Services as specified in subclause 8.5.26, 8.6.9.2 and subclause 8.7.6, respectively;
  - 1> the procedure ends.

### 8.7.3.5 UE fails to receive MBMS Notification information

If the UE fails to receive the MBMS MODIFIED SERVICES INFORMATION message within the current modification period, the UE shall:

- 1> Acquire the MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages without delaying reading of MCCH until the next modification period and with stopping at the end of that modification period, in accordance with subclause 8.7.1.3;
- 1> act upon the received MBMS MODIFIED SERVICES INFORMATION and the MBMS UNMODIFIED SERVICES INFORMATION messages as specified in subclause 8.7.2.4.

## 8.7.4 MBMS counting



**Figure 8.7.4-1: MBMS counting, normal**

### 8.7.4.1 General

The MBMS counting procedure is used by the UE to inform UTRAN about its interest to receive an MBMS transmission. The procedure applies to UEs supporting MBMS that are in idle mode or in connected mode. In connected mode the procedure applies to the URA\_PCH, Cell\_PCH and/ or Cell\_FACH states dependent upon the value of the IE "Connected mode counting scope".

### 8.7.4.2 Initiation

The UE initiates the MBMS counting procedure for an MBMS transmission upon receiving an MBMS MODIFIED SERVICES message including IE "MBMS required UE action" with the value set to 'Acquire counting info' or set to "Acquire counting info- PTM RBs unmodified".

### 8.7.4.3 Reception of the MBMS ACCESS INFORMATION

The UE shall acquire the MBMS ACCESS INFORMATION message without delaying reading of MCCH until the next modification period in accordance with subclause 8.7.1.3. If the procedure the UE would apply to respond to counting (Idle mode: RRC connection establishment, connected mode: Cell update) is ongoing, the UE may defer acquiring the MBMS ACCESS INFORMATION message until this procedure has completed.

The UE behaviour upon receiving an MBMS ACCESS INFORMATION message that is contained in more than one TTI is not specified.

Upon receiving the MBMS ACCESS INFORMATION message including one or more MBMS service(s) it has joined and/or including one or more MBMS Selected Services, the UE shall for each joined and/or selected service:

- 1> if the UE is in idle mode:
  - 2> draw a random number, "rand", uniformly distributed in the range:  $0 \leq \text{rand} < 1$
  - 2> if 'rand' is lower than the value indicated by the IE 'Access probability factor-Idle' for the concerned service:
    - 3> indicate to upper layers that establishment of an RRC connection is required to receive the concerned MBMS service, with the establishment cause set to 'MBMS reception';
    - 3> if the above condition applies for more than one service, initiate a single indication to upper layers;
    - 3> if the RRC connection establishment succeeds, the procedure ends.
  - 2> otherwise:
    - 3> if the message triggering the MBMS counting procedure included the IE "Continue MCCH reading" with a value set to TRUE:
      - 4> continue acquiring further MBMS ACCESS INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3.
    - 3> otherwise:

- 4> continue acquiring further MBMS ACCESS INFORMATION messages without delaying reading of MCCH until the next modification period and with stopping at the end of the modification period, in accordance with subclause 8.7.1.3.
- 1> if the UE is in URA\_PCH state, Cell\_PCH or Cell\_FACH state and the IE "Connected mode counting scope" indicates that counting is applicable for this UE state:
    - 2> draw a random number, "rand", uniformly distributed in the range:  $0 \leq \text{rand} < 1$ .
    - 2> if 'rand' is lower than the value indicated by the IE 'Access probability factor-connected' for the concerned service:
      - 3> if a cell update has not been successfully transmitted for this service in the current modification period:
        - 4> initiate the cell update procedure with 'Cell update cause' set to "MBMS reception", in accordance with subclause 8.3.1;
        - 4> if the above condition applies for more than one service, initiate a single cell update;
        - 4> if the cell update procedure succeeds,
          - 5> the procedure ends.
      - 2> otherwise:
        - 3> if the message triggering the MBMS counting procedure included the IE "Continue MCCH reading" with a value set to TRUE:
          - 4> continue acquiring further MBMS ACCESS INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3.
        - 3> otherwise:
          - 4> continue acquiring further MBMS ACCESS INFORMATION messages without delaying reading of MCCH until the next modification period and with stopping at the end of the modification period, in accordance with subclause 8.7.1.3.
      - 1> otherwise:
        - 2> the procedure ends;

Upon receiving the MBMS ACCESS INFORMATION message not including an MBMS service(s) the UE has joined:

- 1> the procedure ends;

#### 8.7.4.4 Termination of the MBMS counting procedure

If the UE detects that the MBMS ACCESS INFORMATION message is not provided at an access info period; OR

If the UE receives an MBMS ACCESS INFORMATION message not including an MBMS service the UE has joined, the UE shall:

- 1> terminate the MBMS counting procedure.

#### 8.7.4.5 Failure of the counting response procedure

If the counting response procedure (RRC connection establishment or Cell update) fails, the UE shall:

- 1> if the failure occurs in the same modification period as the one in which the UE initiated the counting response procedure; or
- 1> if the message triggering the MBMS counting procedure included the IE "Continue MCCH reading" with a value set to TRUE that is applicable in the modification period in which the UE detects the failure:

- 2> continue acquiring further MBMS ACCESS INFORMATION messages without delaying reading of MCCH until the next modification period and without stopping at the end of the modification period, in accordance with subclause 8.7.1.3.
- 1> otherwise:
  - 2> the procedure ends.

## 8.7.5 MBMS p-t-m radio bearer configuration

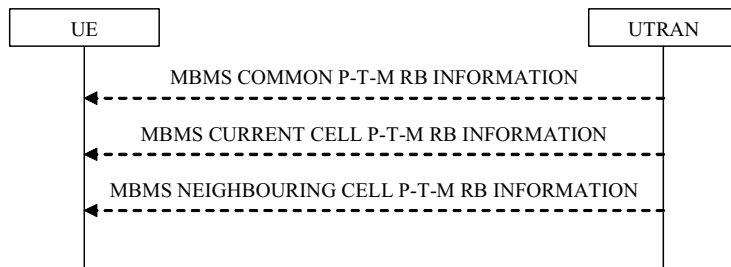


Figure 8.7.5-1: MBMS p-t-m radio bearer modification, normal

### 8.7.5.1 General

The MBMS p-t-m radio bearer configuration procedure is used by the UE to acquire the (modified) radio bearer configuration for one or more MBMS services the UE has joined. The procedure applies to all UEs supporting MBMS, irrespective of their state (idle and connected mode: URA\_PCH, CELL\_PCH, CELL\_FACH and CELL\_DCH).

### 8.7.5.2 Initiation

The UE applies the MBMS p-t-m radio bearer configuration procedure whenever it detects that one of the services it has joined is provided by means of a p-t-m radio bearer. This may occur as part of the MCCH acquisition or the MBMS Notification procedure.

### 8.7.5.3 Reception of the MBMS Current Cell PTM RB information

Upon completing the reception of the MBMS COMMON P-T-M RB INFORMATION and the MBMS CURRENT CELL P-T-M RB INFORMATION messages for an MBMS service it has joined, the UE shall:

- 1> if the UE is already receiving an MTCH and does not have the capability to receive the new service in addition:
  - 2> the UE behaviour is undefined.

NOTE: In this case, the UE may request upper layers to prioritise the services and only receive the service(s) prioritised by upper layers.

- 1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following;
  - 1> if the UE previously received the service by means of a p-t-m radio bearer from a cell belonging to another MBMS cell group:
    - 2> re-establish RLC;
    - 2> re-initialise PDCP.
  - 1> start immediately to use the indicated configuration unless specified otherwise;
  - 1> start or continue receiving the indicated p-t-m radio bearers depending on its UE capabilities.

The UE shall continue acquiring the above messages until it has received a consistent set of MCCH information i.e. the MBMS MODIFIED SERVICES INFORMATION message, MBMS UNMODIFIED SERVICES INFORMATION

message, MBMS COMMON P-T-M RB INFORMATION and the MBMS CURRENT CELL P-T-M RB INFORMATION message should be acquired in the same modification period.

#### 8.7.5.4 Reception of the MBMS Neighbouring Cell PTM RB information

Upon receiving the MBMS NEIGHBOURING CELL P-T-M RB INFORMATION message for an MBMS service it has joined, the UE shall

- 1> start immediately to use the indicated neighbouring cells and configuration, or a subset of them, for L1- or L2 combining unless specified otherwise;
- 1> start or continue receiving the indicated p-t-m radio bearers from the selected neighbouring cells depending on its UE capabilities.

The UE shall apply MBMS NEIGHBOURING CELL P-T-M RB INFORMATION only in combination with an MBMS MODIFIED SERVICES INFORMATION message, MBMS UNMODIFIED SERVICES INFORMATION message, MBMS COMMON P-T-M RB INFORMATION and MBMS CURRENT CELL P-T-M RB INFORMATION message acquired in the same modification period.

### 8.7.6 MBMS modification request



Figure 8.7.6-1: MBMS modification request, normal

#### 8.7.6.1 General

The MBMS modification request procedure is used by the UE to request UTRAN to release the p-t-p radio bearers of one or more MBMS services the UE is receiving. The procedure is also used to request to be moved to a preferred frequency applicable for one or more (prioritised) MBMS services, the UE has joined. The procedure applies to all UEs supporting MBMS, that are in state CELL\_DCH.

#### 8.7.6.2 Initiation

The UE shall initiate the MBMS modification request procedure in the following cases:

- 1> the preferred frequency applicable for the MBMS service prioritised by upper layers is different from the currently used frequency;
- 1> upper layers request to discontinue reception of an MBMS service provided via a p-t-p radio bearer e.g. because this inhibits reception of a higher priority service;
- 1> upon entering CELL\_DCH;
- 1> upon a change of the MBMS Selected Services while the UE is in CELL\_DCH.

NOTE: The above case may occur upon receiving a dedicated notification or in other cases eg. a change of transfer mode from p-t-p to p-t-m for the UE's highest priority MBMS service.

#### 8.7.6.2a MBMS MODIFICATION REQUEST message contents to set

The UE shall set the contents of the MBMS MODIFICATION REQUEST message as follows:

- 1> if the preferred frequency applicable for the MBMS service prioritised by upper layers is different from the currently used frequency:

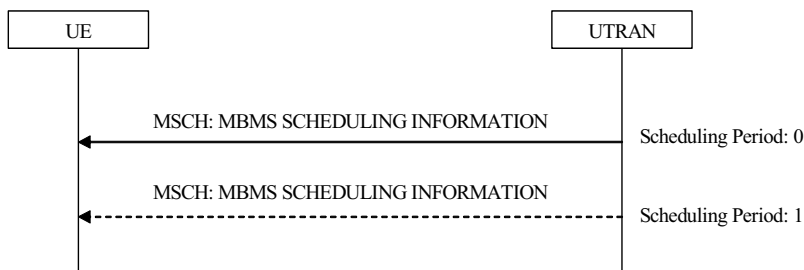
- 2> include the IE "MBMS preferred frequency request" and set it to the prioritised MBMS service identity;
- 1> if upper layers request to discontinue reception of an MBMS service provided via a p-t-p radio bearer:
  - 2> include the p-t-p radio bearers used for the corresponding MBMS services within the IE "MBMS RB list requested to be released".
- 1> if the UE enters CELL\_DCH; or
- 1> if there is a change of the MBMS Selected Services:
  - 2> if the UE has not selected any MBMS Selected Service:
    - 3> include the MBMS Selected Service Info and set the Status to 'None'.
  - 2> otherwise:
    - 3> include the MBMS Selected Service Info and set the Status to 'Some';
    - 3> for each MBMS Selected Service:
      - 4> include the MBMS Selected Service ID.

### 8.7.6.3 Reception of a MBMS MODIFICATION REQUEST message by the UTRAN

Upon reception of a MBMS MODIFICATION REQUEST message, the UTRAN may take further action depending on the contents of the received message.

The procedure ends.

## 8.7.7 MBMS service scheduling



**Figure 8.7.7-1: MBMS service scheduling, normal**

### 8.7.7.1 General

The MBMS service scheduling procedure is used by the UE that is receiving one or more MBMS services that the UE has joined to acquire the MBMS scheduling information for the MBMS services. The procedure applies to all UEs that are receiving an MBMS service provided via a p-t-m radio bearer, irrespective of their state (idle and connected mode: URA\_PCH, CELL\_PCH, CELL\_FACH and CELL\_DCH).

### 8.7.7.2 Initiation

The UE may initiate the MBMS service scheduling procedure for any scheduling period of the concerned MBMS service while receiving an SCCPCH carrying an MBMS service.

### 8.7.7.3 Reception of the MBMS scheduling information

Upon receiving the MBMS SCHEDULING INFORMATION message, the UE should:

- 1> act as follows for each of the services included in these messages provided that the service is included in variable MBMS\_ACTIVATED\_SERVICES;

- 1> act upon all received information elements as specified in subclause 8.6, unless specified otherwise in the following.

The procedure ends.

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## 9 Handling of unknown, unforeseen and erroneous protocol data

### 9.1 General

This subclause specifies procedures for the handling of unknown, unforeseen, and erroneous protocol data by the receiving entity. These procedures are called "error handling procedures", but in addition to provide recovery mechanisms for error situations they define a compatibility mechanism for future extensions of the protocol.

The error handling procedures specified in this subclause shall apply to all RRC messages. When there is a specific handling for messages received on different logical channels this is specified.

For system information received on the BCCH, the error handling procedures are applied on the BCCH message SYSTEM INFORMATION, the re-assembled system information segments as well as the system information blocks (including the master information block and the scheduling blocks), with specific error handling as specified below.

When the UE receives an RRC message, it shall set the variable `PROTOCOL_ERROR_REJECT` to FALSE and then perform the checks in the order as defined below.

The error cases specified in the following include the handling upon reception of spare values. This behaviour also applies in case the actual value of the IE results from mapping the originally sent IE value. Moreover, in certain error cases, as specified in the following, default values apply. In this case, the default values specified within the ASN.1, the tabular and the procedure specifications apply.

### 9.2 ASN.1 violation or encoding error

If the UE receives an RRC message on the DCCH for which the encoded message does not result in any valid abstract syntax value [49] (or "encoding error"), it shall perform the following. The UE shall:

- 1> set the variable `PROTOCOL_ERROR_REJECT` to TRUE;
- 1> transmit an RRC STATUS message on the uplink DCCH. The IE "Protocol error information" shall contain an IE "Protocol error cause" set to "ASN.1 violation or encoding error";
- 1> when RRC STATUS message has been submitted to lower layers for transmission:
  - 2> continue with any ongoing processes and procedures as if the invalid message had not been received.

NOTE In this case, the UE does not perform procedure specific error handling according to clause 8.

If the UE receives an RRC message sent via a radio access technology other than UTRAN, for which the encoded message does not result in any valid abstract syntax, the UE shall:

- 1> set the variable `PROTOCOL_ERROR_REJECT` to TRUE;
- 1> set the IE "Protocol error cause" in the variable `PROTOCOL_ERROR_INFORMATION` to "ASN.1 violation or encoding error";
- 1> perform procedure specific error handling according to clause 8.

If a reassembled set of system information segments received in messages on the BCCH does not result in any valid abstract syntax value, the UE shall:

- 1> ignore the reassembled set of system information segments;