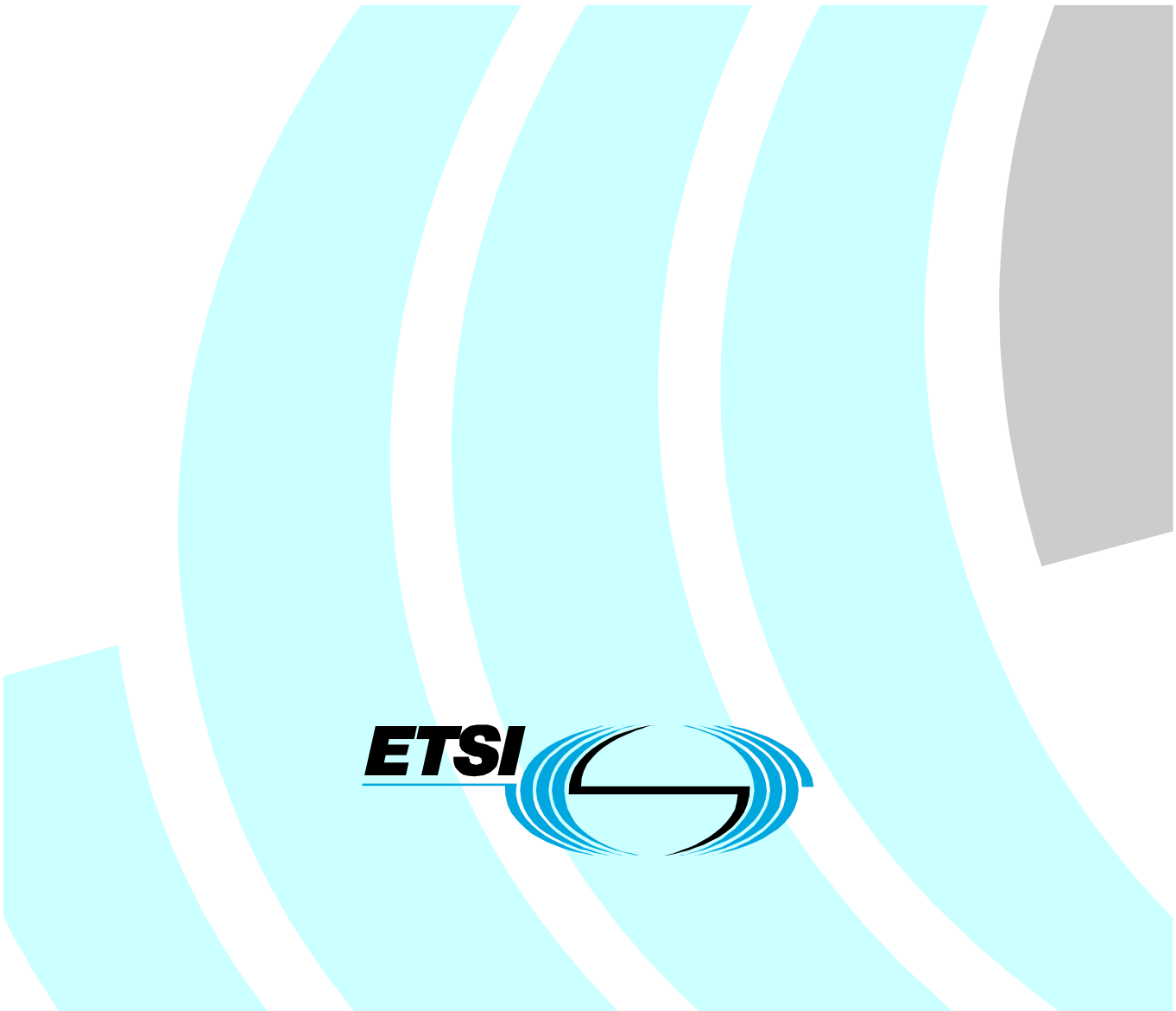
ETSI TS 102 362-1 V1.2.1 (2006-06)

Technical Specification

Electromagnetic compatibility and Radio spectrum Matters (ERM); Conformance testing for the Digital Mobile Radio (DMR); Part 1: Protocol Implementation Conformance Statement (PICS) proforma



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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM).

The present document is part 1 of a multi-part deliverable covering the Electromagnetic compatibility and Radio spectrum Matters (ERM); Conformance testing for the Digital Mobile Radio (DMR), as identified below:

Part 1: "Protocol Implementation Conformance Statement (PICS) proforma";

Part 2: "Test Suite Structure and Test Purposes (TSS&TP) specification";

Part 3: "Abstract Test Suite (ATS)".

Introduction

To evaluate conformance of a particular implementation, it is necessary to have a statement of which capabilities and options have been implemented for a telecommunication specification. Such a statement is called a Protocol Implementation Conformance Statement (PICS).

1 Scope

The present document provides the Protocol Implementation Conformance Statement (PICS) proforma for the Data Link Layer (DLL) and Call Control Layer (CCL) of Digital Mobile Radio (DMR) as defined in TS 102 361-1 [1], TS 102 361-2 [2], TS 102 361-3 [3], and TS 102 361-4 [4] in compliance with the relevant requirements, and in accordance with the relevant guidance given in ISO/IEC 9646-7 [6] and ETS 300 406 [7].

The present document details in tabular form the implementation options, i.e. the optional functions additional to those which are mandatory to implement.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

[1] ETSI TS 102 361-1: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Digital Mobile Radio (DMR) Systems; Part 1: DMR Air Interface (AI) protocol".

[2] ETSI TS 102 361-2: " Electromagnetic compatibility and Radio spectrum Matters (ERM); Digital Mobile Radio (DMR) Systems; Part 2: DMR voice and generic services and facilities".

[3] ETSI TS 102 361-3: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Digital Mobile Radio (DMR) Systems; Part 3: DMR Data protocol".

[4] ETSI TS 102 361-4: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Digital Mobile Radio (DMR) Systems; Part 4: DMR trunking p-rotocol".

[5] ISO/IEC 9646-1: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".

[6] ISO/IEC 9646-7: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".

[7] ETSI ETS 300 406 (1995): "Methods for testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TS 102 361-1 [1], TS 102 361-2 [2], TS 102 361-3 [3], TS 102 361-4 [4], ISO/IEC 9646-1 [5], ISO/IEC 9646-7 [6] and the following apply:

Implementation Conformance Statement (ICS): statement made by the supplier of an implementation or system claimed to conform to a given specification, stating which capabilities have been implemented

NOTE: The ICS can take several forms: protocol ICS, profile ICS, profile specific ICS, information object ICS, etc.

ICS proforma: document, in the form of a questionnaire, which when completed for an implementation or system becomes an ICS

Protocol ICS (PICS): ICS for an implementation or system claimed to conform to a given protocol specification

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

BOC	Beginning Of Call
BOT	Beginning Of Transmission
BS	Base Station
CCL	Call Control Layer
CSBK	Control Signalling BlocK
DLL	Data Link Layer
DMR	Digital Mobile Radio
EMB	EMBedded signalling
EOC	End Of Call
EOT	End Of Transmission
IUT	Implementation Under Test
LC	Link Control
MS	Mobile Station
OACSU	Off Air Call SetUp
PATCS	Press And Talk Call Setup
PDU	Protocol Data Unit
P-HEAD	Proprietary - HEADer
PICS	Protocol Implementation Conformance Statement
PR FILL	Pseudo Random FILL bit
RC	Reverse Channel
Rx	Receive
SLOT	SLOT type
SUT	System Under Test
SYNC	SYNChronization
TACT	TDMA Access Channel Type
TS	Trunked System
TSCC	Trunked System Control Channel
Tx	Transmission

4 Conformance to this PICS proforma specification

If it claims to conform to the present document, the actual PICS proforma to be filled in by a supplier shall be technically equivalent to the text of the PICS proforma given in annex A, and shall preserve the numbering/naming and ordering of the proforma items.

A PICS, which conforms to the present document, shall be a conforming PICS proforma completed in accordance with the guidance for completion given in clause A.1.

Annex A (normative): Protocol ICS proforma for TS 102 361-1, TS 102 361-2, TS 102 361-3, and TS 102 361-4

A.1 Guidance for completing the PICS proforma

A.1.1 Purposes and structure

The purpose of this PICS proforma is to provide a mechanism whereby a supplier of an implementation of the requirements defined in TS 102 361-1 [1], TS 102 361-2 [2], TS 102 361-3 [3], and TS 102 361-4 [4], may provide information about the implementation in a standardized manner.

The PICS proforma is subdivided into clauses for the following categories of information:

- guidance for completing the PICS proforma;
- identification of the implementation;
- identification of the TS 102 361-1 [1], TS 102 361-2 [2], TS 102 361-3 [3], and TS 102 361-4 [4];
- global statement of conformance;
- release and Tier;
- roles;
- Mobile Station MS:
  - capabilities;
  - PDUs;
  - PDU parameters;
  - timers;
- Base Station BS:
  - capabilities;
  - PDUs;
  - PDU parameters;
  - timers.

A.1.2 Abbreviations and conventions

The PICS proforma contained in this annex is comprised of information in tabular form in accordance with the guidelines presented in ISO/IEC 9646-7 [6].

Item column

The item column contains a number which identifies the item in the table.

Item description column

The item description column describes in free text each respective item (e.g. parameters, timers, etc.). It implicitly means "is <item description> supported by the implementation?".

Status column

The following notations, defined in ISO/IEC 9646-7 [6], are used for the status column:

- m mandatory - the capability is required to be supported.
- o optional - the capability may be supported or not.
- n/a not applicable - in the given context, it is impossible to use the capability.
- x prohibited (excluded) - there is a requirement not to use this capability in the given context.
- o.i qualified optional - for mutually exclusive or selectable options from a set. "i" is an integer which identifies an unique group of related optional items and the logic of their selection which is defined immediately following the table.
- ci conditional - the requirement on the capability ("m", "o", "x" or "n/a") depends on the support of other optional or conditional items. "i" is an integer identifying an unique conditional status expression which is defined immediately following the table.
- i irrelevant (out-of-scope) - capability outside the scope of the reference specification. No answer is requested from the supplier.

NOTE 1: This use of "i" status is not to be confused with the suffix "i" to the "o" and "c" statuses above.

Reference column

The reference column makes reference to TS 102 361-1 [1], TS 102 361-2 [2], TS 102 361-3 [3], or TS 102 361-4 [4], except where explicitly stated otherwise.

Support column

The support column shall be filled in by the supplier of the implementation. The following common notations, defined in ISO/IEC 9646-7 [6], are used for the support column:

- Y or y supported by the implementation.
- N or n not supported by the implementation.
- N/A, n/a or - no answer required (allowed only if the status is n/a, directly or after evaluation of a conditional status).

If this PICS proforma is completed in order to describe a multiple-profile support in a system, it is necessary to be able to answer that a capability is supported for one profile and not supported for another. In that case, the supplier shall enter the unique reference to a conditional expression, preceded by "?" (e.g. ?3). This expression shall be given in the space for comments provided at the bottom of the table. It uses predicates defined in the SCS, each of which refers to a single profile and which takes the value TRUE if and only if that profile is to be used.

EXAMPLE 1: ?3: IF prof1 THEN Y ELSE N

NOTE 2: As stated in ISO/IEC 9646-7 [6], support for a received PDU requires the ability to parse all valid parameters of that PDU. Supporting a PDU while having no ability to parse a valid parameter is non-conformant. Support for a parameter on a PDU means that the semantics of that parameter are supported.

Values allowed column

The values allowed column contains the type, the list, the range, or the length of values allowed. The following notations are used:

- range of values: <min value> .. <max value>
  example: 5 .. 20
- list of values: <value1>, <value2>, ..., <valueN>
  example: 2 ,4 ,6 ,8, 9
  example: '1101'B, '1011'B, '1111'B
  example: '0A'H, '34'H, '2F'H
- list of named values: <name1>(<val1>), <name2>(<val2>), ..., <nameN>(<valN>)
  example: reject(1), accept(2)
- length: size (<min size> .. <max size>)
  example: size (1 .. 8)

Values supported column

The values supported column shall be filled in by the supplier of the implementation. In this column, the values or the ranges of values supported by the implementation shall be indicated.

References to items

For each possible item answer (answer in the support column) within the PICS proforma a unique reference exists, used, for example, in the conditional expressions. It is defined as the table identifier, followed by a solidus character "/", followed by the item number in the table. If there is more than one support column in a table, the columns are discriminated by letters (a, b, etc.), respectively.

EXAMPLE 2: A.5/4 is the reference to the answer of item 4 in table 5 of annex A.

EXAMPLE 3: A.6/3b is the reference to the second answer (i.e. in the second support column) of item 3 in table 6 of annex A.

Prerequisite line

A prerequisite line takes the form: Prerequisite: <predicate>.

A prerequisite line after a clause or table title indicates that the whole clause or the whole table is not required to be completed if the predicate is FALSE.

A.1.3 Instructions for completing the PICS proforma

The supplier of the implementation shall complete the PICS proforma in each of the spaces provided. In particular, an explicit answer shall be entered, in each of the support or supported column boxes provided, using the notation described in clause A.1.2.

However, the tables containing in "Mobile Station MS" clause shall only be completed for MS implementations, and the tables containing in "Base Station BS" clause shall only be completed for BS implementations.

If necessary, the supplier may provide additional comments in space at the bottom of the tables or separately.

More detailed instructions are given at the beginning of the different clauses of the PICS proforma.

A.2 Identification of the implementation

Identification of the Implementation Under Test (IUT) and the system in which it resides (the System Under Test (SUT)) should be filled in so as to provide as much detail as possible regarding version numbers and configuration options.

The product supplier information and client information should both be filled in if they are different.

A person who can answer queries regarding information supplied in the PICS should be named as the contact person.

A.2.1 Date of the statement

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A.2.2 Implementation Under Test (IUT) identification

IUT name:

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IUT version:

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A.2.3 System Under Test (SUT) identification

SUT name:

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Hardware configuration:

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Operating system:

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A.2.4 Product supplier

Name:

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Address:

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Telephone number:

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Facsimile number:

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E-mail address:

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Additional information:

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A.2.5 Client (if different from product supplier)

Name:

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Address:

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Telephone number:

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Facsimile number:

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E-mail address:

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Additional information:

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A.2.6 ICS contact person

(A person to contact if there are any queries concerning the content of the ICS)

Name:

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Telephone number:

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Facsimile number:

.....

E-mail address:

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Additional information:

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A.3 Identification of the protocol

This PICS proforma applies to the following standards:

TS 102 361-1 [1] (V.1.2.1)

TS 102 361-2 [2] (V.1.2.1)

TS 102 361-3 [3] (V1.1.1)

TS 102 361-4 [4] (V1.1.1)

A.4 Global statement of conformance

Are all mandatory capabilities implemented? (Yes/No) .....

NOTE: Answering "No" to this question indicates non-conformance to the <reference specification type> specification. Non-supported mandatory capabilities are to be identified in the PICS, with an explanation of why the implementation is non-conforming, on pages attached to the PICS proforma.

A.5 Release

Table A.1: Release

Item	Release	Reference	Status	Support
1	Release 1	[1] clause 1, [2] clause 1	o.1	
2	Release 2	[1] clause 1, [2] clause 1, [3] clause 1, [4] clause 1	o.1	

o.1: It is mandatory to support exactly one of these items.

Comments:

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A.6 Tier

This clause contains the PICS proforma table related to the Tier type.

Table A.2: Tier type

Item	Tier type	Reference	Status	Support
1	Tier I	[1] clause 1, [2] clause 1	o.2	
2	Tier II	[1] clause 1, [2] clause 1, [3] clause 1	o.2	
3	Tier III	[4] clause 1, [1] clause 1, [2] clause 1, [3] clause 1	o.2	

o.2: It is mandatory to support at least one of these items.

Comments:

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A.7 Roles

Table A.3: Roles

Item	Role	Reference	Status	Support
1	Mobile Station MS	[1] clause 1, [2] clause 1	o.3	
2	Base Station BS	[1] clause 1, [2] clause 1	o.3	

o.3: It is mandatory to support at least one of these items.

Comments:

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A.8 Mobile Station

This clause contains the PICS proforma tables related to the Mobile Station MS. They need to be completed for description of MS implementations only.

PrerequisiteA.3/1-- MS.

Table A.4: MS modes, Tier 1

Prerequisite: A.2/1 Tier 1 product				
Item	**Mode**	**Reference**	**Status**	**Support**
1	Direct mode	[1] clause 1, [2] clause 1	m	

Comments:

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Table A.5: MS modes, Tier 2 and 3

Prerequisite: A.2/2 OR A.2/3 Tier 2 or 3 product				
Item	**Mode**	**Reference**	**Status**	**Support**
1	Direct mode	[1] clause 1, [2] clause 1	o.5	
2	Repeater mode	[1] clause 1, [2] clause 1	o.5	

o.5: It is mandatory to support at least one of these items.

Comments:

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A.8.1 MS CCL

A.8.1.1 MS CCL capabilities and functionalities

A.8.1.1.1 MS CCL feature sets common to all Tiers

Table A.6: MS feature sets

Item	MS feature sets	Reference	Status	Support
1	Standard feature set	[2] clause 4.2	m	
2	Manufacturers feature set	[2] clause 4.2	o	
3	Packet Data Protocol	[3] clause 4	c601	

c601: IF A.1/1 THEN n/a ELSE o if Release 1 then not applicable else optional

Comments:

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A.8.1.1.2 MS CCL Tier 3 (trunked mode) feature sets

Table A.7: MS Tier 3 (trunked mode) feature sets

Prerequisite: A.2/3 Tier 3 (trunked mode) MS				
Item	**MS feature sets**	**Reference**	**Status**	**Support**
1	Trunked mode standard feature set	[4] clause 4.2	m	
2	Manufacturers feature set	[4] clause 4.2	o	

Comments:

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A.8.1.1.3 MS CCL standard feature set common to all Tiers

Table A.8: MS CCL standard feature set

Item	MS feature	Reference	Status	Support
1	BS activation	[2] clause 4.1.3, [1] clause 5.2.2.2	c801	
2	Late entry procedure	[2] clauses 4.1.3 and 5.2.1.3.3.5	o	
3	Pre-emption procedure	[2] clause 4.1.3	o	
4	Emergency signalling	[2] clause 4.1.3	o	
5	Feature not supported signalling	[2] clauses 4.2 and 5.1.2	m	
6	Individual call service	[2] clauses 5.2.2 and 4.2	o	
7	Group call service	[2] clauses 5.2.1 and 4.2	o	
8	Unaddressed voice call service	[2] clauses 5.3.1 and 4.2	o	
9	All call service	[2] clauses 5.3.2 and 4.2	o	
10	Broadcast voice call service	[2] clauses 5.3.3 and 4.2	o	
11	Open voice channel call service	[2] clauses 5.3.4 and 4.2	o	
12	Transmit timeout	[2] clauses 4.2 and 6.1	o	

c801: IF A.2/1 THEN n/a ELSE o if Tier 1 product then not applicable else optional (for Tier 2 3).

Comments:

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A.8.1.1.4 MS CCL group call service

Table A.9: MS group call mode

Prerequisite: A.8/7 Group call service				
Item	**Group call mode**	**Reference**	**Status**	**Support**
1	Peer to peer mode	[2] clause 5.2.1.2.1	c901	
2	Repeater mode	[2] clause 5.2.1.2.2	c902	

c901: IF (A.4/1 OR A.5/1) THEN m ELSE n/a if direct mode supported then mandatory else not applicable.

c902: IF A.5/2 THEN m ELSE n/a if repeater mode then mandatory else not applicable.

Comments:

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Table A.10: MS group call service elements

Prerequisite: A.8/7 Group call service				
Item	**Group call facility element**	**Reference**	**Status**	**Support**
1	Tx Beginning of Call (BOC)	[2] clause 5.2.1.1, [2] clause 5.2.1.3.3.1, [2] clause 5.2.1.3.3.2, [2] clause 5.2.1.3.3.3	m	
2	Tx Beginning of Transmission (BOT)	[2] clauses 5.2.1.1 and 5.2.1.3.3.3	m	
3	Rx Beginning of Transmission (BOT)	[2] clauses 5.2.1.1 and 5.2.1.3.3.4	m	
4	Tx End of Transmission (EOT)	[2] clauses 5.2.1.1 and 5.2.1.3.3.6	m	
5	Rx End of Transmission (EOT)	[2] clauses 5.2.1.1 and 5.2.1.3.3.7	m	
6	Rx End of Call (EOC)	[2] clauses 5.2.1.1 and 5.2.1.3.3.8	c1001	
7	Tx Late entry support	[2] clauses 5.2.1.1 and 5.2.1.3.3.9	m	
8	Rx Late entry support	[2] clauses 5.2.1.1 and 5.2.1.3.3.5	m	

c1001: IF A.5/2 THEN m ELSE n/a if repeater mode supported then mandatory else not applicable.

Comments:

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A.8.1.1.5 MS CCL individual speech call service

Table A.11: MS individual call mode

Prerequisite: A.8/6 Individual call service				
Item	**Individual call mode**	**Reference**	**Status**	**Support**
1	Peer to peer mode	[2] clause 5.2.2.2.1	c1101	
2	Repeater mode	[2] clause 5.2.2.2.2	c1102	

c1101:IF (A.4/1 OR A.5/1) THEN m ELSE n/a if direct mode then mandatory else not applicable.

c1102:IF A.5/2 THEN m ELSE n/a if repeater mode then mandatory else not applicable.

Comments:

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Table A.12: MS individual call service elements

Prerequisite: A.8/6 Individual call service				
Item	**Individual call service element**	**Reference**	**Status**	**Support**
1	Tx Beginning of Transmission (BOT)	[2] clauses 5.2.2.1, 5.2.2.3, 5.2.2.4 and 5.2.1.3.3.3	m	
2	Rx Beginning of Transmission (BOT)	[2] clauses 5.2.2.1, 5.2.2.3, 5.2.2.4 and 5.2.1.3.3.4	m	
3	Tx End of Transmission (EOT)	[2] clauses 5.2.2.1, 5.2.2.3, 5.2.2.4 and 5.2.1.3.3.6	m	
4	Rx End of Transmission (EOT)	[2] clauses 5.2.2.1, 5.2.2.3, 5.2.2.4 and 5.2.1.3.3.7	m	
5	Rx End of Call (EOC)	[2] clauses 5.2.2.1, 5.2.2.3, 5.2.2.4 and 5.2.1.3.3.8	c1201	
6	Tx Late entry support	[2] clauses 5.2.2.1, 5.2.2.3, 5.2.2.4 and 7.1.3.2	m	
7	Rx Late entry support	[2] clauses 5.2.2.1, 5.2.2.3, 5.2.2.4 and 5.2.1.3.3.5	m	

c1201: A.5/2 THEN m ELSE n/a if MS supports repeater mode then mandatory else not applicable.

Comments:

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Table A.13: MS individual call initiation

Prerequisite: A.8/6 Individual speech call service				
Item	**Individual call initiation method**	**Reference**	**Status**	**Support**
1	Press And Talk Call Setup (PATCS)	[2] clauses 5.2.2.1, 5.2.2.4, 5.2.1.3.3.1, 5.2.1.3.3.2 and 5.2.1.3.3.3	m	
2	Off Air Call SetUp (OACSU)	[2] clause 5.2.2.1	o	

Comments:

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Table A.14: MS Off Air Call Setup (OACSU)

Prerequisite: A.12/2 OACSU supported				
Item	**OACSU procedure**	**Reference**	**Status**	**Support**
1	Channel access request procedure	[2] clause 5.2.2.3.1	m	
2	Channel access response procedure	[2] clause 5.2.2.3.2	m	
3	Presence check procedure	[2] clause 5.2.2.4	m	

Comments:

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A.8.1.1.6 MS CCL Data packet features

Table A.15: MS CCL packet data features

Prerequisite: A.6/3 Packet data protocol				
Item	**Procedures**	**Reference**	**Status**	**Support**
1	Internet Protocol	[3] clause 4.2	o.15	
2	Short Data	[3] clause 4.2	o.15	

o.15 It is mandatory to support at least one of these items.

Comments:

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Table A.16: MS CCL short data transmissions

Prerequisite: A.15/2 Short data protocol				
Item	**Short data transmissions**	**Reference**	**Status**	**Support**
1	Raw data	[3] clause 4.2	o.16	
2	Status/Precoded data	[3] clause 4.2	o.16	
3	Defined data	[3] clause 4.2	o.16	

o.16 It is mandatory to support at least one of these items.

Comments:

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A.8.1.1.7 MS CCL trunked mode standard feature set

A.8.1.1.7.1 MS trunked mode control channel features

Table A.17: MS CCL trunked mode standard feature groups

Prerequisite: A.7/1 MS trunked mode standard feature set				
Item	**Tier 3 feature group**	**Reference**	**Status**	**Support**
1	Generic services feature group	[4] clause 4.2	m	
2	Voice call services feature group	[4] clause 4.2	o.17	
3	Data services feature group	[4] clause 4.2	o.17	
4	Supplementary services feature group	[4] clause 4.2	o	

o.17: It is mandatory to support at least one of the these items.

Comments:

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Table A.18: MS CCL trunked mode generic features

Prerequisite: A.17/1 MS trunked mode standard generic features group				
Item	**Tier 3 Generic feature**	**Reference**	**Status**	**Support**
1	Random access procedure	[4] clause 6.2	m	
2	Random Access storage feature	[4] clause 6.3.1	m	
3	Control Channel Acquisition procedure	[4] clause 6.3.2	m	
4	Explicit registration procedure	[4] clause 6.4.4, [4] clause 6.4.4.1	o	
5	Explicit registration storage feature	[4] clause 6.4.2	c1801	
6	De-registration	[4] clause 6.4.6	c1802	
7	Power save feature	[4] clause 6.4.7	o	
8	Unified data transport mechanism	[4] clause 6.5	m	

c1801: IF A.18/4 THEN m ELSE n/a — if explicit registration procedure supported then mandatory else not applicable.

c1802: IF A.18/4 THEN o ELSE n/a — if explicit registration procedure supported then optional else not applicable.

Comments:

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Table A.19: MS CCL trunked mode voice call features

Prerequisite: A.17/2 MS trunked mode voice call features group				
Item	**Tier 3 voice call feature**	**Reference**	**Status**	**Support**
1	Talkgroup call service	[4] clause 6.6.2	o.19	
2	Individual call service	[4] clause 6.6.2	o.19	
3	All call	[4] clause 6.6.2	c1901	
4	Broadcast voice call	[4] clause 6.6.2	c1901	
5	Open voice channel mode (OVCM)	[4] clause 6.6.2	o	
6	Emergency service	[4] clause 6.6.2	o	
7	Call back service	[4] clause 6.6.2.2.5	o	

o.19: It is mandatory to support at least one of the these items.

c1901: IF A.8/7 THEN o ELSE n/a if group call service supported then optional else not applicable.

Comments:

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Table A.20: MS CCL trunked talkgroup voice call set-up type

Prerequisite: A.19/1 MS trunked mode talkgroup voice call				
Item	**call set-up type**	**Reference**	**Status**	**Support**
1	Talkgroup call service single-part setup	[4] clause 6.6.2.1	m	
2	Talkgroup call service multi-part setup	[4] clause 6.6.2.1	o	

Comments:

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Table A.21: MS CCL trunked individual voice call set-up type

Prerequisite: A.19/2 MS trunked mode individual voice call				
Item	**Tier 3 voice call feature**	**Reference**	**Status**	**Support**
1	Individual call service single-part setup	[4] clause 6.6.2.1	m	
2	Individual call service multi-part setup	[4] clause 6.6.2.1	o	

Comments:

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Table A.22: MS CCL trunked mode data features

Prerequisite: A.17/3 MS trunked mode data features group				
Item	**Tier 3 packet data feature**	**Reference**	**Status**	**Support**
1	Packet data call procedure	[4] clause 6.6.3	m	
2	Short data message procedure	[4] clause 6.6.4	o	
3	Short data polling service	[4] clause 6.6.5	o	
4	Status call service	[4] clause 6.6.6	o	

Comments:

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Table A.23: MS CCL trunked packet data call type

Prerequisite: A.22 /1 MS trunked mode packet data call service				
Item	**Tier 3 data packet call type**	**Reference**	**Status**	**Support**
1	Individual data packet single-part call setup	[4] clause 6.6.3.1	o.23	
2	Talkgroup data packet single-part call setup	[4] clause 6.6.3.1	o.23	
3	Data packet multi-part call setup	[4] clause 6.6.3.1	o	

o.23: At least one of these items must be supported.

Comments:

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Table A.24: MS CCL trunked mode packet data message features

Prerequisite: A.17/3 MS trunked mode data features group				
Item	**Tier 3 packet data service**	**Reference**	**Status**	**Support**
1	Emergency service	[4] clause 6.6.3.2	o	

Comments:

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Table A.25: MS CCL trunked mode short data message services

Prerequisite: A.22/2 MS trunked mode short data message				
Item	**Short data message service**	**Reference**	**Status**	**Support**
1	Radio check	[4] clause 6.6.4.1.3	o	

Comments:

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Table A.26: MS CCL trunked mode short data polling services

Prerequisite: A.22/3 MS trunked mode short data message				
Item	**Short data polling service**	**Reference**	**Status**	**Support**
1	Radio check	[4] clause 6.6.5.1.2	o	

Comments:

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Table A.27: MS CCL trunked mode supplementary service features

Prerequisite: A.17/4 MS trunked mode supplementary service group				
Item	**Tier 3 Generic feature**	**Reference**	**Status**	**Support**
1	Authentication	[4] clause 6.4.8	o	
2	Stun/Revive	[4] clause 6.4.9	o	
3	Call diversion	[4] clause 6.6.7	o	
4	Supplementary data transfer	[4] clause 6.5	c2701	

c2701: IF (A.20/2 OR A.21/2 OR A.23/3) THEN m ELSE o — if multi-part talkgroup or individual voice call or data packet set-up supported then mandatory else optional.

Comments:

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Table A.28: MS CCL stun/revive service

Prerequisite: A.27 /2 MS stun/revive supplementary service				
Item	**Stun/Revive procedure**	**Reference**	**Status**	**Support**
1	without authentication	[4] clause 6.4.9.2.1	o.28	
2	with authentication	[4] clause 6.4.9.2.2	o.28	

o.28: At least one of these items shall be supported.

Comments:

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A.8.1.1.7.2 MS trunked mode payload channel features

Table A.29: MS trunked mode payload channel voice procedures

Prerequisite: A.19/1 OR A.19/2 MS trunked mode voice call				
Item	**Payload channel voice procedure**	**Reference**	**Status**	**Support**
1	MS radio check	[4] clause 6.6.2.3.2.1	m	
2	Authentication Check	[4] clause 6.6.2.3.2.2	o	
3	Disabling/enabling a users PTT	[4] clause 6.6.2.3.2.3	m	
4	Swap payload channel	[4] clause 6.6.2.3.2.4	m	
5	End of voice call	[4] clause 6.6.2.3.2.5	m	
6	Clear payload channel	[4] clause 6.6.2.3.2.6	m	
7	Selective clear of payload channel	[4] clause 6.6.2.3.2.7	m	
8	Requested leave of payload channel	[4] clause 6.6.2.3.2.8	m	

Comments:

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Table A.30: MS trunked mode payload channel packet data procedures

Prerequisite: A.22/1 MS packet data				
Item	**Payload channel packet data procedure**	**Reference**	**Status**	**Support**
1	MS radio check	[4] clause 6.6.3.3.2.1	m	
2	Authentication Check	[4] clause 6.6.3.3.2.2	o	
3	Disabling/enabling a user transmission	[4] clause 6.6.3.3.2.3	m	
4	Swap payload channel	[4] clause 6.6.3.3.2.4	m	
5	End of call	[4] clause 6.6.3.3.2.5	m	
6	Clear payload channel	[4] clause 6.6.3.3.2.6	m	
7	Selective clear of payload channel	[4] clause 6.6.3.3.2.7	m	

Comments:

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A.8.1.2 MS CCL PDUs

A.8.1.2.1 MS CCL repeater and direct mode PDUs

Table A.31: MS CCL PDUs (Layer 3 PDUs)

Item	**CCL PDU**	**MS sending**			**MS receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	Grp_V_Ch_Usr	[2] clause 7.1.1.1	c3101		[2] clause 7.1.1.1	c3101	
2	UU_V_Ch_Usr	[2] clause 7.1.1.2	c3102		[2] clause 7.1.1.2	c3102	
3	BS_Dwn_Act	[2] clause 7.1.2.1	c3103		[2] clause 7.1.2.1	n/a	
4	UU_V_Req	[2] clause 7.1.2.2	c3104		[2] clause 7.1.2.2	c3104	
5	UU_Ans_Rsp	[2] clause 7.1.2.3	c3104		[2] clause 7.1.2.3	c3104	
6	NACK_Rsp	[2] clause 7.1.2.4	m		[2] clause 7.1.2.4	m	
7	Pre_CSBK	[2] clause 7.1.2.5	o		[2] clause 7.1.2.5	o	
8	Nul_Msg	[2] clause 7.1.3.1	n/a		[2] clause 7.1.3.1	c3105	
9	Act_Updt	[2] clause 7.1.3.2	n/a		[2] clause 7.1.3.2	c3105	
10	TD_LC	[3] clause 7.1.1.1	c3106		[3] clause 7.1.1.1	c3107	

c3101: IF A.8/7 THEN m ELSE n/a	if group call service then mandatory else not applicable.
c3102: IF A.8/6 THEN m ELSE n/a	if individual call service then mandatory else not applicable.
c3103: IF A.8/1 THEN m ELSE n/a	if BS activation then mandatory else not applicable.
c3104: IF A.12/2 THEN m ELSE n/a	if OACSU then mandatory else not applicable.
c3105: IF A.5/2 THEN m ELSE n/a	if repeater mode then mandatory else not applicable.
c3106: IF (A.2/1 AND A.46/4) THEN m ELSE n/a	if Tier 1 (direct mode) and confirmed data supported then mandatory else not applicable.
c3107: IF A.46/4 THEN m ELSE n/a	if confirmed data supported then mandatory else not applicable.

Comments:

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A.8.1.2.2 MS trunked mode control channel PDUs

Table A.32: MS CCL trunked protocol outbound PDUs on the control channel

Prerequisite: A.2/3 Tier 3 (trunked mode) MS							
Item	**CCL PDU**	**MS sending**			**MS receiving**		
		Reference	Status	Support	Reference	Status	Support
1	PV_GRANT (CSBK) (logical)	[4] clause 7.1.1.1.1.1	n/a		[4] clause 7.1.1.1.1.1, [4] clause 7.1.1	c3201	
2	PV_GRANT (MBC header) (absolute)	[4] clause 7.1.1.1.1.1	n/a		[4] clause 7.1.1.1.1.1, [4] clause 7.1.1	c3201	
3	TV_GRANT (CSBK) (logical)	[4] clause 7.1.1.1.1.2	n/a		[4] clause 7.1.1.1.1.2, [4] clause 7.1.1	c3202	
4	TV_GRANT (MBC header) (absolute)	[4] clause 7.1.1.1.1.2	n/a		[4] clause 7.1.1.1.1.2, [4] clause 7.1.1	c3202	
5	BTV_GRANT (CSBK) (logical)	[4] clause 7.1.1.1.1.3	n/a		[4] clause 7.1.1.1.1.3, [4] clause 7.1.1	c3202	
6	BTV_GRANT (MBC header) (absolute)	[4] clause 7.1.1.1.1.3	n/a		[4] clause 7.1.1.1.1.3, [4] clause 7.1.1	c3202	
7	PD_GRANT (CSBK) (logical)	[4] clause 7.1.1.1.1.4	n/a		[4] clause 7.1.1.1.1.4, [4] clause 7.1.1	c3203	
8	PD_GRANT (MBC header) (absolute)	[4] clause 7.1.1.1.1.4	n/a		[4] clause 7.1.1.1.1.4, [4] clause 7.1.1	c3203	
9	TD_GRANT (CSBK) (logical)	[4] clause 7.1.1.1.1.5	n/a		[4] clause 7.1.1.1.1.5, [4] clause 7.1.1	c3204	
10	TD_GRANT (MBC header) (absolute)	[4] clause 7.1.1.1.1.5	n/a		[4] clause 7.1.1.1.1.5, [4] clause 7.1.1	c3204	
11	CG_AP (MBC continuation)	[4] clause 7.1.1.1.2	n/a		[4] clause 7.1.1.1.2	c3205	
12	C_MOVE (CSBK) (logical)	[4] clause 7.1.1.1.3	n/a		[4] clause 7.1.1.1.3, [4] clause 7.1.1	c3206	
13	C_MOVE (MBC header) (absolute)	[4] clause 7.1.1.1.3	n/a		[4] clause 7.1.1.1.3, [4] clause 7.1.1	m	
14	MV_AP (MBC continuation)	[4] clause 7.1.1.1.3.1	n/a		[4] clause 7.1.1.1.3.1, [4] clause 7.1.1	m	
15	C_ALOHA (CSBK)	[4] clause 7.1.1.1.4	n/a		[4] clause 7.1.1.1.4	m	
16	C_BCAST (CSBK) (logical)	[4] clause 7.1.1.1.5	n/a		[4] clause 7.1.1.1.3, [4] clause 7.1.1	m	
17	C_BCAST (MBC header) (absolute)	[4] clause 7.1.1.1.5	n/a		[4] clause 7.1.1.1.3, [4] clause 7.1.1	m	
18	BC_AP (MBC continuation)	[4] clause 7.1.1.1.5.1	n/a		[4] clause 7.1.1.1.5.1	m	
19	AHOY (CSBK)	[4] clause 7.1.1.1.6	n/a		[4] clause 7.1.1.1.6	m	
20	C_ACKD (CSBK)	[4] clause 7.1.1.1.7	n/a		[4] clause 7.1.1.1.7	m	
21	C_NACKD (CSBK)	[4] clause 7.1.1.1.7	n/a		[4] clause 7.1.1.1.7	m	
22	C_QACKD (CSBK)	[4] clause 7.1.1.1.7	n/a		[4] clause 7.1.1.1.7	m	
23	C_WACKD (CSBK)	[4] clause 7.1.1.1.7	n/a		[4] clause 7.1.1.1.7	m	
24	C_UDTHD	[4] clause 7.1.1.2.3	n/a		[4] clause 7.1.1.2.3	m	
25	UDT Appended Blocks	[4] clause B.3	n/a		[4] clause B.3	m	

c3201: IF A.19/2 THEN m ELSE n/a — if individual voice call service then mandatory else not applicable.

c3202: IF A.19/1 THEN m ELSE n/a — if talkgroup voice call service then mandatory else not applicable.

c3203: IF (A.23/1 OR A.23/3) THEN m ELSE n/a — if single-part or multi-part individual packet data service then mandatory else not applicable.

c3204: IF A.23/2 THEN m ELSE n/a — if talkgroup packet data service then mandatory else not applicable.

c3205: IF (A.32/2 OR A.32/4 OR A.32/6 OR A.32/8 OR A.32/10) THEN m ELSE n/a — if absolute channel frequency in channel grant then mandatory else not applicable.

c3206: IF (A.17/2 OR A.17/3) THEN m ELSE n/a — if voice service or data packet service supported then mandatory else not applicable.

c3207: IF A.32/13 THEN m ELSE n/a — if absolute channel frequency in channel move then mandatory else not applicable.

Comments:

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Table A.33: MS CCL trunked protocol inbound PDUs on the control channel

Prerequisite: A.2/3 Tier 3 (trunked mode) MS							
Item	**CCL PDU**	**MS sending**			**MS receiving**		
		Reference	Status	Support	Reference	Status	Support
1	C_RAND (CSBK)	[4] clause 7.1.1.2.1	m		[4] clause 7.1.1.2.1	n/a	
2	C_ACKVIT	[4] clause 7.1.1.2.2	c3301		[4] clause 7.1.1.2.2	n/a	
3	C_ACKU / C_NACKU	[4] clause 7.1.1.2.3	m		[4] clause 7.1.1.2.3	n/a	
4	C_UDTHU	[4] clause 7.1.1.2.4	m		[4] clause 7.1.1.2.4	n/a	
5	UDT Appended Blocks	[4] Annex B.3	m		[4] Annex B.3	n/a	

c3301: IF A.28/2 THEN m ELSE n/a — if stun/revive with authentication then mandatory else not applicable.

Comments:

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A.8.1.2.3 MS trunked mode payload channel PDUs

Table A.34: MS CCL trunked protocol outbound PDUs on the payload channel

Prerequisite: A.2/3 Tier 3 (trunked mode) MS							
Item	**CCL PDU**	**MS sending**			**MS receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	P_GRANT (CSBK) (logical)	[4] clause 7.1.1.3.1	n/a		[4] clause 7.1.1.1.3.1	m	
2	P_GRANT (MBC header) (absolute)	[4] clause 7.1.1.3.1	n/a		[4] clause 7.1.1.3.1	m	
3	P_CLEAR	[4] clause 7.1.1.3.2	n/a		[4] clause 7.1.1.3.2	m	
4	P_PROTECT	[4] clause 7.1.1.3.3	n/a		[4] clause 7.1.1.3.3	m	
5	P_AHOY	[4] clause 7.1.1.3.4	n/a		[4] clause 7.1.1.3.4	m	
6	P_ACK / P_NACK / P_WACK / P_QACK	[4] clause 7.1.1.3.5	n/a		[4] clause 7.1.1.3.5	m	

Comments:

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Table A.35: MS CCL trunked protocol inbound PDUs on the payload channel

Prerequisite: A.2/3 Tier 3 (trunked mode) MS							
Item	**CCL PDU**	**MS sending**			**MS receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	P_RAND	[4] clause 7.1.1.4.1	o		[4] clause 7.1.1.4.1	n/a	
2	P_ACKU / P_NACKU	[4] clause 7.1.1.4.2	m		[4] clause 7.1.1.4.2	n/a	
3	P_MAINT	[4] clause 7.1.1.4.3	c3501		[4] clause 7.1.1.4.3	n/a	

c3501: IF (A.17/2 OR A.22/1) THEN m ELSE n/a if voice call or packet data supported then mandatory else not applicable.

Comments:

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A.8.1.3 MS CCL timers

Table A.36: MS CCL timers

Item	**CCL Timer**	**Reference**	**Status**	**Support**	**Values**	
					Allowed	**Supported**
1	T_AckWait	[2] clause A.1	c3601		max. 720 ms.	
2	T_TO	[2] clause A.1	c3602		180 s for Tier 1, 0 to 180 s for Tier 2, 3	

c3601: IF A.12/2 THEN m ELSE n/a if OACSU then mandatory else not applicable.

c3602: IF A.8/12 THEN m ELSE n/a if transmit timeout supported then mandatory else not applicable.

Comments:

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Table A.37: MS CCL trunked mode timers

Prerequisite: A.2/3 Tier 3 (trunked mode) MS						
Item	**CCL trunked mode timer**	**Reference**	**Status**	**Support**	**Values**	
					Allowed	Supported
1	Trand_TC	[4] clause A.1	m		2 to 60 seconds	
2	T_Nosig	[4] clause A.1	m		1 to 15 seconds	
3	T_EMERG_TIMER	[4] clause A.1	c3701		(1 to 510) * 30 seconds and infinite	
4	T_PACKET_TIMER	[4] clause A.1	c3702		(1 to 30) * 5 seconds and infinite	
5	T_MS-MS_TIMER	[4] clause A.1	c3703		(1 to 4 094) * 10 seconds and infinite	
6	T_MS-LINE_TIMER	[4] clause A.1	c3704		(1 to 4 094) * 10 seconds and infinite	
7	TP_Timer	[4] clause A.1	m		4 to 60 seconds	
8	TNP_TIMER	[4] clause A.1	c3705		2 to 20 seconds	
9	T_Awake	[4] clause A.1	c3706		0,1 to 60 seconds in steps of 0,1 seconds	
10	TV_Item	[4] clause A.1			10 to 60 seconds	
	TV_Inactive	[4] clause A.1	c3703		0 to 60 seconds	
11	TD_Item	[4] clause A.1	c3702		1 to 60 seconds	
12	T_Pending	[4] clause A.1	m		2 to 60 seconds	
13	T_Dereg	[4] clause A.1	m		0,2 to 2 seconds	

c3701: IF A.8/4 THEN m ELSE n/a — if emergency signalling then mandatory else not applicable.

c3702: IF A.17/3 THEN m ELSE n/a — if data services supported then mandatory else not applicable.

c3703: IF A.17/2 THEN m ELSE n/a — if voice call services then mandatory else not applicable.

c3704: IF (A.20/2 OR A.21/2) THEN m ELSE n/a — if talkgroup or individual multi-part setup then mandatory else not applicable.

c3705: IF (A.18/4 OR A.22/2 OR A.22/3 OR A.22/4 OR A.27/3) THEN m ELSE n/a — if registration, short data message, short data polling, status call, or call diversion service then mandatory else not applicable.

c3706: IF A.17/7 THEN m ELSE n/a — if power safe supported then mandatory else not applicable.

Comments:

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A.8.2 MS DLL

A.8.2.1 MS DLL capabilities and functionalities

Table A.38: MS major DLL functionalities

Item	MS DLL functionalities	Reference	Status	Support
1	Basic channel types	[1] clause 4.6	m	
2	Channel Timing	[1] clause 5.1	m	
3	Channel Access	[1] clause 5.2	m	
4	Burst format	[1] clause 6	m	
5	DMR signalling	[1] clause 7	m	
6	Packet data protocol	[1] clause 8	c3801	

c3801: IF A.6/3 THEN m ELSE n/a — if Packet Data Protocol supported then mandatory else not applicable.

Comments:

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A.8.2.1.1 MS DLL channel types

Table A.39: MS DLL basic channel types

Item	MS DLL channel type	Reference	Status	Support
1	Traffic channel with CACH	[1] clause 4.6.1	c3901	
2	Traffic channel with guard time	[1] clause 4.6.2	c3901	
3	Bidirectional channel	[1] clause 4.6.3	c3902	

c3901: IF A.5/2 THEN m ELSE n/a — if repeater mode supported then mandatory else not applicable.

c3902: IF (A.4/1 OR A.5/1) THEN m ELSE n/a — if direct mode supported then mandatory else not applicable.

Comments:

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A.8.2.1.2 MS DLL channel timing

Table A.40: MS DLL channel timing capabilities

Item	MS DLL timing capability	Reference	Status	Support
1	Voice superframe	[1] clause 5.1.2.1	c4001	
2	Voice initiation	[1] clause 5.1.2.2	c4001	
3	Voice termination	[1] clause 5.1.2.3	c4001	
4	Data timing	[1] clause 5.1.3	c4002	
5	Direct mode timing	[1] clause 5.1.4.3	c4003	
6	Standalone inbound RC timing	[1] clause 5.1.5.3	c4004	
7	Direct mode RC timing	[1] clause 5.1.5.4	c4005	
8	Continuous transmission mode	[1] clause 5.1.4.5	c4006	

c4001: IF (A.8/6 OR A.8/7) THEN m ELSE n/a — if individual or group call then mandatory else not applicable.

c4002: IF A.38/6 THEN m ELSE n/a — if packet data protocol supported then mandatory else not applicable.

c4003: IF (A.4/1 OR A.5/1) THEN m ELSE n/a if direct mode supported then mandatory else not applicable.

c4004: IF A.5/2 THEN o ELSE n/a if repeater mode then optional else not applicable.

c4005: IF A.5/1 THEN o ELSE n/a if direct mode (Tier 2, 3) then optional else not applicable.

c4006: IF (A.4/1 OR A.5/1) THEN o ELSE n/a if direct mode then optional else not applicable.

Comments:

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A.8.2.1.3 MS DLL channel access

Table A.41: MS DLL channel access capabilities

Item	Channel access capability	Reference	Status	Support
1	Transmit admit criteria	[1] clause 5.2.1.6, [1] clause 5.2	c4101	
2	Retry transmission	[1] clause 5.2.1.7	c4102	
3	Peer to peer mode channel access	[1] clause 5.2.2.1	c4103	
4	Repeater mode channel access	[1] clause 5.2.2.2	c4104	
5	CSBK ACK/NACK channel access	[1] clause 5.2.2.3	m	

c4101: IF A.2/1 THEN o ELSE m if Tier 1 product then optional else mandatory (for Tier 2 and 3).

c4102: IF (A.13/2 OR A.46/4) THEN m ELSE n/a if OACSU or confirmed data service supported then mandatory else not applicable.

c4103: IF (A.4/1 OR A.5/1) THEN m ELSE n/a if direct mode supported then mandatory else not applicable.

c4104: IF A.5/2 THEN m ELSE n/a if repeater mode then mandatory else not applicable.

Comments:

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Table A.42: MS DLL Transmit admit criteria

Prerequisite: A.41/1 Transmit admit criteria supported				
Item	**MS DLL channel access policy**	**Reference**	**Status**	**Support**
1	Polite to all	[1] clause 5.2.1.6	c4201	
2	Polite to Colour Code	[1] clause 5.2.1.6	m	
3	Impolite	[1] clause 5.2.1.6	c4201	

c4201: IF (A.2/1 OR A.2/1) THEN m ELSE n/a if Tier 1 or 2 then mandatory else not applicable.

Comments:

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A.8.2.1.4 MS DLL channel burst format

Table A.43: MS DLL Channel burst formats

Item	Channel burst	MS sending			MS receiving		
		Reference	Status	Support	Reference	Status	Support
1	Voice burst	[1] clause 6.1	c4301		[1] clause 6.1	c4301	
2	Control burst	[1] clause 6.2	m		[1] clause 6.2	m	
3	Data burst	[1] clause 6.2	c4302		[1] clause 6.2	c4302	
4	CACH burst	[1] clause 6.3	c4303		[1] clause 6.3	c4304	
5	Standalone inbound RC burst	[1] clause 6.4.1	c4305		[1] clause 6.4.1	c4305	
6	Outbound RC burst	[1] clause 6.5.1	n/a		[1] clause 6.5.1	c4304	

c4301: IF A.40/1 THEN m ELSE n/a — if voice superframe supported then mandatory else not applicable.

c4302: IF A.38/6 THEN m ELSE n/a — if packet data protocol supported then mandatory else not applicable.

c4303: IF A.40/8 THEN m ELSE n/a — if continuous transmission mode supported then mandatory else not applicable.

c4304: IF A.2/1 THEN o ELSE m — if Tier 1 product then optional else mandatory (for Tier 2 and 3).

c4305: IF A.2/1 THEN n/a ELSE o — if Tier 1 product then not applicable else optional (for Tier 2 and 3).

Comments:

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A.8.2.1.5 MS DLL DMR signalling

Table A.44: MS Link control signalling

Item	MS link control message	MS sending			MS receiving		
		Reference	Status	Support	Reference	Status	Support
1	Voice LC header	[1] clause 7.1.1	c4401		[1] clause 7.1.1	c4401	
2	Voice LC terminator	[1] clause 7.1.2	c4402		[1] clause 7.1.2	c4402	
3	Embedded LC signalling with RC outbound channel	[1] clause 7.1.3.1	n/a		[1] clause 7.1.3.1	c4403	
4	Embedded LC signalling inbound channel	[1] clause 7.1.3.2	c4401		[1] clause 7.1.3.2	c4404	
5	Short LC in CACH	[1] clause 7.1.4	c4405		[1] clause 7.1.4	c4406	

c4401: IF A.40/2 THEN m ELSE n/a — if voice initiation supported then mandatory else not applicable.

c4402: IF A.40/3 THEN m ELSE n/a — if voice termination supported then mandatory else not applicable.

c4403: IF (A.40/2 AND A.5/2) THEN m ELSE n/a — if voice and repeater mode then mandatory else not applicable.

c4404: IF (A.40/2 AND (A.4/1 OR A.5/1)) THEN m ELSE n/a — if voice and direct mode supported then mandatory else not applicable.

c4405: IF A.40/8 THEN m ELSE n/a — if continuous transmission mode then mandatory else not applicable.

c4406: IF A.43/11 THEN m ELSE n/a — if receiving CACH burst supported then mandatory else not applicable.

Comments:

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Table A.45: MS CSBK and Idle signalling

Item	DMR signalling	MS sending			MS receiving		
		Reference	Status	Support	Reference	Status	Support
1	CSBK message structure	[1] clause 7.2	m		[1] clause 7.2	m	
2	Idle burst	[1] clause 7.3	n/a		[1] clause 7.3	c4501	

c4501: IF A.5/2 THEN m ELSE o — if repeater mode supported then mandatory else optional.

Comments:

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A.8.2.1.6 MS DLL Packet data bearer service

Table A.46: MS DLL Packet Data Bearer service

Prerequisite: A.38/6 Packet data protocol				
Item	**Procedures**	**Reference**	**Status**	**Support**
1	IP addressing	[3] clause 5.1	c4601	
2	Error messages	[3] clause 5.2	m	
3	Unconfirmed data DLL bearer service	[3] clause 5.3	o.46	
4	Confirmed data DLL bearer service	[3] clause 5.4	o.46	

c4601: IF A.15/1 THEN m ELSE n/a — if internet protocol supported then mandatory else not applicable.

o.46 — It is mandatory to support at least one of these items.

Comments:

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Table A.47: MS DLL Confirmed IP data types

Prerequisite: A.46/4 Confirmed data DLL bearer service				
Item	**Confirmed IP Data types**	**Reference**	**Status**	**Support**
1	Rate ½ coded confirmed data types	[3] clause 5.4.1.1	o.47	
2	Rate ¾ coded confirmed data types	[3] clause 5.4.1.2	o.47	
3	Confirmed response data types	[3] clause 5.4.1.3	m	

o.47 — It is mandatory to support at least one of these items.

Comments:

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Table A.48: MS DLL Confirmed bearer service flow control

Prerequisite: A.46/4 Confirmed data DLL bearer service				
Item	**Flow control procedures**	**Reference**	**Status**	**Support**
1	SARQ	[3] clause 5.4, 5.4.3.1.3	m	
2	Sliding window confirmed data	[3] clause 5.4.4	o	

Comments:

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Table A.49: MS DLL Unconfirmed IP data types

Prerequisite: A.46/3 Unconfirmed data DLL bearer service				
Item	**Unconfirmed IP Data types**	**Reference**	**Status**	**Support**
1	Rate ½ coded unconfirmed data types	[3] clause 5.4.1.1	o.49	
2	Rate ¾ coded unconfirmed data types	[3] clause 5.4.1.2	o.49	

o.49 It is mandatory to support at least one of these items.

Comments:

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A.8.2.2 MS DLL PDUs

Table A.50: DLL PDU types

Item	**DLL PDU type**	**MS sending**			**MS receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	Voice burst PDU	[1] clause 9.1, clause 6.1	c5001		[1] clause 9.1, clause 6.1	c5001	
2	General data and control PDUs	[1] clause 9.1	m		[1] clause 9.1	m	
3	Data related PDUs	[1] clause 9.2	c5002		[1] clause 9.2	c5002	

c5001: IF A.40/1 THEN m ELSE n/a if voice superframe supported then mandatory else not applicable.

c5002: IF A.38/6 THEN m ELSE n/a if packet data protocol supported then mandatory else not applicable.

Comments:

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A.8.2.2.1 MS DLL PDU descriptions, seen from MS

Table A.51: DLL general data and control PDUs

Item	DLL general data or control PDU	MS sending			MS receiving		
		Reference	Status	Support	Reference	Status	Support
1	Synchronization (SYNC)	[1] clause 9.1.1	m		[1] clause 9.1.1	m	
2	Embedded signalling (EMB)	[1] clause 9.1.2	c5101		[1] clause 9.1.2	c5101	
3	Slot Type (SLOT)	[1] clause 9.1.3	m		[1] clause 9.1.3	m	
4	TACT	[1] clause 9.1.4	c5102		[1] clause 9.1.4	c5103	
5	Reverse Channel (RC)	[1] clause 9.1.5	c5104		[1] clause 9.1.5	c5105	
6	Full Link Control (FULL LC)	[1] clause 9.1.6	c5106		[1] clause 9.1.6	c5107	
7	Short Link Control (SHORT LC)	[1] clause 9.1.7	n/a		[1] clause 9.1.7	c5103	
8	Control Signalling Block (CSBK)	[1] clause 9.1.8	m		[1] clause 9.1.8	m	
9	Pseudo Random Fill Bit (PR FILL)	[1] clause 9.1.9	n/a		[1] clause 9.1.9	c5108	

c5101: IF (A.8/6 OR A.8/7) THEN m ELSE n/a — if individual or group call then mandatory else not applicable.

c5102: IF A.40/8 THEN m ELSE n/a — if continuous transmission mode supported then mandatory else not applicable.

c5103: IF A.5/2 THEN m ELSE o — if repeater mode supported then mandatory else optional.

c5104: IF A.43/5a THEN m ELSE n/a — if transmission of standalone inbound reverse channel burst supported then mandatory else not applicable.

c5105: IF A.43/5b THEN m ELSE n/a — if receiving standalone inbound reverse channel burst supported then mandatory else not applicable.

c5106: IF A.43/1a THEN m ELSE n/a — if transmission of voice burst supported then mandatory else not applicable.

c5107: IF A.43/1b THEN m ELSE n/a — if receiving voice burst supported then mandatory else not applicable.

c5108: IF A.45/2b THEN m ELSE n/a — if receiving idle burst supported then mandatory else not applicable.

Comments:

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Table A.52: DLL data PDU types

Prerequisite: A.50/3a AND A.50/3b sending and receiving packet data protocol							
Item	**DLL Data PDU**	**MS sending**			**MS receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	Confirmed packet Header (C_HEAD)	[1] clause 9.2.1	c5201		[1] clause 9.2.1	c5201	
2	Rate ¾ coded packet data (R_3_4_DATA)	[1] clause 9.2.2	c5202		[1] clause 9.2.2	c5202	
3	Rate ¾ coded last data block (R_3_4_LDATA)	[1] clause 9.2.3	c5202		[1] clause 9.2.3	c5202	
4	Confirmed Response packet Header (C_RHEAD)	[1] clause 9.2.4	c5201		[1] clause 9.2.4	c5201	
5	Confirmed Response packet Data (C_RDATA)	[1] clause 9.2.5	c5201		[1] clause 9.2.5	c5201	
6	Unconfirmed data packet Header (U_HEAD)	[1] clause 9.2.6	c5203		[1] clause 9.2.6	c5203	
7	Rate ½ coded packet data (R_1_2_DATA)	[1] clause 9.2.7	c5204		[1] clause 9.2.7	c5204	
8	Rate ½ coded Last Data Block (R_1_2_LDATA)	[1] clause 9.2.8	c5204		[1] clause 9.2.8	c5204	
9	Proprietary Header (P-HEAD)	[1] clause 9.2.9	o		[1] clause 9.2.9	o	
10	Status/Precoded short data packet header (SP_HEAD)	[1] clause 9.2.10	c5205		[1] clause 9.2.10	c5205	
11	Raw short data packet header (R_HEAD)	[1] clause 9.2.11	c5206		[1] clause 9.2.11	c5206	
12	Defined Data short data packet header (DD_HEAD)	[1] clause 9.2.12	c5207		[1] clause 9.2.12	c5207	

c5201: IF A.46/4 THEN m ELSE n/a — if confirmed data bearer service then mandatory else not applicable.

c5202: IF (A.47/2 OR A.49/2) THEN m ELSE n/a — if confirmed or unconfirmed rate ¾ data types supported then mandatory else not applicable.

c5203: IF A.46/3 THEN m ELSE n/a — if unconfirmed data bearer service then mandatory else not applicable.

c5204: IF (A.47/1 OR A.49/1) THEN m ELSE n/a — if confirmed or unconfirmed rate 1/2 data types supported then mandatory else not applicable.

c5205: IF A.16/2 THEN m ELSE n/a — if short data status/precoded data transmission supported then mandatory else not applicable.

c5206: IF A.16/1 THEN m ELSE n/a — if short data raw data transmission supported then mandatory else not applicable.

c5207: IF A.16/3 THEN m ELSE n/a — if short data, defined data.transmission supported thenmandatory else not applicable.

Comments:

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Table A.53: DLL trunked mode PDU types

Prerequisite: A.2/3 Trunked mode (Tier 3) MS							
Item	**DLL trunked mode PDU**	**MS sending**			**MS receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	SYS_Parms (Short LC)	[4] clause 7.1.2.1	n/a		[4] clause 7.1.2.1	m	

Comments:

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A.8.2.2.2 MS DLL SYNC PDU patterns

Table A.54: DLL SYNC PDU patterns

Item	**DLL SYNC pattern**	**Sending**			**Receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	BS sourced voice	[1] clause 9.1.1	n/a		[1] clause 9.1.1	c5401	
2	BS sourced data	[1] clause 9.1.1	n/a		[1] clause 9.1.1	c5402	
3	MS sourced voice	[1] clause 9.1.1	c5403		[1] clause 9.1.1	c5401	
4	MS sourced data	[1] clause 9.1.1	m		[1] clause 9.1.1	m	
5	MS sourced RC sync	[1] clause 9.1.1	c5404		[1] clause 9.1.1	c5405	

c5401: IF ((A.2/2 OR A.2/3) AND A.43/1b) THEN m ELSE n/a — if Tier 2 or Tier 3 and receiving voice burst supported then mandatory else not applicable.

c5401: IF (A.2/2 OR A.2/3) THEN m ELSE n/a — if Tier 2 or Tier 3 then mandatory else not applicable.

c5403: IF A.43/1a THEN m ELSE n/a — if transmission of voice burst supported then mandatory else not applicable.

c5404: IF A.43/5a THEN m ELSE n/a — if transmission of standalone inbound RC burst supported then mandatory else not applicable.

c5405: IF A.43/5b THEN m ELSE n/a — if receiving standalone inbound RC burst supported then mandatory else not applicable.

Comments:

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A.8.2.3 MS DLL timers

Table A.55: MS DLL timers

Item	DLL Timer	Reference	Status	Support	Values	
					Allowed	Supported
1	T_ChMonTo	[1] clause F.1	m		min. 40 ms.	
2	T_ChSyncTo	[1] clause F.1	m		min 400 ms.	
3	T_Monitor	[1] clause F.1	m		max 720 ms.	
4	T_TxCC	[1] clause F.1	c5501		max 360 ms.	
5	T_SyncWu	[1] clause F.1	c5502		max 360 ms.	
6	T_TxCCSlot	[1] clause F.1	c5502		max 720 ms	
7	T_IdleSrch	[1] clause F.1	c5502		max 540 ms	
8	T_Holdoff	[1] clause F.1 [3] clause A.1	m		Random value, 0 to 1 s for ACK/NACK messages Max value, 2 s for Unconfirmed Data (see note)	
9	T_DataTxLmt	[3] clause A.1	m		Max 60 s (see note)	
10	T_RspnsWait	[3] clause A.1	c5503		Max 1 s (see note)	
NOTE: The upper limit value is a recommended value only.						

c5501: IF (A.4/1 OR A.5/1) THEN m ELSE n/a — if direct mode supported then mandatory else not applicable.

c5502: IF A.5/2 THEN m ELSE n/a — if repeater mode then mandatory else not applicable.

c5503: IF A.46/4 THEN m ELSE n/a — if confirmed data bearer service then mandatory else not applicable.

Comments:

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A.9 Base Station

This clause applies to all kinds of base stations.

Prerequisite: A.2/2 OR A.2/3 Tier 2 or Tier 3 product

Table A.56: BS capability

Item	BS type	Reference	Status	Support
1	Repeater mode	[1] clause 5.2.2.2	m	
2	Fixed end mode	[1] clauses 5.1.1.2 and 5.2	c5601	

c5601: IF A.1/1 THEN n/a ELSE — if release 1 then not applicable.

(IF (A.2/2 AND A.1/1) THEN n/a — else if Tier 2 and release 2 then not applicable.

ELSE o — else (if Tier 3) then optional.

Comments:

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A.9.1 BS Repeater mode

Prerequisite: A.56/1 BS repeater mode

Table A.57: BS repeater mode type

Item	BS frequency type	Reference	Status	Support
1	Single frequency	[1] clause 4.6	o.57	
2	Two frequency	[1] clause 4.6	o.57	

o.57: It is mandatory to support at least one of these items.

Comments:

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A.9.1.1 BS CCL repeater mode

A.9.1.1.1 BS CCL capabilities and functionalities

Table A.58: BS standard feature set - repeater

Prerequisite: A.56/1 repeater mode				
Item	**BS repeater standard feature set**	**Reference**	**Status**	**Support**
1	BS activation	[2] clauses 4.2, 5.1.1.1 and 5.2.2.2	o	
2	BS de-activation	[2] clauses 4.2 and 5.1.1.5	c5801	
3	Voice service repeating	[2] clause 5.2, 5.3	o.58	
4	Packet Data repeating	[3] clause 4.2	o.58	

c5801 : IF A.58/1 THEN m ELSE n/a if BS activation then mandatory else not applicable.

o.58 It is mandatory to support at least one of these items.

Comments:

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Table A.59: BS Voice service features - repeater

Prerequisite: A.58/3 Voice service repeating				
Item	**BS voice service features**	**Reference**	**Status**	**Support**
1	Voice call repeating	[2] clauses 4.2 and 5.1.1.2	m	
2	Voice call hangtime	[2] clauses 4.2 and 5.1.1.3	m	
3	CSBK repeating	[2] clauses 4.2 and 5.1.1.4	m	
4	BS All Call Control	[2] clauses 4.2 and 5.3.2.1	m	
5	BS Broadcast Call Control	[2] clause 4.2 and 5.3.3.1	m	

Comments:

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Table A.60: BS data protocol services - repeater

Prerequisite: A58 /4 Packet data protocol				
Item	**BS repeater standard feature set**	**Reference**	**Status**	**Support**
1	Internet protocol repeating	[3] clause 4.2	o.60	
2	Short Data protocol repeating	[3] clause 4.2	o.60	

o.60 It is mandatory to support at least one of these items.

Comments:

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Table A.61: BS short data services - repeater

Prerequisite: A.60/2 short data protocol services repeating				
Item	**BS repeat short data**	**Reference**	**Status**	**Support**
1	Raw data	[3] clause 4.2	o.16	
2	Status/Precoded data	[3] clause 4.2	o.16	
3	Defined data	[3] clause 4.2	o.16	

o.60 It is mandatory to support at least one of these items.

Comments:

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A.9.1.1.2 BS CCL common PDUs

Table A.62: BS CCL PDUs (Layer 3 PDUs) - repeater

Prerequisite: A.56/1 Repeater mode							
Item	**CCL PDU**	**BS sending (repeat)**			**BS receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	Grp_V_Ch_Usr	[2] clause 7.1.1.1	m		[2] clause 7.1.1.1	m	
2	UU_V_Ch_Usr	[2] clause 7.1.1.2	m		[2] clause 7.1.1.2	m	
3	BS_Dwn_Act	[2] clause 7.1.2.1	n/a		[2] clause 7.1.2.1	m	
4	UU_V_Req	[2] clause 7.1.2.2	m		[2] clause 7.1.2.2	m	
5	UU_Ans_Rsp	[2] clause 7.1.2.3	m		[2] clause 7.1.2.3	m	
6	NACK_Rsp	[2] clause 7.1.2.4	m		[2] clause 7.1.2.4	m	
7	Pre_CSBK	[2] clause 7.1.2.5	c6201		[2] clause 7.1.2.5	c6201	
8	Nul_Msg	[2] clause 7.1.3.1	m		[2] clause 7.1.3.1	n/a	
9	Act_Updt	[2] clause 7.1.3.2	m		[2] clause 7.1.3.2	n/a	
10	TD_LC	[3] clause 7.1	c6202		[3] clause 7.1	n/a	

c6201: IF A.1/1 OR A.1/1THEN n/a — if Release 1 or Release 2 then not applicable.

c6202: IF A.58/4 THEN o ELSE n/a — if Confirmed data service repeating supported then optional else not applicable.

Comments:

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A.9.1.1.3 BS CCL timers

Table A.63: BS CCL timers - repeater mode

Prerequisite: A.56/1 Repeater mode						
Item	**CCL Timer**	**Reference**	**Status**	**Support**	**Values**	
					Allowed	Supported
1	T_MSInactiv	[1] clause F.1	m		default 5 s	
2	T_CallHt	[1] clause F.1	m		default 3 s	
3	T_ChHt	[1] clause F.1	m		(see note)	
NOTE: Calculated value from T_MSInactiv - T_CallHt.						

Comments:

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A.9.1.2 BS DLL repeater mode

A.9.1.2.1 BS DLL capabilities and functionalities

Table A.64: BS major DLL functionalities

Item	BS DLL functionality	Reference	Status	Support
1	Traffic channel with CACH	[1] clause 4.6.1	c6401	
2	Traffic channel with guard time	[1] clause 4.6.2	c6402	
3	Channel timing	[1] clause 5.1	m	
4	Traffic channel mode operation	[1] clause 5.2.1.5	c6401	
5	Channel access	[1] clause 5.2	m	
6	Burst format	[1] clause 6	m	
7	DMR signalling	[1] clause 7	m	
8	Packet data protocol	[3] clause 4.2	c6403	

c6401: IF A.57/2 THEN m ELSE n/a if two frequency mode then mandatory else not applicable.

c6402: IF A.57/1 THEN m ELSE n/a if single frequency mode then mandatory else not applicable.

c6403: IF A.58/4 THEN m ELSE n/a if Packet data repeating supported then mandatory else not applicable.

Comments:

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A.9.1.2.1.1 BS DLL channel timing

Table A.65: BS DLL channel timing - repeater mode

Prerequisite: A.56/1 repeater mode				
Item	**BS DLL channel timing**	**Reference**	**Status**	**Support**
1	Channel timing relationship	[1] clause 5.1.1	c6501	
2	Voice superframe	[1] clause 5.1.2.1	m	
3	Voice initiation	[1] clause 5.1.2.2	m	
4	Voice termination	[1] clause 5.1.2.3	m	
5	Single frequency BS timing	[1] clause 5.1.4.2	c6502	
6	Tx outbound RC	[1] clauses 5.1.5.1 and 5.1.5.2	m	
7	Rx Standalone inbound RC	[1] clause 5.1.5.3	c6501	

c6501: IF A.57/2 THEN m ELSE n/a if two frequency mode then mandatory else not applicable.

c6502: IF A.57/1 THEN m ELSE n/a if single frequency mode then mandatory else not applicable.

Comments:

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Table A.66: BS DLL channel timing relationship

Prerequisite: A.65/1 channel timing relationship				
Item	**Channel timing alignment**	**Reference**	**Status**	**Support**
1	Aligned channel timing	[1] clauses 5.1.1.1 and 5.1.4.1	o.66	
2	Offset channel timing	[1] clauses 5.1.1.2 and 5.1.4.1	o.66	

o.66: It is mandatory to support at least one of these items.

Comments:

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Table A.67: BS DLL outbound RC transmission - repeater mode

Item	**BS DLL outbound RC**	**Reference**	**Status**	**Support**
1	Tx embedded outbound RC	[1] clause 5.1.5.1	o.67	
2	Tx dedicated outbound RC	[1] clause 5.1.5.2	o.67	

o.67: It is mandatory to support at least one of these items.

Comments:

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A.9.1.2.1.2 BS DLL channel operation mode

Table A.68: BS DLL channel modes

Prerequisite: A.57/2 Two frequency BS				
Item	**Channel access mode**	**Reference**	**Status**	**Support**
1	Single traffic channel mode (1:1)	[1] clause 5.2.1.5	c6801	
2	Two traffic channel mode (2:1)	[1] clause 5.2.1.5	c6802	

c6801: IF A.67/2 THEN m ELSE o if Tx dedicated outbound RC then mandatory else optional.

c6802: IF A.68/1 THEN o ELSE m if single traffic channel mode supported then optional else mandatory.

Comments:

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A.9.1.2.1.3 BS DLL channel access

Table A.69: BS DLL channel access - repeater mode

Item	BS DLL channel access	Reference	Status	Support
1	Timing master outbound channel	[1] clause 5.2.1.3	c6901	
2	Call hang time signalling	[1] clause 5.2.1.4	c6901	
3	Channel hang time signalling	[1] clause 5.2.1.4	c6902	
4	Transmit admit criteria	[1] clause 5.2.1.6	n/a	
5	Retry transmission	[1] clause 5.2.1.7	n/a	
6	Peer to peer mode channel access	[1] clause 5.2.2.1	n/a	
7	Repeater mode channel access	[1] clause 5.2.2.2	n/a	
8	CSBK ACK/NACK channel access	[1] clause 5.2.2.3	n/a	

c6901: IF A.57/2 THEN m ELSE n/a — if two frequency mode then mandatory else not applicable.

c6902:IF A.57/2 THEN o ELSE n/a — if two frequency mode then optional else not applicable.

Comments:

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A.9.1.2.1.4 BS DLL channel burst format

Table A.70: BS DLL Channel burst formats - repeater mode

Prerequisite: A.56/1 repeater mode							
Item	**Channel burst**	**BS sending (repeat)**			**BS receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	Voice burst	[1] clause 6.1	m		[1] clause 6.1	m	
2	Control burst	[1] clause 6.2	m		[1] clause 6.2	m	
3	Data burst	[1] clause 6.2	c7001		[1] clause 6.2	c7001	
4	CACH burst	[1] clause 6.3	c7002		[1] clause 6.3	n/a	
5	Standalone inbound RC burst	[1] clause 6.4.1	n/a		[1] clause 6.4.1	m	
6	Outbound RC burst	[1] clause 6.5.1	m		[1] clause 6.5.1	n/a	

c7001: IF A.64/8 THEN m ELSE n/a — if data packet protocol supported then mandatory else not applicable.

c7002: IF A.57/1 THEN m ELSE n/a — if two frequency mode then mandatory else not applicable.

Comments:

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A.9.1.2.1.5 BS DLL DMR signalling

Table A.71: BS Link control signalling - Repeater mode

Prerequisite: A.56/1 Repeater mode							
Item	**BS link control message**	**BS sending**			**BS receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	Voice LC header	[1] clause 7.1.1	m		[1] clause 7.1.1	m	
2	Voice LC terminator	[1] clause 7.1.2	m		[1] clause 7.1.2	m	
3	Embedded LC signalling with RC outbound channel	[1] clause 7.1.3.1	m		[1] clause 7.1.3.1	n/a	
4	Embedded LC signalling inbound channel	[1] clause 7.1.3.2	n/a		[1] clause 7.1.3.2	m	
5	Short LC in CACH	[1] clause 7.1.4	c7104		[1] clause 7.1.4	n/a	

c7104: IF A.57/2 THEN m ELSE n/a if two frequency supported then mandatory else not applicable.

Comments:

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Table A.72: BS CSBK and Idle signalling - Repeater mode

Prerequisite: A.56/1 Repeater mode							
Item	**DMR signalling**	**BS sending**			**BS receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	Standalone CSBK	[1] clause 7.2	m		[1] clause 7.2	m	
2	Idle burst	[1] clause 7.3	c7201		[1] clause 7.3	n/a	

c7201: IF A.57/2 THEN m ELSE n/a if two frequency then mandatory else not applicable.

Comments:

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A.9.1.2.1.6 BS DLL packet data bearer service repeating

Table A.73: BS DLL packet data bearer service repeating

Prerequisite: A.58/4 packet data repeating				
Item	**BS DLL packet data repeating**	**Reference**	**Status**	**Support**
1	Unconfirmed packet data repeating	[3] clause 5.3	o.73	
2	Confirmed packet data repeating	[3] clause 5.4	o.73	

o.73 It is mandatory to support at least one of these items.

Table A.74: BS DLL packet data block repeating

Prerequisite: A.58/4 packet data repeating				
Item	**BS DLL data block repeating**	**Reference**	**Status**	**Support**
1	Rate ½ coded data types	[3] clauses 5.3.1.1 and 5.4.11	o.74	
2	Rate ¾ coded data types	[3] clauses 5.3.1.2 and 5.4.1.2	o.74	

o.74 It is mandatory to support at least one of these items.

A.9.1.2.2 BS DLL PDUs

Table A.75: DLL PDU types - repeater mode

Prerequisite: A.56/1 Repeater mode							
Item	**DLL PDU type**	**BS sending (repeat)**			**BS receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	Voice burst PDU	[1] clauses 9.1 and 6.1	m		[1] clauses 9.1 and 6.1	m	
2	General data and control PDUs	[1] clause 9.1	m		[1] clause 9.1	m	
3	Data PDUs	[1] clause 9.2	c7501		[1] clause 9.2	c7501	

c7501: IF A.64/8 THEN m ELSE n/a — if data packet protocol supported then mandatory else not applicable.

Comments:

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A.9.1.2.2.1 BS DLL PDU descriptions, seen from BS

Table A.76: BS DLL general data and control PDUs - repeater mode

Prerequisite: A.56/3 Repeater mode							
Item	**DLL General data or control PDU**	**BS sending (repeat)**			**BS receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	Synchronization (SYNC)	[1] clause 9.1.1	m		[1] clause 9.1.1	m	
2	Embedded signalling (EMB)	[1] clause 9.1.2	m		[1] clause 9.1.2	m	
3	Slot Type (SLOT)	[1] clause 9.1.3	m		[1] clause 9.1.3	m	
4	Reverse Channel (RC)	[1] clause 9.1.5	m		[1] clause 9.1.5	m	
5	Full Link Control (FULL LC)	[1] clause 9.1.6	m		[1] clause 9.1.6	m	
6	Short Link Control (SHORT LC)	[1] clause 9.1.7	c7601		[1] clause 9.1.7	n/a	
7	Control Signalling Block (CSBK)	[1] clause 9.1.8	m		[1] clause 9.1.8	m	

c7601: IF A.57/2 THEN m ELSE n/a — if two frequency supported then mandatory else not applicable.

Comments:

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Table A.77: DLL BS sourced PDUs - repeater mode

Prerequisite: A.56/1 Repeater mode							
Item	**DLL BS sourced PDU**	**BS sending**			**BS receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	TACT	[1] clause 9.1.4	c7701		[1] clause 9.1.4	n/a	
2	Pseudo Random Fill Bit (PR FILL)	[1] clause 9.1.9	c7702		[1] clause 9.1.9	n/a	

c7701: IF A.57/2 THEN m ELSE n/a — if two frequency supported then mandatory else not applicable.

c7702: IFA.72/2a THEN m ELSE n/a — if transmission of idle burst then mandatory else not applicable.

Comments:

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Table A.78: DLL data PDU types - repeater mode

Prerequisite: A.75/3a AND A.75/3b Sending (repeating) and receiving data PDUs							
Item	**DLL Data PDU**	**BS sending (repeat)**			**BS receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	Confirmed packet Header (C_HEAD)	[1] clause 9.2.1	c7801		[1] clause 9.2.1	c7801	
2	Rate ¾ coded packet data (R_3_4_DATA)	[1] clause 9.2.2	c7802		[1] clause 9.2.2	c7802	
3	Rate ¾ coded last data block (R_3_4_LDATA)	[1] clause 9.2.2	c7802		[1] clause 9.2.3	c7802	
4	Confirmed Response packet Header (C_RHEAD)	[1] clause 9.2.4	c7801		[1] clause 9.2.4	c7801	
5	Confirmed Response packet Data (C_RDATA)	[1] clause 9.2.5	c7801		[1] clause 9.2.5	c7801	
6	Unconfirmed data packet Header (U_HEAD)	[1] clause 9.2.6	c7803		[1] clause 9.2.6	c7803	
7	Rate ½ coded packet data (R_1_2_DATA)	[1] clause 9.2.7	c7804		[1] clause 9.2.7	c7804	
8	Rate ½ coded Last Data Block (R_1_2_LDATA)	[1] clause 9.2.8	c7804		[1] clause 9.2.8	c7804	
9	Proprietary Header (P-HEAD)	[1] clause 9.2.9	o		[1] clause 9.2.9	o	
10	Status/Precoded short data packet header (SP_HEAD)	[1] clause 9.2.10	c7805		[1] clause 9.2.10	c7805	
11	Raw short data packet header (R_HEAD)	[1] clause 9.2.11	c7806		[1] clause 9.2.11	c7806	
12	Defined Data short data packet header (DD_HEAD)	[1] clause 9.2.12	c7807		[1] clause 9.2.12	c7807	

c7801: IF A.73/2 THEN m ELSE n/a — if confirmed data packet service supported then mandatory else not applicable.

c7802: IF A.74/2 THEN m ELSE n/a — if rate ¾ coded packet data supported then mandatory else not applicable.

c7803: IF A.73/1 THEN m ELSE n/a — if unconfirmed data packet service supported then mandatory else not applicable.

c7804: IF A.74/1 THEN m ELSE n/a — if rate ½ coded packet data supported then mandatory else not applicable.

c7805: IF A.61/2 THEN m ELSE n/a — if short data, status/precoded supported then mandatory else not applicable.

c7806: IF A.61/1 THEN m ELSE n/a — if short data, raw data supported then mandatory else not applicable.

c7807: IF A.61/3THEN m ELSE n/a — if rate short data, defined data supported then mandatory else not applicable.

Comments:

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A.9.1.2.2.2 BS DLL SYNC PDU patterns

Table A.79: DLL SYNC PDU patterns - repeater mode

Prerequisite: A.56/1 Repeater mode							
Item	**DLL SYNC pattern**	**Sending**			**Receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	BS sourced voice	[1] clause 9.1.1	m		[1] clause 9.1.1	n/a	
2	BS sourced data	[1] clause 9.1.1	m		[1] clause 9.1.1	n/a	
3	MS sourced voice	[1] clause 9.1.1	n/a		[1] clause 9.1.1	m	
4	MS sourced data	[1] clause 9.1.1	n/a		[1] clause 9.1.1	m	
5	MS sourced RC sync	[1] clause 9.1.1	n/a		[1] clause 9.1.1	c7901	

c7901: IF A.57/2 THEN m ELSE n/a if two frequency BS then mandatory else not applicable.

Comments:

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A.9.1.2.3 BS DLL timers

Table A.80: BS DLL timers - repeater mode

Prerequisite: A.56/1 Repeater mode						
Item	**DLL Timer**	**Reference**	**Status**	**Support**	**Values**	
					Allowed	Supported
1	T_ChMonTo	[1] clause F.1	n/a		min. 40 ms.	
2	T_ChSyncTo	[1] clause F.1	n/a		min 400 ms.	
3	T_MSInactiv	[1] clause F.1	m		default 5 s	
4	T_CallHt	[1] clause F.1	m		default 3 s	
5	T_ChHt	[1] clause F.1	m			
6	T_Monitor	[1] clause F.1	n/a		max 720 ms	
7	T_TxCC	[1] clause F.1	n/a		max 360 ms.	
8	T_SyncWu	[1] clause F.1	n/a		max 360 ms.	
9	T_TxCCSlot	[1] clause F.1	n/a		max 720 ms	
10	T_IdleSrch	[1] clause F.1	n/a		max 540 ms	
11	T_Holdoff	[1] clause F.1	n/a		Random value, 0 to 1 s (see note)	
12	T_DataHngtime	[3] clause A.1	c6301		180 ms (see note)	
NOTE: The upper limit value is a recommended value only.						

c6301: IF A.73/2 THEN o ELSE n/a if Confirmed data service repeating supported then optional else not applicable.

Comments:

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A.9.2 BS Trunked System (TS)

This section applies to trunked mode base stations.

A.9.2.1 BS TS Control Channel features

Prerequisite: A.2/3 AND A.3/2 Tier 3 product and base station

Table A.81: TS service capabilities

Item	Trunked mode services	Reference	Status	Support
1	Generic services	[4] clause 4.2	m	
2	Voice services	[4] clause 4.2	o.81	
3	Packet data services	[4] clause 4.2	o.81	
4	Supplementary services	[4] clause 4.2	o	

o.81: It is mandatory to support at least one of these items.

Comments:

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Table A.82: TS CCL trunked mode generic features

Prerequisite: A.81/1 TS standard generic features group				
Item	**Tier 3 Generic feature**	**Reference**	**Status**	**Support**
1	Random access procedure	[4] clause 6.2	m	
2	Broadcast of system parameters	[4] clause 5.1	m	
3	Registration	[4] clause 6.4.4	m	
4	Mass re-registration	[4] clause 6.4.5	o	
5	De-registration	[4] clause 6.4.6	m	
6	Power save feature	[4] clause 6.4.7	o	
7	Unified data transport mechanism	[4] clause 6.5	m	

Comments:

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Table A.83: TS CCL trunked mode voice call features

Prerequisite: A.81/2 TS trunked mode voice call features group				
Item	**Tier 3 voice call feature**	**Reference**	**Status**	**Support**
1	Talkgroup call service	[4] clause 6.6.2	m	
2	Individual call service	[4] clause 6.6.2	m	
3	Multi-part voice call set-up	[4] clause 6.6.2	o	

Comments:

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Table A.84: TS CCL trunked mode voice call services

Prerequisite: A.81/2 MS trunked mode voice call features group				
Item	**Tier 3 voice call service**	**Reference**	**Status**	**Support**
1	Emergency service	[4] clause 6.6.2	o	

Comments:

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Table A.85: TS CCL trunked mode packet data features

Prerequisite: A.81/3 TS trunked mode data call features group				
Item	**Tier 3 packet data feature**	**Reference**	**Status**	**Support**
1	Packet data call service	[4] clause 6.6.3	o.85	
2	Short data message service	[4] clause 6.6.4	o.85	
3	Short data polling service	[4] clause 6.6.5	o.85	
4	Status call service	[4] clause 6.6.6	o.85	

o.85: It is mandatory to support at least one of these items.

Comments:

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Table A.86: TS CCL trunked packet data call type

Prerequisite: A.85/1 TS trunked mode packet data feature supported				
Item	**TS data packet call type**	**Reference**	**Status**	**Support**
1	Individual data packet single-part call setup	[4] clause 6.6.3.1	m	
2	Talkgroup data packet single-part call setup	[4] clause 6.6.3.1	m	
3	Data packet multi-part call setup	[4] clause 6.6.3.1	o	

Comments:

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Table A.87: TS CCL trunked mode packet data services

Prerequisite: A.85/1 MS trunked mode packet data call				
Item	**Tier 3 packet data service**	**Reference**	**Status**	**Support**
1	Emergency service	[4] clause 6.6.3.2	o	

Comments:

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Table A.88: TS CCL trunked mode short data message services

Prerequisite: A.85/2 MS trunked mode short data message				
Item	**Short data message service**	**Reference**	**Status**	**Support**
1	Radio check	[4] clause 6.6.4.1.3	o	

Comments:

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Table A.89: TS CCL trunked mode short data polling services

Prerequisite: A.85/3 MS trunked mode short data polling				
Item	**Short data polling service**	**Reference**	**Status**	**Support**
1	Radio check	[4] clause 6.6.5.1.2	o	

Comments:

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Table A.90: TS CCL trunked mode supplementary service features

Prerequisite: A.85/4 TS trunked mode supplementary service group				
Item	**Supplementary service feature**	**Reference**	**Status**	**Support**
1	Authentication	[4] clause 6.4.8	o	
2	Stun/Revive	[4] clause 6.4.9	o	
3	Call diversion	[4] clause 6.6.7	o	
4	Supplementary data transfer	[4] clause 6.5	c9001	

c9001: IF (A.83/3 OR A.86/3) THEN m ELSE o if multi-part voice or data packet set-up supported then mandatory else optional.

Comments:

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Table A.91: TS CCL stun/revive service

Prerequisite: A. /2 TS stun/revive supplementary service				
Item	**Stun/Revive procedure**	**Reference**	**Status**	**Support**
1	without authentication	[4] clause 6.4.9.1	o.28	
2	with authentication	[4] clause 6.4.9.2	o.28	

o.28: At least one of these items shall be supported.

Comments:

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Table A.92: TS CCL voice and data call common procedures

Item	Call procedure	Reference	Status	Support
1	Availability check of calling MS	[4] clause 6.6.1.1	o	
2	Call cancellation response	[4] clause 6.6.1.2	m	
3	Progress acknowledgements	[4] clause 6.6.1.3	o	
4	Payload channel assignment	[4] clause 6.6.1.5	m	

Comments:

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Table A.93: TS trunking methods

Item	Trunking method	Reference	Status	Support
1	Message trunking	[4] clause 4.11.1	o.93	
2	Transmission trunking	[4] clause 4.11.2	o.93	
3	Quasi-Transmission trunking	[4] clause 4.11.3	o.93	

o.93: At least one of these items shall be supported.

Comments:

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Table A.94: TS control channel modes

Item	CC mode	Reference	Status	Support
1	Dedicated CC	[4] clause 5.3.1	o.94	
2	Non-dedicated CC	[4] clause 5.3.2	o.94	
3	Asynchronous access	[4] clause 5.3.3	o	

o.93: Exactly one of these items shall be supported.

Comments:

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A.9.2.2 BS TS Payload Channel features

Table A.95: BS trunked mode payload channel voice procedures

Prerequisite: A.81/2 BS trunked mode voice services				
Item	**Payload channel voice procedure**	**Reference**	**Status**	**Support**
1	MS radio check	[4] clause 6.6.2.3.1.1	o	
2	Authentication Check	[4] clause 6.6.2.3.1.2	o	
3	Disabling/enabling a users PTT	[4] clause 6.6.2.3.1.3	o	
4	Swap payload channel	[4] clause 6.6.2.3.1.4	o	
5	Removing MS from payload channel	[4] clause 6.6.2.3.1.5	o	
6	Clear payload channel	[4] clause 6.6.2.3.1.6	m	
7	Selective clear of payload channel	[4] clause 6.6.2.3.1.7	o	

Comments:

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Table A.96: BS trunked mode payload channel packet data procedures

Prerequisite: A.85/1 BS packet data service				
Item	**Payload channel packet data procedure**	**Reference**	**Status**	**Support**
1	MS radio check	[4] clause 6.6.3.3.1.1	o	
2	Authentication Check	[4] clause 6.6.3.3.1.2	o	
3	Disabling/enabling a user transmission	[4] clause 6.6.3.3.1.3	o	
4	Swap payload channel	[4] clause 6.6.3.3.1.4	o	
5	Removing MS from payload channel		o	
6	Clear payload channel	[4] clause 6.6.3.3.1.5	m	
7	Selective clear of payload channel	[4] clause 6.6.3.3.1.6	m	

Comments:

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A.9.2.3 BS trunked mode PDUs

A.9.2.3.1 BS trunked mode control channel PDUs

Table A.97: TS CCL trunked protocol outbound PDUs on the control channel

Prerequisite: A.2/3 AND A.3/2 Tier 3 (trunked mode) BS							
Item	**TSCC PDU**	**TS sending**			**TS receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	PV_GRANT (CSBK) (logical)	[4] clauses 7.1.1.1.1.1 and 7.1.1	c9701		[4] clause 7.1.1.1.1.1	n/a	
2	PV_GRANT (MBC header) (absolute)	[4] clauses 7.1.1.1.1.1 and 7.1.1	c9701		[4] clause 7.1.1.1.1.1	n/a	
3	TV_GRANT (CSBK) (logical)	[4] clauses 7.1.1.1.1.2 and 7.1.1	c9701		[4] clause 7.1.1.1.1.2	n/a	
4	TV_GRANT (MBC header) (absolute)	[4] clauses 7.1.1.1.1.2 and 7.1.1	c9701		[4] clause 7.1.1.1.1.2	n/a	
5	BTV_GRANT (CSBK) (logical)	[4] clauses 7.1.1.1.1.3 and 7.1.1	c9701		[4] clause 7.1.1.1.1.3	n/a	
6	BTV_GRANT (MBC header) (absolute)	[4] clauses 7.1.1.1.1.3 and 7.1.1	c9701		[4] clause 7.1.1.1.1.3	n/a	
7	PD_GRANT (CSBK) (logical)	[4] clauses 7.1.1.1.1.4 and 7.1.1	c9702		[4] clause 7.1.1.1.1.4	n/a	
8	PD_GRANT (MBC header) (absolute)	[4] clauses 7.1.1.1.1.4 and 7.1.1	c9702		[4] clause 7.1.1.1.1.4	n/a	
9	TD_GRANT (CSBK) (logical)	[4] clauses 7.1.1.1.1.5 and 7.1.1	c9702		[4] clause 7.1.1.1.1.5	n/a	
10	TD_GRANT (MBC header) (absolute)	[4] clauses 7.1.1.1.1.5 and 7.1.1	c9702		[4] clause 7.1.1.1.1.5	n/a	
11	CG_AP (MBC continuation)	[4] clause 7.1.1.1.2	m		[4] clause 7.1.1.1.2	n/a	
12	C_MOVE (CSBK) (logical)	[4] clause 7.1.1.1.3	m		[4] clause 7.1.1.1.3	n/a	
13	C_MOVE (MBC header) (absolute)	[4] clauses 7.1.1.1.3 and 7.1.1	m		[4] clause 7.1.1.1.3	n/a	
14	MV_AP (MBC continuation)	[4] clause 7.1.1.1.3.1 and 7.1.1	m		[4] clause 7.1.1.1.3.1	n/a	
15	C_ALOHA (CSBK)	[4] clause 7.1.1.1.4	m		[4] clause 7.1.1.1.4	n/a	
16	C_BCAST (CSBK) (logical)	[4] clauses 7.1.1.1.5 and 7.1.1	m		[4] clause 7.1.1.1.3	n/a	
17	C_BCAST (MBC header) (absolute)	[4] clauses 7.1.1.1.5 and 7.1.1	m		[4] clause 7.1.1.1.3	n/a	
18	BC_AP (MBC continuation)	[4] clause 7.1.1.1.5.1	m		[4] clause 7.1.1.1.5.1	n/a	
19	AHOY (CSBK)	[4] clause 7.1.1.1.6	m		[4] clause 7.1.1.1.6	n/a	
20	C_ACKD (CSBK)	[4] clause 7.1.1.1.7	m		[4] clause 7.1.1.1.7	n/a	
21	C_NACKD (CSBK)	[4] clause 7.1.1.1.7	m		[4] clause 7.1.1.1.7	n/a	
22	C_QACKD (CSBK)	[4] clause 7.1.1.1.7	m		[4] clause 7.1.1.1.7	n/a	
23	C_WACKD (CSBK)	[4] clause 7.1.1.1.7	m		[4] clause 7.1.1.1.7	n/a	
24	C_UDTHD	[4] clause 7.1.1.2.3	m		[4] clause 7.1.1.1.8	n/a	
25	UDT	[4] clause B.3	m		[4] clause B.3	n/a	

c9701: IF A.81/2 THEN m ELSE n/a if voice call service then mandatory else not applicable.

c9702: IF A.81/3 THEN m ELSE n/a if packet data service then mandatory else not applicable.

Comments:

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Table A.98: MS CCL trunked protocol inbound PDUs on the control channel

Prerequisite: A.2/3 AND A.3/2 Tier 3 (trunked mode) BS							
Item	**CCL PDU**	**TS sending**			**TS receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	C_RAND (CSBK)	[4] clause 7.1.1.2.1	n/a		[4] clause 7.1.1.2.1	m	
2	C_ACKVIT	[4] clause 7.1.1.2.2	n/a		[4] clause 7.1.1.2.2	c9801	
3	C_ACKU	[4] clause 7.1.1.2.3	n/a		[4] clause 7.1.1.2.3	m	
4	C_UDTHD	[4] clause 7.1.1.2.4	n/a		[4] clause 7.1.1.2.4	m	
5	UDT	[4] clause B.3	n/a		[4] clause B.3	m	

c9801: IF A.91/2 THEN m ELSE n/a if stun/revive with authentication then mandatory else not applicable.

Comments:

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A.9.2.3.2 BS trunked mode payload channel PDUs

Table A.99: TS CCL trunked protocol outbound PDUs on the payload channel

Prerequisite: A.2/3 AND A.3/2 Tier 3 (trunked mode) BS							
Item	**CCL PDU**	**TS sending**			**TS receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	P_GRANT (CSBK) (logical)	[4] clause 7.1.1.3.1	m		[4] clause 7.1.1.1.3.1	n/a	
2	P_GRANT (MBC header) (absolute)	[4] clause 7.1.1.3.1	m		[4] clause 7.1.1.3.1	n/a	
3	P_CLEAR	[4] clause 7.1.1.3.2	m		[4] clause 7.1.1.3.2	n/a	
4	P_PROTECT	[4] clause 7.1.1.3.3	m		[4] clause 7.1.1.3.3	n/a	
5	P_AHOY	[4] clause 7.1.1.3.4	m		[4] clause 7.1.1.3.4	n/a	
6	P_ACK	[4] clause 7.1.1.3.5	m		[4] clause 7.1.1.3.5	n/a	

Comments:

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Table A.100: TS CCL trunked protocol inbound PDUs on the payload channel

Prerequisite: A.2/3 AND A.3/2 Tier 3 (trunked mode) BS							
Item	**CCL PDU**	**TS sending**			**TS receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	P_RAND	[4] clause 7.1.1.4.1	n/a		[4] clause 7.1.1.4.1	m	
2	P_ACKU	[4] clause 7.1.1.4.2	n/a		[4] clause 7.1.1.4.2	m	
3	P_MAINT	[4] clause 7.1.1.4.3	n/a		[4] clause 7.1.1.4.3	c3501	

c3501: IF (A.17/2 OR A.22/1) THEN m ELSE n/a if voice call or packet data supported then mandatory else not applicable.

Comments:

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Table A.101: TS CCL trunked mode timers

Prerequisite: A.2/3 AND A.3/2 Tier 3 (trunked mode) TS						
Item	**CCL trunked mode timer**	**Reference**	**Status**	**Support**	**Values**	
					Allowed	**Supported**
1	TV_Hangtime	[4] clause A.1	m		1 to 60 s	

Comments:

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A.9.2.4 BS trunked mode DLL PDUs

Table A.102: TS DLL trunked protocol outbound PDUs on the control channel

Prerequisite: A.2/3 AND A.3/2 Tier 3 (trunked mode) TS							
Item	**DLL PDU**	**TS sending**			**TS receiving**		
		Reference	**Status**	**Support**	**Reference**	**Status**	**Support**
1	Short Link Control (LC)	[4] clause 7.1.2, [1] clause 9.1.7	m		[4] clause 7.1.2, [1] clause 9.1.7	n/a	

Comments:

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History

Document history		
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