

**Electromagnetic compatibility
and Radio spectrum Matters (ERM);
Peer-to-Peer Digital Private Mobile Radio;
Part 6: Interoperability testing; Test Descriptions (TD)**



Reference

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Keywords

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ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
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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 6 of a multi-part deliverable covering the Electromagnetic compatibility and Radio spectrum Matters (ERM); Peer-to-Peer Digital Private Mobile Radio, as identified below:

- Part 1: "Conformance testing; Protocol Implementation Conformance Statement (PICS) proforma";
- Part 2: "Conformance testing; Test Suite Structure and Test Purposes (TSS&TP) specification";
- Part 3: "Requirements catalogue";
- Part 4: "Conformance testing; Abstract Test Suite (ATS)";
- Part 5: "Interoperability testing; Interoperability Test Suite Structure and Test Purposes (TSS&TP) specification";
- Part 6: "Interoperability testing; Test Descriptions (TD)".**

1 Scope

The present document contains the Test Descriptions (TD) for interoperability testing of the ERM; Peer-to-Peer Digital Private Mobile Radio using FDMA with a channel spacing of 6,25 kHz with e.r.p of up to 500 mW as defined in TS 102 490 [1]. The objective of this test specification is to provide a basis for interoperability tests for ERM Peer-to-Peer Digital Private Mobile Radio equipment giving a high probability of inter-operability between different manufacturer's ERM DMR equipment.

2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

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 necessary for the application of the present document.

- [1] ETSI TS 102 490 (V1.6.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Peer-to-Peer Digital Private Mobile Radio using FDMA with a channel spacing of 6,25 kHz with e.r.p. of up to 500 mW".
- [2] Void.
- [3] Void.
- [4] ETSI TS 102 587-3: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Peer-to-Peer Digital Private Mobile Radio; Part 3: Requirements catalogue".

2.2 Informative references

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

Not applicable.

3 Abbreviations

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

CF	(Test) ConFIGuration
CSF	Configured Services and Facilities
dPMR	digital Private Mobile Radio
ISDM	Individual Short Data Message
ISF	Initial Services and Facilities
OACSU	Off Air Call Set-Up
PTT	Push To Talk
RC	Requirements Catalogue
RQ	ReQUIREment
TD	Test Description
TP	Test Purpose
TSS	Test Suite Structure

4 Test Suite Structure (TSS)

The Test Suite Structure is based on the dPMR Requirements Catalogue [4]. It is defined by the groups within the following specification of test descriptions. The numbering is not contiguous so that new TDs can be added at a later date without the need to completely renumber the TSS groups.

The test descriptions have been divided into three groups:

- Group 1: Common requirements.
- Group 2: CSF requirements.
- Group 3: ISF requirements.

The sub-grouping of these three group follows the structure of the RC. Some of the sub-groups of the RC contained no testable requirement. Headings for those sub-groups are in this test purpose document in the node group to give a full view on the relation between RQ and TD.

```

Group 1 "ISF CSF Common"
Group 1.1 "All Call"
Group 1.2 "Channel Access"
Group 1.3 "Framing"
Group 1.3.1 "End frame"
Group 1.3.2 "Header frames"
Group 1.3.2.1 "Call information field"
Group 1.3.3 "Packet data frame"
Group 1.3.4 "Superframe"
Group 1.3.4.1 "Type 1 data"
Group 1.3.4.2 "Type 2 data"
Group 1.3.4.3 "Voice"
Group 1.4 "Late Entry"
Group 1.5 "Powersave"
Group 1.6 "Talking Party ID"
Group 2 "CSF"
Group 2.1 "Broadcast Call"
Group 2.2 "Dialling Plan"
Group 2.3 "Individual Short Data Message"
Group 2.3.1 "ISDM Free Text Message"
Group 2.3.2 "ISDM Precoded Message"
Group 2.3.3 "ISDM Short File Transfer"
Group 2.3.4 "ISDM Status Message"
Group 2.4 "OACSU"
Group 2.5 "Short Appended Data"
Group 2.6 "Slow User Data"
Group 2.7 "Type 3 data"
Group 3 "ISF"

```

5 Test Descriptions (TD)

Configurations that are referenced by test descriptions are shown in annex A.

5.1 ISF CSF Common

Group 1 'ISF CSF Common'

5.1.1 All Call

Group 1.1 'All Call'

Test Description			
Identifier:	TD_PMR_0824_01	Test Purpose:	TP_PMR_0824_01
Summary:	'Support of all call with any specific callee ID'		
Roles:	ISF	Configuration:	CF_IDPMRISF_01
References:	RQ_001_0824, RQ_001_0824		
<pre>-- ISF QE1 and EUT with { QE1 and EUT in standby and using_compatible_vocoders } ensure that { when { QE1 uses Common_ID 255 and EUT uses another Common_ID and QE1_User makes a Call to EUT } then { EUT_User receives the Call } }</pre>			
-- xxx			
Pre-test conditions:	Select same RF channel for both QE1 and EUT Select 255 as Common ID on QE1 Select a different Common ID on EUT		
Step	Test Sequence	Verdict	
		Pass	Fail
1	Cause QE1 to make a call		
2	Check that EUT receives the call	yes	no
Observations:			

Test Description			
Identifier:	TD_PMR_0824_02	Test Purpose:	TP_PMR_0824_02
Summary:	'All call with all call callee ID'		
Roles:	ISF	Configuration:	CF_IDPMRISF_01
References:	RQ_001_0824, RQ_001_0824		
<pre>-- ISF QE1 and EUT with { QE1 and EUT in standby and using_compatible_vocoders } ensure that { when { QE1 and EUT using Common_ID 255 and QE1_User makes a Call to EUT } then { EUT_User receives the Call } }</pre>			
-- xxx			
Pre-test conditions:	Select same RF channel for both QE1 and EUT Select 255 as Common ID on both QE1 and EUT		
Step	Test Sequence	Verdict	
		Pass	Fail
1	Cause QE1 to make a call		
2	Check that EUT receives the call	Yes	No
Observations:			

Test Description			
Identifier:	TD_PMR_1013_01	Test Purpose:	TP_PMR_1013_01
Summary:	'Channel access when CSF polite to own colour code'		
Roles:	CSF	Configuration:	CF_IDPMRCSF_02
References:	RQ_001_1013		
<pre>-- CSF QE1, QE2 and EUT with { ((EUT and QE1 and QE2) using the same colour_code and using_compatible_vocoders) and QE1 is transmitting Voice_Transmission to QE2 EUT is polite_to_own_CC } ensure that { when { EUT_User makes Voice_Transmission addressed to QE2} then { QE2_User does not receive Voice_Transmission from EUT } }</pre>			
Pre-test conditions:	Select same RF channel for QE1, QE2 and EUT EUT is programmed with polite to own CC channel access Start a voice call between QE1 and QE2		
Step	Test Sequence	Verdict	
		Pass	Fail
1	Cause EUT to make a voice call to QE2		
2	QE2 does not receive the voice call from EUT	Yes	No
Observations:			

Test Description			
Identifier:	TD_PMR_1014_01	Test Purpose:	TP_PMR_1014_01
Summary:	'Channel access when CSF impolite'		
Roles:	CSF	Configuration:	CF_IDPMRCSF_02
References:	RQ_001_1014		
<pre>-- CSF QE1, QE2 and EUT with { ((EUT and QE1 and QE2) using_compatible_vocoders) and QE1 is transmitting Voice_Transmission to QE2 and EUT is impolite } ensure that { when { EUT_User makes Voice_Transmission addressed to QE2} then { QE2_User receives Voice_Transmission from EUT } }</pre>			
Pre-test conditions:	Select same RF channel for QE1, QE2 and EUT EUT is programmed with impolite channel access Select or enter a talkgroup address of QE2 on EUT Start a voice call between QE1 and QE2		
Step	Test Sequence	Verdict	
		Pass	Fail
1	Cause EUT to make a voice call to QE2		
2	QE2 receives the voice call from EUT	Yes	No
Observations:			

End group 1.2

5.1.3 framing

Group 1.3 'Framing'

5.1.3.1 end frame

Group 1.3.1 'End frame'

-- No TP specified

End group 1.3.1

5.1.3.2 header frames

Group 1.3.2 'Header frames'

5.1.3.2.1 call information field

```

Group 1.3.2.1 'Call information field'
-- No TP specified
End group 1.3.2.1
End group 1.3.2

```

5.1.3.3 packet data frame

```

Group 1.3.3 'Packet data frame'
-- No TP specified
End group 1.3.3

```

5.1.3.4 superframe

```

Group 1.3.4 'Superframe'

```

5.1.3.4.1 type 1 data

```

Group 1.3.4.1 'Type 1 data'

```

Test Description			
Identifier:	TD_PMR_0807_01	Test Purpose:	TP_PMR_0807_01
Summary:	'Support receiving of type 1 ISF group short data messages'		
Roles:	ISF	Configuration:	CF_IDPMRISF_01
References:	RQ_001_0807, RQ_001_0807		
<pre> -- ISF QE1 and EUT with { (EUT and QE1 using same Common_ID and powersave_disabled) and EUT in standby } ensure that { when { QE1_User sends a T1_Transmission to EUT } then { EUT_User receives the T1_Transmission } } -- xxx </pre>			
Pre-test conditions:	Select same RF channel for both QE1 and EUT Select same Common ID on both QE1 and EUT		
Step	Test Sequence	Verdict	
		Pass	Fail
1	Cause QE1 to send a Type 1 data message to EUT		
2	Check that EUT receives the data message	Yes	No
Observations:			

Test Description			
Identifier:	TD_PMR_0807_04	Test Purpose:	TP_PMR_0807_04
Summary:	'Support sending of type 1 CSF group short data messages'		
Roles:	CSF	Configuration:	CF_IDPMRCSF_01
References:	RQ_001_0807		
<pre>-- CSF QE1 and EUT with { (EUT and QE1 using same Group_ID and powersave_disabled) and QE1 in standby } ensure that { when { EUT_User sends a T1_Transmission to QE1 } then { QE1_User receives the T1_Transmission } } -- xxx</pre>			
Pre-test conditions:	Select same RF channel for both QE1 and EUT Select or enter QE1 address on EUT		
Step	Test Sequence	Verdict	
		Pass	Fail
1	Cause EUT to send a Type 1 data message to QE1		
2	Check that QE1 receives the data message	Yes	No
Observations:			

Test Description			
Identifier:	TD_PMR_0810_01	Test Purpose:	TP_PMR_0810_01
Summary:	'Support of type 1 individual short data messages'		
Roles:	CSF	Configuration:	CF_IDPMRCSF_01
References:	RQ_001_0810		
<pre>-- CSF QE1 and EUT with { (EUT and QE1 powersave_disabled) and EUT in standby } ensure that { when { QE1_User sends a T1_Transmission addressed to EUT } then { EUT_User receives the T1_Transmission } } -- xxx</pre>			
Pre-test conditions:	Select same RF channel for both QE1 and EUT Select or enter EUT address on QE1		
Step	Test Sequence	Verdict	
		Pass	Fail
1	Cause QE1 to send a Type 1 data message to EUT		
2	Check that EUT receives the data message	Yes	No
Observations:			

Test Description			
Identifier:	TD_PMR_0833_02	Test Purpose:	TP_PMR_0833_02
Summary:	'Support sending of type 1 ISF group data free text messages'		
Roles:	ISF	Configuration:	CF_IDPMRISF_01
References:	RQ_001_0833, RQ_001_0833		
<pre>-- ISF QE1 and EUT with { (EUT and QE1 using same Common_ID and powersave_disabled) and QE1 in standby } ensure that { when { EUT_User sends a T1_Freetext_Data_Message to QE1 } then { QE1_User receives the T1_Freetext_Data_Message } } -- xxx</pre>			
Pre-test conditions:	Select same RF channel for both QE1 and EUT Select same Common ID for both QE1 and EUT Enter a free text message on EUT		
Step	Test Sequence	Verdict	
		Pass	Fail
1	Cause EUT to send a Type 1 data free text message to QE1		
2	Check that QE1 receives the free text message	Yes	No
Observations:			

Test Description			
Identifier:	TD_PMR_0833_03	Test Purpose:	TP_PMR_0833_03
Summary:	'Support receiving of type 1 CSF group data free text messages'		
Roles:	CSF	Configuration:	CF_IDPMRCSF_01
References:	RQ_001_0833		
<pre>-- CSF QE1 and EUT with { (EUT and QE1 using same Group_ID and powersave_disabled) and EUT in standby } ensure that { when { QE1_User sends a T1_Freetext_Data_Message to EUT } then { EUT_User receives the T1_Freetext_Data_Message } } -- xxx</pre>			
Pre-test conditions:	Select same RF channel for both QE1 and EUT Select or select a talkgroup address of EUT on QE1 Enter a free text message on QE1		
Step	Test Sequence	Verdict	
		Pass	Fail
1	Cause QE1 to send a Type 1 data free text message to EUT		
2	Check that EUT receives the free text message	Yes	No
Observations:			

Test Description			
Identifier:	TD_PMR_0834_02	Test Purpose:	TP_PMR_0834_02
Summary:	'Support sending of type 1 ISF group data short file transfer'		
Roles:	ISF	Configuration:	CF_IDPMRISF_01
References:	RQ_001_0834, RQ_001_0834		
<pre>-- ISF QE1 and EUT with { (EUT and QE1 using same Common_ID and powersave_disabled) and QE1 in standby } ensure that { when { EUT_User makes a T1_Short_File_Transfer to QE1 } then { QE1_User receives the T1_Short_File_Transfer } } -- xxx</pre>			
Pre-test conditions:	Select same RF channel for both QE1 and EUT Select same Common ID for both QE1 and EUT Interface EUT to the data file source equipment Interface QE1 to the data file receiving equipment		
Step	Test Sequence	Verdict	
		Pass	Fail
1	Cause EUT to make a Type 1 data short file transfer to QE1		
2	Check that QE1 receives and outputs the data file to the receiving equipment	Yes	No
Observations:			

Test Description			
Identifier:	TD_PMR_0834_03	Test Purpose:	TP_PMR_0834_03
Summary:	'Support receiving of type 1 CSF group data short file transfer'		
Roles:	CSF	Configuration:	CF_IDPMRCSF_01
References:	RQ_001_0834		
<pre>-- CSF QE1 and EUT with { (EUT and QE1 using same Group_ID and powersave_disabled) and EUT in standby } ensure that { when { QE1_User makes a T1_Short_File_Transfer to EUT } then { EUT_User receives the T1_Short_File_Transfer } } -- xxx</pre>			
Pre-test conditions:	Select same RF channel for both QE1 and EUT Select or enter a talkgroup address of EUT on QE1 Interface QE1 to the data file source equipment Interface EUT to the data file receiving equipment		
Step	Test Sequence	Verdict	
		Pass	Fail
1	Cause QE1 to make a Type 1 data short file transfer to EUT		
2	Check that EUT receives and outputs the data file to the receiving equipment	Yes	No
Observations:			

Test Description			
Identifier:	TD_PMR_0806_02	Test Purpose:	TP_PMR_0806_02
Summary:	'Support sending of type 2 group short data messages'		
Roles:	ISF	Configuration:	CF_IDPMRISF_01
References:	RQ_001_0806		
<pre>-- ISF QE1 and EUT with { (EUT and QE1 using same Common_ID and powersave_disabled) and QE1 in standby } ensure that { when { EUT_User sends a T2_Transmission to QE1 } then { QE1_User receives the T2_Transmission } }</pre>			
-- xxx			
Pre-test conditions:	Select same RF channel for both QE1 and EUT Select same Common ID on both QE1 and EUT		
Step	Test Sequence	Verdict	
		Pass	Fail
1	Cause EUT to send a Type 2 data message to QE1		
2	Check that QE1 receives the data message	Yes	No
Observations:			

Test Description			
Identifier:	TD_PMR_0806_03	Test Purpose:	TP_PMR_0806_03
Summary:	'Support receiving of type 2 CSF group short data messages'		
Roles:	CSF	Configuration:	CF_IDPMRCSF_01
References:	RQ_001_0806		
<pre>-- CSF QE1 and EUT with { (EUT and QE1 using same Group_ID and powersave_disabled) and EUT in standby } ensure that { when { QE1_User sends a T2_Transmission to EUT } then { EUT_User receives the T2_Transmission } }</pre>			
-- xxx			
Pre-test conditions:	Select same RF channel for both QE1 and EUT Select or enter EUT address on QE1		
Step	Test Sequence	Verdict	
		Pass	Fail
1	Cause QE1 to send a Type 2 data message to EUT		
2	Check that EUT receives the data message	Yes	No
Observations:			

Test Description			
Identifier:	TD_PMR_0825_04	Test Purpose:	TP_PMR_0825_04
Summary:	'Support sending of type 2 CSF group data status messages'		
Roles:	CSF	Configuration:	CF_IDPMRCSF_01
References:	RQ_001_0825		
<pre>-- CSF QE1 and EUT with { (EUT and QE1 using same Group_ID and powersave_disabled) and QE1 in standby } ensure that { when { EUT_User sends a T2_Status_Message to QE1 } then { QE1_User receives the T2_Status_Message } } -- xxx</pre>			
Pre-test conditions:	Select same RF channel for both QE1 and EUT Select or enter a talkgroup address of QE1 on EUT		
Step	Test Sequence	Verdict	
		Pass	Fail
1	Cause EUT to send a Type 2 data status message to QE1		
2	Check that QE1 receives the data status message	Yes	No
Observations:			

Test Description			
Identifier:	TD_PMR_0827_01	Test Purpose:	TP_PMR_0827_01
Summary:	'Support receiving of type 2 ISF group data precoded messages'		
Roles:	ISF	Configuration:	CF_IDPMRISF_01
References:	RQ_001_0827, RQ_001_0827		
<pre>-- ISF QE1 and EUT with { (EUT and QE1 using same Common_ID and powersave_disabled) and EUT in standby } ensure that { when { QE1_User sends a T2_Precoded_Data_Message to EUT } then { EUT_User receives the T2_Precoded_Data_Message } } -- xxx</pre>			
Pre-test conditions:	Select same RF channel for both QE1 and EUT Select same Common ID on both QE1 and EUT Select a precoded message on QE1		
Step	Test Sequence	Verdict	
		Pass	Fail
1	Cause QE1 to send a Type 2 precoded data message to EUT		
2	Check that EUT receives the precoded data message	Yes	No
Observations:			

Annex A (normative):
dPMR TD test configurations

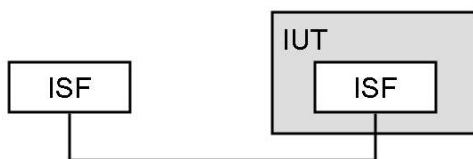


Figure A.1

Annex B (informative): Bibliography

ETSI ES 202 553: "Methods for testing and Specification (MTS); TPLan: A notation for expressing test Purposes".

ETSI TS 102 351 (V2.1.1): "Methods for Testing and Specification (MTS); Internet Protocol Testing (IPT); IPv6 Testing: Methodology and Framework".

ISO/IEC 9646-2: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract Test Suite specification".

History

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