



# SLOVENSKI STANDARD

## SIST ETS 300 624 E1:2003

01-december-2003

---

8 [[ ]HJb]`W] b]`hY`\_ca i b]\_UW`g\_]`g]ghYa `fZuU&L`3/Ä`A YXgYVc`bc`XY`cj Ub`Y`  
dcghcd`\_cj`nUi dfUj``Ub`U`ca fYy`U; GA `]b`gdcfc `]`fBA`L`df]`\_fa `]b]\_i `VUnbY`  
dcghU`Y`f6 G7`L`f] GA `%`&`&L`

Digital cellular telecommunications system (Phase 2) (GSM); Interworking of GSM Network Management (NM) procedures and messages at the Base Station Controller (BSC) (GSM 12.22)

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

[SIST ETS 300 624 E1:2003](https://standards.iteh.ai/catalog/standards/sist/567117d3-72dc-4b06-977b-bba4c268696a/sist-ets-300-624-e1-2003)

[https://standards.iteh.ai/catalog/standards/sist/567117d3-72dc-4b06-](https://standards.iteh.ai/catalog/standards/sist/567117d3-72dc-4b06-977b-bba4c268696a/sist-ets-300-624-e1-2003)

[977b-bba4c268696a/sist-ets-300-624-e1-2003](https://standards.iteh.ai/catalog/standards/sist/567117d3-72dc-4b06-977b-bba4c268696a/sist-ets-300-624-e1-2003)

Ta slovenski standard je istoveten z: **ETS 300 624 Edition 1**

---

**ICS:**

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

**SIST ETS 300 624 E1:2003**

**en**

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

SIST ETS 300 624 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/567117d3-72dc-4b06-977b-bba4c268696a/sist-ets-300-624-e1-2003>



**E**UROPEAN  
**T**ELECOMMUNICATION  
**S**TANDARD

**ETS 300 624**

August 1996

Source: ETSI TC-SMG

Reference: DE/SMG-061222P

ICS: 33.060.50

**Key words:** Digital cellular telecommunications system, Global System for Mobile Communications (GSM)

**GSM**

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

**Digital cellular telecommunication system (Phase 2);  
Interworking of GSM Network Management (NM) procedures  
and messages at the Base Station Controller (BSC)  
(GSM 12.22)**

**ETSI**

European Telecommunications Standards Institute

**ETSI Secretariat**

**Postal address:** F-06921 Sophia Antipolis CEDEX - FRANCE

**Office address:** 650 Route des Lucioles - Sophia Antipolis - Valbonne - FRANCE

**X.400:** c=fr, a=atlas, p=etsi, s=secretariat - **Internet:** secretariat@etsi.fr

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

**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 1996. All rights reserved.

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

[SIST ETS 300 624 E1:2003](https://standards.iteh.ai/catalog/standards/sist/567117d3-72dc-4b06-977b-bba4c268696a/sist-ets-300-624-e1-2003)

<https://standards.iteh.ai/catalog/standards/sist/567117d3-72dc-4b06-977b-bba4c268696a/sist-ets-300-624-e1-2003>

## Contents

Foreword .....	7
Introduction .....	7
1 Scope .....	9
2 Normative references .....	9
3 Abbreviations .....	10
4 Common Interworking aspects .....	10
4.1 General considerations .....	10
4.1.1 Interworking tasks .....	10
4.1.2 Mapping between GSM 12.20 specified and GSM 12.21 specified Object Classes .....	11
4.1.3 Addressing Objects at the BTS Site and handling different BTS configurations .....	11
4.2 CMIP Operations .....	11
4.2.1 Creation of BTS related Object instances .....	11
4.2.2 Setting attributes of BTS related Objects .....	12
4.2.3 Getting attributes of BTS related Objects .....	13
4.2.4 Deletion of BTS related Objects .....	13
4.2.5 Actions on BTS related Objects .....	13
4.2.6 Event Reports sent by BTS related Objects .....	13
4.2.7 CMIS Parameters .....	14
4.3 Error handling .....	14
4.4 State management of BTS related objects .....	15
4.4.1 Initial states .....	15
4.4.2 Setting administrative state .....	15
4.4.2.1 Setting administrative state to Unlocked .....	16
4.4.2.2 Setting administrative state to Locked .....	16
4.4.2.3 Setting administrative state to Shutting Down .....	16
4.4.3 Getting state Attributes .....	16
4.4.4 Notifications about State Changes .....	16
4.5 Alarm reporting .....	18
5 Specific interworking aspects .....	21
5.1 BasebandTransceiver Object Class .....	21
5.1.1 Information Mapping between GSM 12.20 basebandTransceiver and GSM 12.21 Baseband Transceiver .....	21
5.1.1.1 Mapping of Attributes .....	21
5.1.1.2 Mapping of GSM 12.21 Event Reports to GSM 12.20 Notifications .....	22
5.1.1.3 Mapping of GSM 12.20 Actions to GSM 12.21 procedures .....	23
5.1.2 The Specific Interworking Procedures of the basebandTransceiver Object Class .....	23
5.1.2.1 Initialization Procedure for the basebandTransceiver Object Class .....	23
5.1.2.2 M-DELETE .....	25
5.1.2.3 M-SET .....	25
5.1.2.4 M-GET .....	26
5.1.2.5 M-ACTION, forcedHO .....	26
5.2 BTS Object Class .....	26
5.2.1 Information Mapping between GSM 12.20 bts Object and GSM 12.21 BTS Object .....	26
5.2.1.1 Attribute Mapping .....	26

	5.2.1.2	Mapping of GSM 12.21 Event Reports to GSM 12.20 Notifications.....	28
	5.2.1.3	Mapping of GSM 12.20 actions to GSM 12.21 procedures	28
5.2.2		The specific interworking procedures of the bts Object Class.....	28
	5.2.2.1	Initialization procedure for the bts Object Class.....	28
	5.2.2.2	M-DELETE .....	30
	5.2.2.3	M-SET .....	30
	5.2.2.4	M-GET .....	31
	5.2.2.5	M-ACTION, forcedHO.....	32
	5.2.2.6	M-ACTION, channelConfigurationModification .....	32
5.3		BTS SiteManager Object Class .....	34
5.3.1		Information mapping between GSM 12.20 btsSiteManager and GSM 12.21 Site Manager .....	34
	5.3.1.1	Mapping of attributes.....	34
	5.3.1.2	Mapping of GSM 12.21 Event Reports to GSM 12.20 Notifications.....	34
5.3.2		The specific interworking procedures of the btsSiteManager Object Class .....	35
	5.3.2.1	Initialization procedure for the btsSiteManager Object Class .....	35
	5.3.2.2	M-DELETE .....	37
	5.3.2.3	M-SET .....	37
	5.3.2.4	M-GET .....	37
5.4		Channel Object Class .....	37
5.4.1		Information mapping between GSM 12.20 channel and GSM 12.21 Channel .....	37
5.4.2		Mapping of attributes .....	37
	5.4.2.1	Mapping of GSM 12.21 event reports to GSM 12.20 notifications .....	38
5.4.3		The specific interworking procedures of the channel Object Class.....	38
	5.4.3.1	Initialization procedure for the channel Object Class.....	38
	5.4.3.2	M-DELETE .....	40
	5.4.3.3	M-SET .....	40
	5.4.3.4	M-GET .....	41
5.5		FrequencyHoppingSystem Object Class.....	41
5.5.1		Information mapping between GSM 12.20 frequencyHoppingSystem attributes and GSM 12.21 Channel .....	41
	5.5.1.1	Mapping of Attributes .....	41
5.5.2		The interworking procedures of the frequencyHoppingSystem Object Class.....	42
	5.5.2.1	Initialization procedure for the frequencyHoppingSystem Object Class.....	42
	5.5.2.2	M-DELETE .....	42
	5.5.2.3	M-SET .....	42
	5.5.2.4	M-GET .....	43
5.6		LapdLink Object Class .....	43
5.6.1		Information mapping between GSM 12.20 lapdLink and GSM 12.21 Objects.....	43
	5.6.1.1	Mapping of attributes.....	43
5.6.2		Interworking procedures for the lapdLink Object Class.....	44
	5.6.2.1	Initialization procedure for the lapdLink Object Class .....	44
	5.6.2.2	M-DELETE .....	44
	5.6.2.3	M-SET .....	44
	5.6.2.4	M-GET .....	44
5.7		radioCarrier Object Class.....	45
5.7.1		Information mapping between GSM 12.20 radioCarrier and GSM 12.21 Radio Carrier .....	45
	5.7.1.1	Mapping of attributes.....	45
	5.7.1.2	Mapping of GSM 12.21 Event Reports to GSM 12.20 notifications .....	45
5.7.2		The interworking procedures of the radioCarrier Object Class .....	46
	5.7.2.1	The Initialization procedure for the radioCarrier Object Class .....	46
	5.7.2.2	M-DELETE .....	47

## ETS 300 624: August 1996 (GSM 12.22 version 4.1.4)

	5.7.2.3	M-SET.....	47
	5.7.2.4	M-GET .....	48
5.8	Software Objects .....		48
	5.8.1	Introduction.....	48
	5.8.2	Replaceable Software Unit Object Class .....	49
	5.8.2.1	Information mapping between GSM 12.20 replaceableSoftwareUnit and GSM 12.21 objects .....	49
	5.8.2.1.1	Mapping of attributes .....	49
	5.8.2.2	Interworking procedures .....	50
	5.8.2.2.1	M-CREATE .....	50
	5.8.2.2.2	M-DELETE.....	50
	5.8.2.2.3	M-SET.....	50
	5.8.2.2.4	M-GET .....	50
	5.8.3	Executable Software Unit Object Class.....	51
	5.8.3.1	Information mapping between GSM 12.20 executableSoftwareUnit and GSM 12.21 objects .....	51
	5.8.3.2	Interworking procedures .....	51
	5.8.3.2.1	M-CREATE .....	51
	5.8.3.2.2	M-DELETE.....	51
	5.8.3.2.3	M-SET.....	51
	5.8.3.2.4	M-GET .....	51
	5.8.4	Operating Software Unit Object Class.....	51
	5.8.4.1	Information Mapping between GSM 12.20 operatingSoftwareUnit and GSM 12.21 objects .....	51
	5.8.4.2	Interworking procedures .....	52
	5.8.4.2.1	M-CREATE .....	52
	5.8.4.2.2	M-DELETE.....	52
	5.8.4.2.3	M-SET.....	52
	5.8.4.2.4	M-GET .....	54
6	Related A-Bis Structured Procedures.....		54
	6.1	LAPD Link Connection.....	54
	6.2	LAPD Link Disconnection.....	55
	6.3	Software Downloading and Activation.....	55
	6.3.1	Software Downloading.....	55
	6.3.2	Software Activation.....	56
	Annex A (informative):	Some interworking issues .....	57
	A.1	Structured procedures on Q3 Interface.....	57
	Annex B (informative):	Reconfiguration procedures .....	58
	B.1	Assumptions.....	58
	B.2	Implementation specific issues .....	58
	B.3	Reconfiguration when BCCH is lost .....	59
	B.4	Reconfiguration when SDCCH is lost.....	60
	Annex C (informative):	List of attributes .....	63
	History.....		65

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

SIST ETS 300 624 E1:2003  
https://standards.iteh.ai/catalog/standards/sist/507117d3-72dc-4b06-911e-b04c-208392/sist-ets-300-624-e1-2003

Blank page

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

SIST ETS 300 624 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/567117d3-72dc-4b06-977b-bba4c268696a/sist-ets-300-624-e1-2003>



## Foreword

This European Telecommunication Standard (ETS) was produced by the Special Mobile Group (SMG) Technical Committee of the European Telecommunications Standards Institute (ETSI).

This ETS describes the BSC interworking within the Digital cellular telecommunications system. This ETS corresponds to GSM technical specification, GSM 12.22, version 4.1.4.

The specification from which this ETS has been derived was originally based on GSM Phase 1 documentation, hence the presentation of this ETS is not entirely in accordance with the ETSI/PNE rules.

NOTE: TC-SMG has produced documents which give technical specifications for the implementation of the Digital cellular telecommunications system. Historically, these documents have been identified as GSM Technical Specifications (GSM-TSs). These specifications may subsequently become I-ETSS (Phase 1), or European Telecommunication Standards (ETSS)(Phase 2), whilst others may become ETSI Technical Reports (ETRs). These ETSI-GSM Technical Specifications are, for editorial reasons, still referred to in this ETS.

Transposition dates	
Date of adoption of this ETS:	06 June 1996
Date of latest announcement of this ETS (doa):	26 September 1996
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	27 March 1997
Date of withdrawal of any conflicting National Standard (dow):	27 March 1997

iTech STANDARD PREVIEW  
(standards.iteh.ai)

## Introduction

[SIST ETS 300 624 E1:2003](https://standards.iteh.ai/catalog/standards/sist/567117d3-72dc-4b06-bba4c268696a/sist-ets-300-624-e1-2003)

[https://standards.iteh.ai/catalog/standards/sist/567117d3-72dc-4b06-](https://standards.iteh.ai/catalog/standards/sist/567117d3-72dc-4b06-bba4c268696a/sist-ets-300-624-e1-2003)

This ETS is structured as follows: <https://standards.iteh.ai/catalog/standards/sist/567117d3-72dc-4b06-bba4c268696a/sist-ets-300-624-e1-2003>

- 1) Scope;
- 2) Normative references;
- 3) Abbreviations;
- 4) Common interworking aspects;
- 5) Specific interworking aspects;
- 6) Related A-bis structured procedures;

Annex A (informative) Some interworking issues;  
Annex B (informative) Reconfiguration procedures;  
Annex C (informative) List of attributes.

Clause 4 describes the aspects common to all the managed object classes that cause interworking between the Q3 and Qx interfaces. Objects and their naming and addressing on the OMC-BSC and A-bis Qx interfaces are briefly described. General requirements for Q3/Qx interworking for CMIP operations including error handling are given. Q3/Qx interworking of general functions, i.e. state management and alarm reporting, are also specified.

Clause 5 specifies the aspects, specific to each object class, that cause interworking. This clause contains the requirements on mapping between the GSM 12.20 specified and GSM 12.21 specified objects, their attributes, and object specific interworking procedures for different CMIP operations.

Clause 6 defines the A-bis structured procedures used in clause 3.

Annex A describes the structured procedures at a high level which are used in managing the BTS from the OMC. Annex B contains example procedures for BCCH and SDCCH reconfiguration. Annex C contains the list of GSM 12.20 and GSM 12.21 attributes that are referenced in this specification.

Blank page

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

[SIST ETS 300 624 E1:2003](https://standards.iteh.ai/catalog/standards/sist/567117d3-72dc-4b06-977b-bba4c268696a/sist-ets-300-624-e1-2003)

<https://standards.iteh.ai/catalog/standards/sist/567117d3-72dc-4b06-977b-bba4c268696a/sist-ets-300-624-e1-2003>

## 1 Scope

To ensure management of different manufacturers' BTSs from the OMC through the BSC in a standardized way, this BSC interworking ETS relates the OMC-BSC interface (Q3) as specified in GSM 12.20 and the BSC-BTS interface (A-bis Qx) as specified in GSM 12.21. In GSM 12.01 it is required that the BSC performs the Mediation Function between the OMC and the BTS. This ETS defines the requirements for this Mediation Function.

## 2 Normative references

This ETS incorporates by dated and undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

- [1] CCITT Recommendation X.710: "Information technology - Open Systems Interconnection - Common Management Information Service Definition for CCITT Applications".
- [2] CCITT Recommendation X.711: "Information technology - Open Systems Interconnection - Common Management Information Protocol specification for CCITT Applications".
- [3] CCITT Recommendation X.721 (ISO 10165-2): "Information technology - Open Systems Interconnection - Structure of management information: Definition Of Management Information".
- [4] CCITT Recommendation X.731 (ISO 10164-2): "Information technology - Open Systems Interconnection - Systems Management: State Management".
- [5] CCITT Recommendation X.733 (ISO 10164-4): "Information technology - Open Systems Interconnection - Systems Management: Alarm Reporting".
- [6] CCITT Recommendation X.734 (ISO 10164-5): "Information technology - Open Systems Interconnection - Systems Management: Event Report Management Function".
- [7] CCITT Recommendation X.735 (ISO 10164-6): "Information technology - Open Systems Interconnection - Systems Management: Log Control Function".
- [8] GSM 04.08 (ETS 300 557): "Digital cellular telecommunication system (Phase 2); Mobile radio interface layer 3 specification".
- [9] GSM 08.56 (ETS 300 595): "Digital cellular telecommunication system (Phase 2); Base Station Controller - Base Transceiver Station (BSC - BTS) interface Layer 2 specification".
- [10] GSM 08.58 (ETS 300 596): "Digital cellular telecommunication system (Phase 2); Base Station Controller - Base Transceiver Station (BSC - BTS) interface Layer 3 specification".
- [11] GSM 12.00 (ETS 300 612-1): "Digital cellular telecommunication system (Phase 2); Objectives and structure of Network Management (NM)".
- [12] GSM 12.01 (ETS 300 612-2): "Digital cellular telecommunication system (Phase 2); Common aspects of GSM Network Management (NM)".
- [13] GSM 12.20 (ETS 300 622): "Digital cellular telecommunication system (Phase 2); Base Station System (BSS) Management Information".

- [14] GSM 12.21 (ETS 300 623): "Digital cellular telecommunication system (Phase 2); Network Management (NM) procedures and message on the A-bis interface".

### 3 Abbreviations

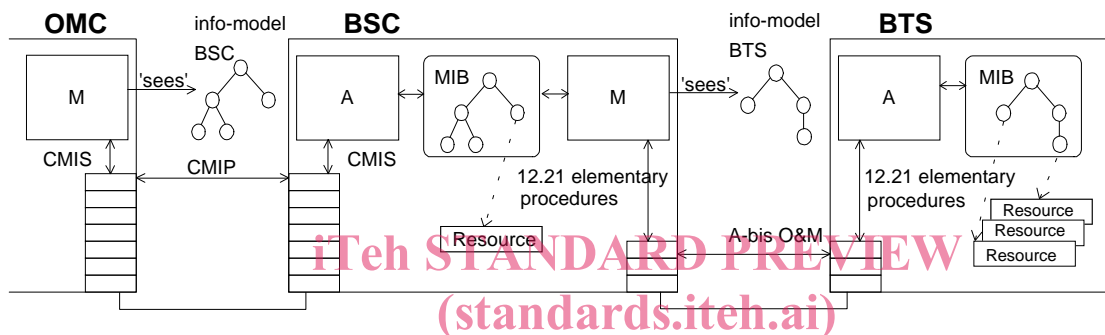
Abbreviations used in this ETS are listed in GSM 01.04.

## 4 Common Interworking aspects

### 4.1 General considerations

#### 4.1.1 Interworking tasks

Figure 1 illustrates differences between Q3 and A-bis Qx interfaces and the object models in the BSC and the BTS.



**M: Manager**

**A: Agent**

<https://standards.iteh.ai/catalog/standards/sist/567117d3-72dc-4b06-977b-bba4c268696a/sist-ets-300-624-e1-2003>

**Figure 1: Mapping of information models**

In the A-bis interface, layers 1 and 2 are common with telecommunication signalling specified in GSM 08.5X. Network management messages and procedures on the A-bis interface are based on the layer 3 transport mechanism specified in GSM 12.21 and are consistent with the telecommunications signalling on layers 3 as specified in GSM 08.58.

The protocol profiles for the Q3 interface are specified in GSM 12.01.

For network management purposes, the BSC is responsible for the following interworking tasks:

- bi-directional protocol conversion so as to provide mapping between Q3 and A-bis Qx interfaces which consists of mapping of GSM 12.20 objects onto GSM 12.21 objects, mapping of CMIS services onto GSM 12.21 procedures and association of GSM 12.20 attributes to GSM 12.21 attributes;
- management of interworking functions activated by the OMC and terminated within the BTS and vice versa;
- handling of interworking errors, i.e., reporting errors in case of failure in interworking procedures.

**NOTE:** The functions activated by the OMC and terminated within the BSC or functions activated by the BTS and terminated within the BSC are not specified here. This applies also to the vice versa situations.

#### 4.1.2 Mapping between GSM 12.20 specified and GSM 12.21 specified Object Classes

Q3 and A-bis Qx interfaces use different object models. The specification of the interworking procedures between these interfaces requires mapping the object classes and instances between the Q3 interface and the A-bis Qx interface and vice versa. The following table contains BTS related object classes specified in GSM 12.20 and the corresponding object classes specified in GSM 12.21.

**Table 1: BTS related object classes in GSM 12.20 and GSM 12.21.**

GSM 12.20 BTS related object classes	GSM 12.21 object classes
btsSiteManager	Site Manager
bts	BTS
basebandTransceiver	Baseband Transceiver
radioCarrier	Radio Carrier
frequencyHoppingSystem	1)Channel
channel	Channel
lapdLink	2)

NOTE 1: GSM 12.21 does not specify the frequency hopping system as an object class. The corresponding information is included in the attributes of the channel class.

NOTE 2: The information about the signalling links of the BTS side (PCM port numbers and timeslots in the BTS) is included in the attributes of Site Manager, BTS and Baseband Transceiver classes. In GSM 12.20 the corresponding object classes have references to LAPD links which are either O&M links (in Site Manager, bts or basebandTransceiver) or telecom signalling links (only to basebandTransceiver).

#### 4.1.3 Addressing Objects at the BTS Site and handling different BTS configurations

The BCF (Base Control Function) mentioned in GSM 08.52 and GSM 08.56 is the agent at the BTS end of the A-bis Qx interface. There could be one or more of these agents at the site and the GSM 12.21 objects and attributes that each agent can manage depend on the implementation. Each agent is connected to the manager at the BSC via a LAPD link which is identified by a physical link address (i.e. PCM circuit and (sub)timeslot), TEI (Terminal Endpoint Identifier) and SAPI (Service Access Point Identifier). In order to address the various BTS objects over the A-bis Qx interface it is required that the BSC contain associations between BTS related objects defined in GSM 12.20 and the agents (i.e. O&M links) that manage the corresponding GSM 12.21 objects at the BTS site.

The procedures that relate to the A-bis interface management are optional in GSM 12.21 and therefore not all the BTSs have to support them. However, it is required that these are implemented in the BSC so that it can support all the BTS implementations that are made according to GSM 12.21. In this case the BSC must have the information per each BTS whether the A-bis interface management option is supported or not.

## 4.2 CMIP Operations

### 4.2.1 Creation of BTS related Object instances

The M-CREATE service is used by the OMC to request a peer CMISE-service-user (i.e., the agent) at the BSC to create an object instance, complete with its identification. The corresponding physical resource may or may not exist at the BTS site.

Normally the initialization of the physical resource via A-bis Qx interface will be started immediately after the creation if the corresponding physical resource at the BTS site has been installed. Initialization might include several steps, such as, setting up O&M (and telecommunications) signalling links, downloading and activation of the software, setting various O&M attributes by GSM 12.21 messages and setting the system information to be broadcasted from the BTS by GSM 08.58 procedures. Some of these steps are not relevant for some object classes.

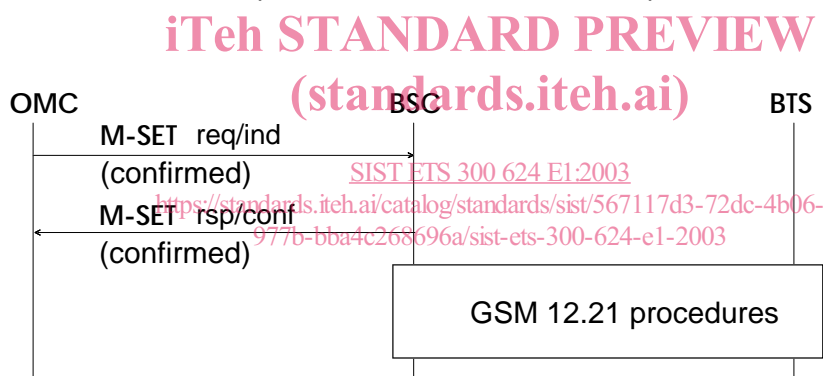
Object creation to the BSC should be possible before any resources are installed at the BTS site. If the resource for the object to be created has not been installed at the BTS site, the agent at the BTS site will not respond or it will respond with a NACK message with the NACK cause set to "Resource not available". In these cases the object shall be created to the BSC MIB but the operational state shall be set to Disabled. If the needed resource is installed later the corresponding GSM 12.21 object will send a Changed State Event Report (reference. subclause 4.4) or a SW Activate Request and the initialization will be tried again. Also setting the administrative state of a disabled object to Unlocked state may trigger the initialization.

There is one exception to the rule stated above and it is the creation of the channel objects. Eight instances of the channel are automatically created when a basebandTransceiver is created. These channel instances have initially NULL values in some of their attributes. These initial NULL values of the channels shall not be automatically set to the corresponding GSM 12.21 Channels. In this case the BSC has to wait the OMC manager to set the correct values to the channels and then unlock them before the attributes are set by the GSM 12.21 procedures (see channel initialization procedure in subclause 5.4.2).

#### 4.2.2 Setting attributes of BTS related Objects

The M-SET service is used by the OMC to request a peer CMISE-service-user to modify attribute values of an object instance. In the GSM 12.20 context, only the attributes defined as GET-REPLACE can be modified using the M-SET service.

Normally the corresponding GSM 12.21 object at the BTS site is immediately modified by interworking procedure defined in clause 5 for the M-SET service. In the interworking procedures, the BSC database shall be updated before any GSM 12.21 procedures are invoked, and, if the M-SET service is used in the confirmed mode, a response to M-SET shall also be sent to the OMC before any GSM 12.21 procedures are invoked. Errors in the GSM 12.21 procedures shall be handled as specified in subclause 4.3.



**Figure 2: General M-SET interworking**

The following attributes defined in GSM 12.20 require that the administrative state of the object instance has to be Locked before the attribute can be modified:

- bsic (bts);
- channelCombination (channel);
- tsc (channel).

In these cases the administrative state of the object shall be checked and if the administrative state is not Locked a CMIS error shall be sent and the interworking procedure shall not be executed.

### 4.2.3 Getting attributes of BTS related Objects

The M-GET service is used by the OMC to retrieve the values of attributes of an object instance from a peer CMISE-service-user located in the BSC. The requested attribute values are communicated to the OMC in the response.

M-GET does not normally cause any interworking procedures because it is assumed that the BSC is responsible for its database consistency.

GSM 12.21 defines the Get Attributes procedure. Its use is not required in response to an M-GET operation. However it may be used. If this option is implemented the best-effort synchronization shall be used. It means that the BSC tries to read all the attributes listed in the M-GET request regardless errors in some parameters. If a NACK message is received from the BTS CMIS error response shall be sent with a list of the parameters which had errors and a list of the parameters which could be read.

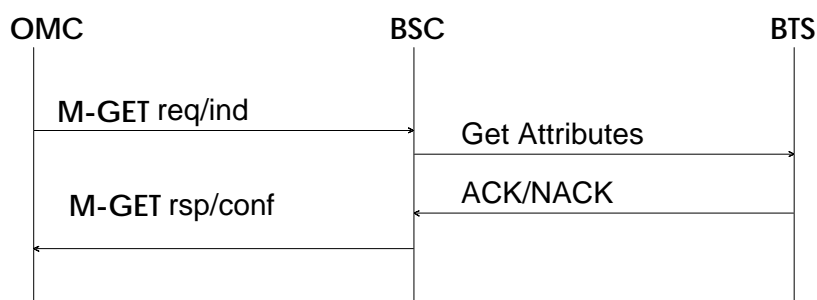


Figure 3: Optional M-GET interworking

### 4.2.4 Deletion of BTS related Objects

The M-DELETE service is used by the OMC to request a peer CMISE-service-user to delete an object and to deregister its identification in the BSC. <https://standards.iteh.ai/catalog/standards/sist/567117d3-72dc-4b06-701e-701e701e701e>

Rules for deletion of contained or related objects are specified in GSM 12.20.

M-DELETE does not normally cause any interworking procedures. However in some cases disconnecting of links is required. In these cases interworking is described in clause 5.

### 4.2.5 Actions on BTS related Objects

The M-ACTION service is used by the OMC to request a peer CMISE-service-user to perform an action at the BSC. The service may be requested in a confirmed or a non-confirmed mode. In confirmed mode a reply is expected.

Actions are specific to the object classes and therefore a general rule how the interworking procedure is executed cannot be defined. The interworking procedures for actions are described within the relevant object classes in clause 5.

### 4.2.6 Event Reports sent by BTS related Objects

The M-EVENT-REPORT service is invoked by a CMISE-service user (the BSC in this case) to report an event about a managed object to a peer CMISE-service-user (the OMC). The service may be requested in a confirmed or a non-confirmed mode. In confirmed mode a reply is expected.

All GSM 12.21 event reports sent by the BTS will generate local notifications at the BSC. These notifications are then subject to logging (reference. CCITT Recommendation. X.735) and event forwarding discrimination (reference. CCITT Recommendation. X.734) processes. Those notifications that pass the discriminators can be forwarded to the OMC as event reports. Potentially any GSM 12.21 event report can generate an event report from the BSC to the OMC.