

**Electromagnetic compatibility  
and Radio spectrum Matters (ERM);  
Conformance testing for Mode 1 of  
the digital Private Mobile Radio (dPMR);  
Part 1: Protocol Implementation Conformance  
Statement (PICS) proforma**

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Reference

DTS/ERM-TGDMR-279-1

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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 Peer-to-Peer Digital Private Mobile Radio, as identified below:

- Part 1: "Protocol Implementation Conformance Statement (PICS) proforma";**
- Part 2: "Test Suite Structure and Test Purposes (TSS&TP) specification";
- Part 3: "Interoperability Test Suite Structure and Test Purposes (TSS&TP) specification".

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## 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 ERM; Digital Private Mobile Radio using FDMA with a channel spacing of 6,25 kHz as defined in TS 102 658 [1] in compliance with the relevant requirements, and in accordance with the relevant guidance given in ISO/IEC 9646-7 [3] and ETS 300 406 [4].

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

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# 2 References

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.
- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:
  - if it is accepted that it will be possible to use all future changes of the referenced document for the purposes of the referring document;
  - for informative references.

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

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

## 2.1 Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

- [1] ETSI TS 102 658 (V1.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Digital Private Mobile Radio (dPMR) using FDMA with a channel spacing of 6,25 kHz".
- [2] ISO/IEC 9646-1: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".
- [3] ISO/IEC 9646-7: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".
- [4] ETSI ETS 300 406: "Methods for testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

## 2.2 Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Not applicable.

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## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in TS 102 658 [1], ISO/IEC 9646-1 [2], ISO/IEC 9646-7 [3] 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:

dPMR	digital Private Mobile Radio
FDMA	Frequency Division Multiple Access
ICS	Implementation Conformance Statement
IP	Internet Protocol
IUT	Implementation Under Test
M1	Mode 1 MS
M2	Mode 2 MS
M3	Mode 3 MS
MS	Mobile Station
OACSU	Off-Air Call Set-up
PICS	Protocol Implementation Conformance Statement
PTT	Push To Talk
SUT	System Under Test

---

## 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 102 658

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the PICS proforma in this annex so that it can be used for its intended purposes and may further publish the completed PICS.

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### 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 102 658 [1], 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 102 658 [1];
- global statement of conformance;
- entity;
- type M1, M2, M3, BS2, BS3;
- MS features:
  - capabilities;
  - frames;
  - 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 [3].

##### 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 [3], 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 a 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 a 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 102 658 [1], 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 [3], 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 [3], 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 A.5.

EXAMPLE 3:    A.6/3b is the reference to the second answer (i.e. in the second support column) of item 3 in table A.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 "M1" clause shall only be completed for Mode 1 implementations, and the tables containing in "BS2" clause shall only be completed for Mode 2 BS implementations etc.

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

.....

### A.2.2 Implementation Under Test (IUT) identification

IUT name:

.....  
.....

IUT version:

.....

### A.2.3 System Under Test (SUT) identification

SUT name:

.....  
.....

Hardware configuration:

.....  
.....  
.....

Operating system:

.....

### A.2.4 Product supplier

Name:

.....

Address:

.....  
.....  
.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

## A.2.5 Client (if different from product supplier)

Name:

.....

Address:

.....

.....

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

## A.2.6 ICS contact person

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

Name:

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

## A.3 Identification of the protocol

This PICS proforma applies to the following standard:

TS 102 658 [1] (V1.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Digital Private Mobile Radio (dPMR) using FDMA with a channel spacing of 6,25 kHz".

## A.4 Global statement of conformance

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

NOTE: Answering "No" to this question indicates non-conformance to the TS 102 658 [1] 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 Entity

**Table A.1: Entity**

Item	Entity type	Reference	Status	Support
1	M1	[1] clause 8.1	o.1	
2	M2	(tbd)	(tbd)	
3	M3	(tbd)	(tbd)	
4	BS2	(tbd)	(tbd)	
5	BS3	(tbd)	(tbd)	
o.1: It is mandatory to support exactly one of these items.				

Comments:

.....

.....

## A.6 M1

**Table A.2: M1 type**

Item	M1 type	Reference	Status	Support
1	Voice	[1] clause 8.1	o.2	
2	Type 3 data	[1] clause 8.1	o.2	
3	Type 2 data	[1] clause 8.1	o.2	
4	Type 1 data	[1] clause 8.1	o.2	
5	Numbering and dialling	[1] clauses A.2 and A.3	m	
6	Status Polling	[1] clause 8.1	o	
7	Short Data	[1] clause 8.1	o	
o.2: It is mandatory to support at least one of these items.				

Comments:

.....

.....

**Table A.3: M1 Voice Tele-services**

Prerequisite: A.2/1 - M1 Voice				
Item	Tele-service	Reference	Status	Support
1	Individual call	[1] clause 8.1	o.3	
2	Group call	[1] clause 8.1	o.3	
o.3: It is mandatory to support at least one of these items.				

Comments:

.....

.....

**Table A.4: M1 Voice Individual call supplementary services**

Prerequisite: A.3/1 - M1 individual call				
Item	Supplementary service	Reference	Status	Support
1	Late entry	[1] clause 8.1	m	
2	OACSU	[1] clause 8.1	o	
3	Cancel Call Setup	[1] clause 8.1	o	
4	PTT Call	[1] clause 8.1	o	
5	Slow user data	[1] clause 8.1	o	
6	Short attached data	[1] clause 8.1	o	
7	Talking party identification	[1] clause 8.1	o	

Comments:

.....

.....

**Table A.5: M1 Voice group call supplementary services**

Prerequisite: A.3/2 - M1 group call				
Item	Supplementary service	Reference	Status	Support
1	Late entry	[1] clause 8.1	m	
2	Cancel Call Setup	[1] clause 8.1	o	
3	PTT Call	[1] clause 8.1	o	
4	Slow user data	[1] clause 8.1	o	
5	Short appended data	[1] clause 8.1	o	
6	Talking party identification	[1] clause 8.1	o	

Comments:

.....

.....

**Table A.6: M1 Type 3 data Tele-services**

Prerequisite: A2/2 - M1 Type 3 data				
Item	Tele-service	Reference	Status	Support
1	IP over dPMR	[1] clause 8.1	o.6	
2	Individual Data message	[1] clause 8.1	o.6	
o.6: It is mandatory to support at least one of these items.				

Comments:

.....

.....

**Table A.7: M1 Type 2 data Tele-services**

Prerequisite: A2/3 - M1 Type 2 data				
Item	Tele-service	Reference	Status	Support
1	IP over dPMR	[1] clause 8.1	o.7	
2	Individual Short Data message	[1] clause 8.1	o.7	
3	Group Short Data message	[1] clause 8.1	o.7	
o.7: It is mandatory to support at least one of these items.				

Comments:

.....

.....

**Table A.8: M1 Type 1 data Tele-services**

Prerequisite: A2/4 - M1 Type 1 data				
Item	Tele-service	Reference	Status	Support
1	IP over dPMR	[1] clause 8.1	o.8	
2	Individual Short Data message	[1] clause 8.1	o.8	
3	Group Short Data message	[1] clause 8.1	o.8	
o.8: It is mandatory to support at least one of these items.				

Comments:

.....

.....

**Table A.9: Numbering and dialling**

Prerequisite: A.2/5 - Numbering and Dialling				
Item	Procedure	Reference	Status	Support
1	Address space mapping	[1] clause A.2	m	
2	User dialling plan	[1] clause A.3	m	

Comments:

.....

.....

**Table A.10: Addressing derived functions**

Prerequisite: A.9/2 - User dialling plan				
Item	Function	Reference	Status	Support
1	Dialling string convention	[1] clause A.1.3.1	m	
2	Call initiation	[1] clause A.1.3.1.1	m	
3	Call type determination	[1] clause A.1.3.1.2	m	
4	Call modifier	[1] clause A.1.3.1.3	o	
5	MS address	[1] clause A.1.3.3.1	m	
6	Talkgroup identification	[1] clause A.1.3.3.2	m	
7	All call addressing	[1] clause A.1.3.3.3	m	
8	Invalid numbers	[1] clause A.1.3.3.4	m	
9	Talkgroup addressing	[1] clause A.1.3.3.5	m	
10	Caller dialling	[1] clause A.1.3.4.1	m	
11	Call modifier function	[1] clause A.1.3.4.2	o	
12	Call abandon	[1] clause A.1.3.4.3	o	

Comments:

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**A.7 M2**

(TBD)

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**A.8 M3**

(TBD)

## A.9 Features

### A.9.1 M1 Features

**Table A.11: M1 feature**

Item	Feature	Reference	Status	Support
1	M1 Channel access	[1] clause 12.1	m	
2	Traffic Channel Powersave	[1] clause 10.1.4	o	

Comments:

.....

.....

**Table A.12: M1 Channel Access features**

Prerequisite:				
Item	Feature	Reference	Status	Support
1	Listen before transmit	[1] clause 12.1.1	m	
2	Transmitter hangtime procedure	[1] clause 12.1.3.4	o	
3	Receiver hangtime procedure	[1] clause 12.1.2.2	m	
4	Call duration timer	[1] clause 12.1.2.3	m	
5	Channel access procedure	[1] clause 12.1.3.1	m	
6	Transmit retry procedure	[1] clause 12.1.3.3	m	

Comments:

.....

.....

**Table A.13: Channel Access procedure**

Prerequisite: A.12/5				
Item	Procedure	Reference	Status	Support
1	Impolite channel access	[1] clause 12.1.3.1	o.13	
2	Polite to own group or talkgroup	[1] clause 12.1.3.1	o.13	
3	Polite to own CC	[1] clause 12.1.3.1	o.13	
o.13: It is mandatory to support at least one of these items.				

Comments:

.....

.....



## A.9.2 M1 Frames

Table A.14: Frames

Item	Frame	MS sending			MS receiving		
		Reference	Status	Support	Reference	Status	Support
1	Frame 1, 2, 3, 4 of Superframe	[1] clause 5.1	m		[1] clause 5.1	m	
2	Message frame	[1] clause 5.2	m		[1] clause 5.2	m	
3	End frame	[1] clause 5.3	m		[1] clause 5.2	m	
4	Packet Header frame	[1] clause 5.4	c901		[1] clause 5.4	c901	
5	Packet Data frame	[1] clause 9.3	c901		[1] clause 9.3	c901	
6	Acknowledgement	[1] clause 5.2.4	c902		[1] clause 5.2.4	c902	
7	Short data delivery header	[1] clause 5.2.15	c903		[1] clause 5.2.15	c903	
8	Short data delivery frame	[1] clause 5.6	c903		[1] clause 5.6	c903	

c901: IF A.2/2 THEN m ELSE n/a; IF Type 3 data then mandatory else not applicable.  
c902: IF A.2/2 THEN m; IF A.3/1 OR A.7/2 OR A.8/2 THEN o ELSE n/a.  
c903: IF A.2/7 THEN m ELSE n/a.

Comments:

.....

.....

## A.9.3 M1 Timers

Table A.15: MS CCL timers

Item	CCL Timer	Reference	Status	Support	Values	
					Allowed	Supported
1	T_ch_chk	[1] clause 13.1	m		min. 100 ms	
2	T_ch_free	[1] clause 13.1	m		min. 200 ms	
3	Call Duration	[1] clause 12.1.2.3	m		any	
4	T_ack	[1] clause 13.1	m		max 3 s	

Comments:

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## A.10 M2 Features

(TBD)

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## A.11 M3 Features

(TBD)

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## History

<b>Document history</b>		
V1.1.1	October 2009	Publication