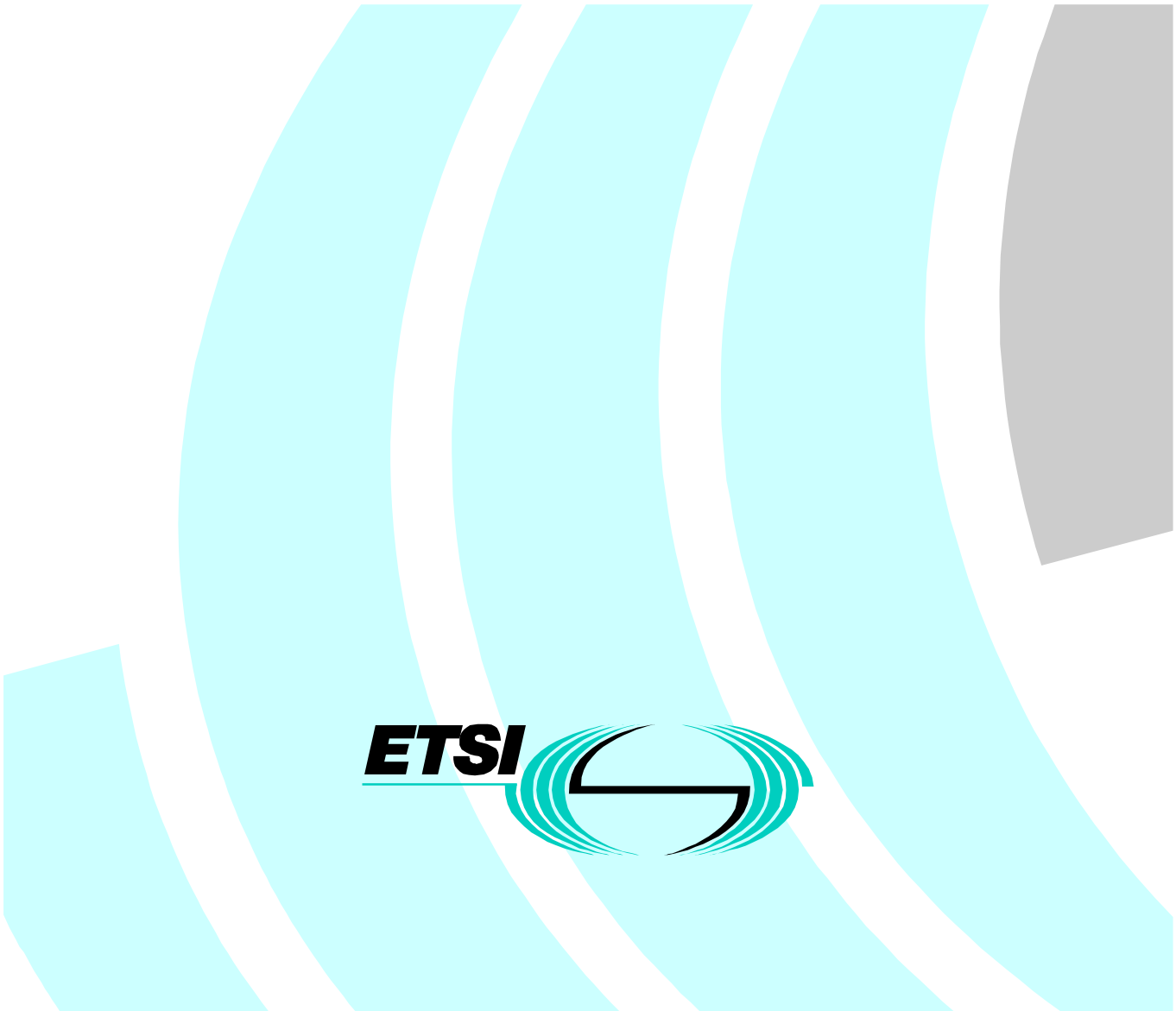
ETSI TS 100 394-4-5 V1.1.1 (2000-11)

Technical Specification

**Terrestrial Trunked Radio (TETRA);
Conformance testing specification;
Part 4: Protocol testing specification for
Direct Mode Operation (DMO);
Sub-part 5: Abstract Test Suite (ATS) for
Mobile Station (MS) Repeater type 1**



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Foreword

This Technical Specification (TS) has been produced by ETSI Project Terrestrial Trunked Radio (TETRA).

The present document consists of the following parts:

Part 1: "Radio";

Part 2: "Protocol testing specification for Voice plus Data (V+D)";

Part 4: "Protocol testing specification for Direct Mode Operation (DMO)";

Part 5: "Security".

1 Scope

The present document contains the Abstract Test Suites (ATS) to test the TETRA Direct Mode Operation (DMO) Mobile Station Repeater Type 1 (MS-REP1) protocol at layer 3, called Direct Mode Call Control (DMCC) and the MS-Repeater type 1 protocol at layer 2, the Medium Access Control (MAC) protocol. The DMCC and MAC protocols are specified in ETS 300 396-3 [1] and in EN 300 396-4 [2]. The Test Suite Structure (TSS) and Test Purposes (TPs) for the two ATSs are defined in EN 300 394-4-3 [4].

The objective of the test specifications are to provide a basis for approval tests for TETRA DMO MS equipment supporting the Repeater Type 1 protocols, giving a high probability of air interface inter-operability between different manufacturer's TETRA equipment.

The ISO standard for the methodology of conformance testing, ISO/IEC 9646-1 [5], ISO/IEC 9646-2 [6], ISO/IEC 9646-3 [7] and ISO/IEC 9646-5 [8], as well as the ETSI rules for conformance testing, ETS 300 406 [9] and ETR 141 [10] are used as a basis for the test methodology.

Annex A provides the Tree and Tabular Combined Notation (TTCN) part of these two ATSs.

Annex B provides the Partial Protocol Implementation eXtra Information for Testing (PIXIT) Proforma of these two ATSs.

Annex C provides the Protocol Conformance Test Report (PCTR) Proforma of these ATSs.

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, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

[1] ETSI ETS 300 396-3: "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 3: Mobile Station to Mobile Station (MS-MS) Air Interface (AI) protocol".

[2] ETSI EN 300 396-4: "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 4: Type 1 repeater air interface".

[3] ETSI EN 300 396-8-2: "Terrestrial Trunked Radio (TETRA); Direct Mode Operation (DMO); Part 8: Protocol Implementation Conformance Statement (PICS) proforma specification; Sub-part 2: Type 1 repeater Air Interface (AI)".

[4] ETSI EN 300 394-4-3: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 3: Test Suite Structure and Test Purposes (TSS&TP) for Mobile Station (MS) Repeater type 1".

[5] ISO/IEC 9646-1 (1994): "Information technology - Open Systems Interconnection - Conformance Testing Methodology and Framework - Part 1: General Concepts". (See also ITU-T Recommendation X.290 (1991)).

[6] ISO/IEC 9646-2 (1994): "Information technology - Open Systems Interconnection - Conformance Testing Methodology and Framework - Part 2: Abstract Test Suite Specification". (See also ITU-T Recommendation X.291 (1991)).

[7] ISO/IEC 9646-3 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The tree and tabular combined notation". (See also ITU-T Recommendation X.292 (1992)).

[8] ISO/IEC 9646-5 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 5: Requirements on test laboratories and clients for the conformance assessment process". (See also ITU-T Recommendation X.292 (1992)).

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

[10] ETSI ETR 141: "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; The Tree and Tabular Combined Notation (TTCN) style guide".

3 Definitions and abbreviations

3.1 TETRA definitions

For the purposes of the present document, the terms and definitions given in EN 300 396-4 [2] apply.

3.2 TETRA abbreviations

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

DMCC	Direct Mode Call Control
DMO	Direct Mode Operation
MAC	Medium Access Control
MS	Mobile Station
MS-REP1	Mobile Station Repeater Type 1
SDS	Short Data Service
SDU	Service Data Unit

3.3 ISO 9646 definitions

For the purposes of the present document the following ISO/IEC 9646 definitions apply:

TTCN.GR
TTCN.MP
Protocol Conformance Test Report (PCTR)
PCTR proforma

3.4 ISO 9646 abbreviations

For the purposes of the present document the following ISO/IEC 9646-1 [5] abbreviations apply:

ASP	Abstract Service Primitive
ATM	Abstract Test Method
ATS	Abstract Test Suite
ICS	Implementation Conformance Statement
IUT	Implementation Under Test
IXIT	Implementation eXtra Information for Testing
LT	Lower Tester
MTC	Main Test Component
PCO	Point of Control and Observation
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statements
PIXIT	Protocol Implementation eXtra Information for Testing
PTC	Parallel Test Component
SAP	Service Access Point
SPyT	Single Party Testing
SUT	System Under Test

TC	Test Case
TP	Test Purpose
TSS	Test Suite Structure
TTCN	Tree and Tabular Combined Notation
UT	Upper Tester

For the purposes of the present document the following ISO/IEC 9646-5 [8] abbreviations apply:

PCTR	Protocol Conformance Test Report

4 Abstract Test Method (ATM)

4.1 ATM for the MS-REP1 MAC ATS

This subclause describes the ATM used for testing the MS-REP1 MAC layer protocol of a Mobile Station Repeater Type 1 (MS-REP1). It is the embedded variant of the remote test method used in Single Party Testing (SPyT) context, as defined in ISO/IEC 9646-2 [6], clause 11. This test method has been selected, because:

- this test method implies no specific requirements from the Implementation Under Test (IUT);
- the upper Service Access Point (SAP) of the IUT cannot be directly observed;
- the variety of the possible TETRA implementations is a serious technical obstacle for the adoption of a different ATM;
- this test method places minimum limitations in the realization of conformance testing.

The selected test method is illustrated in figure 1.

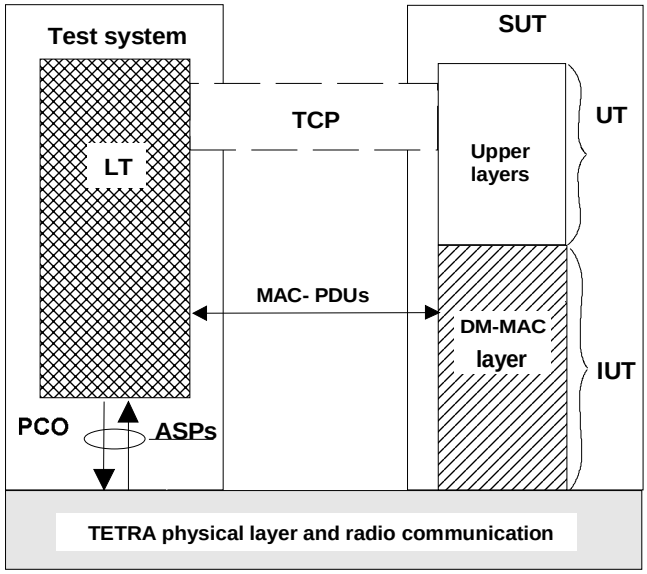

Figure 1: Remote SPyT test method for TETRA DMO MS-REP1 MAC layer

4.1.1 Lower Tester (LT)

A LT is located in a remote TETRA test system. It controls and observes the behaviour of the IUT.

4.1.2 Upper Tester (UT)

There is no explicit UT in the remote test method, but the layers above inside the System Under Test (SUT) are used implicitly for testing the DM-MAC layer.

4.1.3 Test Co-ordination Procedures (TCP)

The implicit send events defined by the provider of an implementation in annex B serve the purpose of the TCP. They are used as an input to the IUT communicating with the UT to initiate test events at the MS-REP1 MAC layer.

4.1.4 Point of Control and Observation (PCO)

All test events at the PCO carrying service user data are specified in terms of MAC layer PDUs. Only few Abstract Service Primitives (ASPs) are defined for control or observation purposes. The mapping of the MAC PDUs into the physical layer frame structure is left to the test implementation.

4.2 ATM for the MS-REP1 DMCC ATS

This clause describes the ATM used for testing the DMCC protocol of a MS-REP1. The selected method is the embedded variant of the remote test method used in Single Party Testing (SPyT) context, as defined in ISO/IEC 9646-2 [6], clause 11. This test method has been selected, because:

- this test method implies no specific requirements from the Implementation Under Test (IUT);
- the upper Service Access Point (SAP) of the IUT cannot be directly observed;
- the variety of the possible TETRA implementations is a serious technical obstacle for the adoption of a different ATM;
- this test method places minimum limitations in the realization of conformance testing.

The selected test method is illustrated in figure 2.

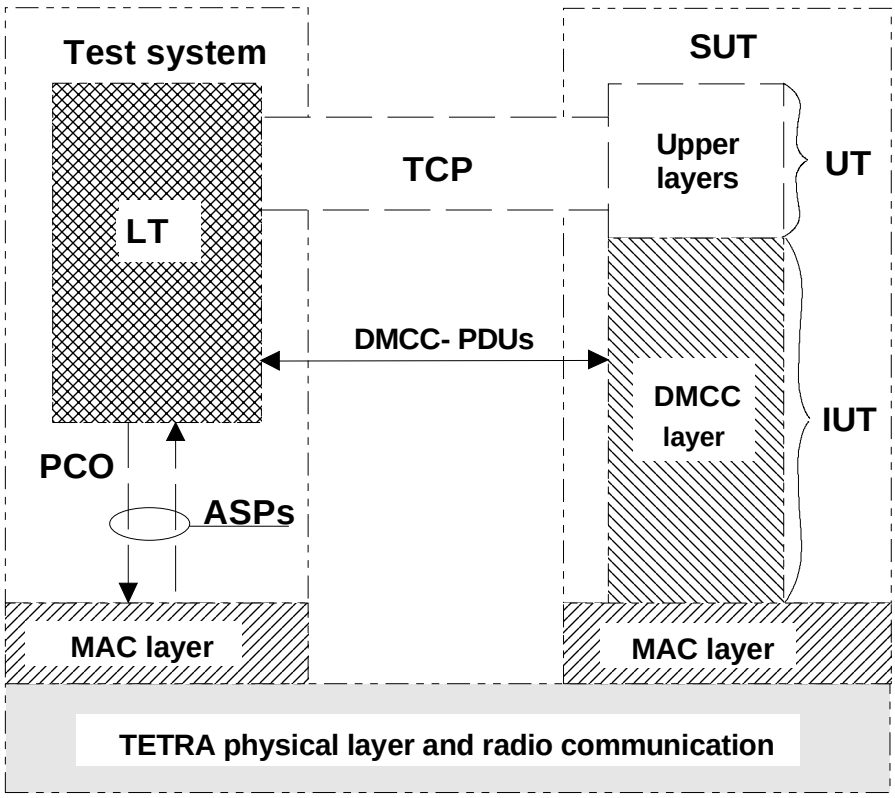

Figure 2: Remote single party test method for TETRA MS-REP1 DMCC protocol

4.2.1 Lower Tester (LT)

A LT is located in a remote TETRA test system. It controls and observes the behaviour of the IUT.

4.2.2 Upper Tester (UT)

There is no explicit UT in the remote test method, but the TETRA MS-REP1 DMCC and the layers above inside the System Under Test (SUT) are used implicitly for testing the DMCC layer.

4.2.3 Test Co-ordination Procedures (TCP)

The implicit send events defined by the provider of an implementation in annex B serve the purpose of the TCP. They are used as an input to the IUT communicating with the UT to initiate test events at the DMCC protocol layer.

4.2.4 Point of Control and Observation (PCO)

The PCO is located inside the protocol.

All test events at the PCO carrying service user data is specified in terms of PDUs. The mapping of the PDUs to possible Medium Access Control (MAC) layer service primitives is left to the test implementation.

5 ATS conventions

This clause describes the conventions applied to define the two ATSs and gives the naming conventions chosen for the different elements of the ATSs.

The ATS conventions are intended to give a better understanding of the ATS but they describe also the conventions made for the development of the ATS, thus for any later maintenance purposes or further development of the ATS, the conventions described in this clause shall be considered.

5.1 Naming conventions

5.1.1 Declarations part

This subclause describes the naming conventions chosen for the elements of the ATS declarations part.

5.1.1.1 Test suite type and structured type definitions

The test suite type and test suite structured type identifiers describe the information elements, and each whole word included in the name is written in lowercase starting by an uppercase letter:

EXAMPLE: Priority_Level_Type simple type;

SSI_Type simple type;

ITSI_Type structured type.

In the case an abbreviation is included in the declaration name, there is an underscore ("_") before and/or after it, separating it from the rest of the identifier. This rule with abbreviations apply to all the naming conventions in the whole test suite.

5.1.1.2 Test suite operations definitions

The test suite operation identifiers are composed of strings in uppercase letters starting by the uppercase string "TSO_". The different strings in the definition are separated with underscores.

EXAMPLE: TSO_ACTIVE_IND_CALL_OCCUPATION_REP1_MS.

5.1.1.3 Test suite parameter declarations

The test suite parameter identifiers are composed of strings in uppercase letters starting by the uppercase string "PIC_" or "PIX_" and separated by underscores.

If the test suite parameter references a PICS item, the prefix "PIC_" is used.

EXAMPLE 1: PIC_CIRCUIT_MODE_CALL.

If the test suite parameter references a PIXIT item, the prefix "PIX_" is used.

EXAMPLE 2: PIX_MS_ITSI.

Complete names as defined in the specifications are used.

5.1.1.4 Test case selection expression definitions

The naming conventions for the test case selection expression definitions use free text starting with an uppercase letter. The name of the expression shall explain clearly the selection rule. The test case selection expressions are generally logical combinations of the PICS element definitions.

5.1.1.5 Test suite constant declarations

The test suite constant identifiers are composed of strings in uppercase letters starting by the uppercase string "TSC_".

EXAMPLE: TSC_RESERVED2.

Complete names as defined in the specifications are used. However, in the parameters including a dot character, the dot is replaced by an underscore.

5.1.1.6 Test suite variable declarations

The test suite variable identifiers are composed of string in lowercase letters starting by the lowercase string "tsv_".

If the test suite variable represents a system parameter or value, the name defined in the specifications is used. However, in the variables including a dot character, the dot is replaced by an underscore.

5.1.1.7 Test case variable declarations

The test case variable identifiers are composed of strings in lowercase letters starting by the lowercase string "tcv_".

EXAMPLE: tcv_counter.

5.1.1.8 PCO declarations

The point of control and observation identifiers are composed of three to six capital letters, beginning with an "L", as there are only LTs.

EXAMPLE: LDMCC Represents a PCO on DMMC layer for PDUs

5.1.1.9 Timer declarations

Two kinds of timers can be distinguished:

1) standardized:

   Those defined in the standard, e.g.DT303, use the same name as in the standard, beginning with capital "DT'.

   As there is a tolerance margin accepted for these timers, two values are needed:

   - the minimum value allowed, which will use the suffix "_Min";
   - the maximum value allowed, which will use the suffix "_Max".

EXAMPLE 1: DT303_Min, DT303_Max.

2) non-standardized:

Those not defined in the standard, i.e. for execution use, e.g. a timer waiting for a response. These timers begin with the prefix "T_", followed by a string in lowercase letters with each word in the following string starting with an uppercase letter.

EXAMPLE 2: T_IUT_Response;

T_NoResponse.

5.1.1.10 ASP type definitions

ASP definitions follow the specification in the EN 300 396-4 [2] when a corresponding definition exists. If not, a free name is used.

5.1.1.11 PDU type definitions

The identifier of a PDU is given in a string in uppercase letters, which represents the message.

EXAMPLE: DM_SETUP_PRES_Type for the DMCC SETUP PDU;

DM_DISCONNECT_Type for the DMCC DISCONNECT PDU.

5.1.1.12 Alias definitions

No alias definitions are used in the test suite.

5.1.2 Constraints part

This subclause describes the naming conventions chosen for the elements of the ATS constraints part.

Constraint identifiers commence with uppercase. The remaining part of the name is separated from the beginning with an underscore and is written in lowercase with each word starting with an uppercase letter.

Identifier names of elements concerning the same subject have equivalent names in the declaration and the constraint part. The postfix _R or _S are added at the end of the name to indicate whether the constraint is sent (_S) or received (_R) by the tester:

EXAMPLE 1: Declaration part: DM_CONNECT_Type;

Constraint part: DM_CONNECT_R.

The name of the modified constraint describes the particularity of the modified constraint:

EXAMPLE 2: Declaration part: DM_PRE_ACCEPT_Type;

Constraint part: DM_PRE_ACCEPT_OngoingCall_S.

If formal parameter lists are used, the variable names are written in lowercase. The variable name is the same as the name of the element it is representing starting with prefix "cpa_".

EXAMPLE 3: cpa_New_Call_Preemption.

5.1.3 Dynamic part

This subclause describes the naming conventions chosen for the elements of the ATS dynamic part.

5.1.3.1 Test case identifier

The identifier of a TC is built according to the test purpose name, as in table 2.

Table 1: TC naming convention

DMO/<ts>/<fm>/<ss>/<tt>/<uu>/<nn>		
<ts> = test suite type	MSREP1	Repeater type 1
<fm> = functional entity in a layer	DMCC	Direct Mode Call Control (layer 3)
	MAC	Upper MAC (layer 2)
<ss> = test group	letters such as:	Abbreviation of the group name (optional)
	CM	Circuit Mode (layer 3)
	SDS	Short Data Service (layer 3)
tt = Type of testing	CA	Capability Tests
	BV	Valid Behaviour Tests
	BI	Invalid Behaviour Tests
	TI	Timer expiry and counter mismatch tests
<uu> = test subgroup	letters	Abbreviation of the subgroup name (optional)
<nn> = sequential number	01-99	Test Purpose Number

5.1.3.2 Test step identifier

The test step identifier is built with a string of lowercase letters prefixed by a string of capital letters and joined by an underscore character. The prefix part indicates the main function of the test step; e.g. PRE for preamble, PST for postamble, CS for check state steps, LTS for local tree name and STP for general step. The last part of the string indicates the meaning of the test step.

EXAMPLES: PRE_Idle_To_TX_Occupation;

PST_TX_Occupation_Reservation_To_Idle;

CS_RX_Reservation;

LTS_Send_SDS_Data.

5.1.3.3 Default identifier

The default identifiers are prefixed with the protocol name (DMCC or MAC), or in case of a general default behaviour used both in pre- and post-ambles, the prefix PRE_PST is used.

5.2 TC and TP naming

There is a single name for both the TC identifiers and the TP identifiers.

Annex A (normative): ATS for TETRA DMO MS-REP1

The two ATS has been produced using the Tree and Tabular Combined Notation (TTCN) according to ISO/IEC 9646-3 [7].

The ATSs both were developed on a separate TTCN software tool and therefore the TTCN tables are not completely referenced in the table of contents. The ATSs themself contain a test suite overview part which provides additional information and references.

A.1 Abstract Test Suite (ATS) for TETRA DMO MS-REP1 MAC protocol

A.1.1 The TTCN Graphical form (TTCN.GR)

The TTCN.GR representation of this ATS is contained in an Adobe Portable Document Format™ file (msrep1_mac.PDF contained in archive ts_1003940405v010101p0.ZIP) which accompanies the present document.

A.1.2 The TTCN Machine Processable form (TTCN.MP)

The TTCN.MP representation corresponding to this ATS is contained in an ASCII file (msrep1_mac.MP contained in archive ts_1003940405v010101p0.ZIP) which accompanies the present document.

NOTE: Where an ETSI Abstract Test Suite (in TTCN) is published in both .GR and .MP format these two forms shall be considered equivalent. In the event that there appears to be syntactical or semantic differences between the two then the problem shall be resolved and the erroneous format (whichever it is) shall be corrected.

A.2 ATS for TETRA DMO MS-REP1 DMCC protocol

A.2.1 The TTCN Graphical form (TTCN.GR)

The TTCN.GR representation of this ATS is contained in an Adobe Portable Document Format™ file (msrep1_dmcc.PDF contained in archive ts_1003940405v010101p0.ZIP) which accompanies the present document.

A.2.2 The TTCN Machine Processable form (TTCN.MP)

The TTCN.MP representation corresponding to this ATS is contained in an ASCII file (msrep1_dmcc.MP contained in archive ts_1003940405v010101p0.ZIP) which accompanies the present document.

NOTE: Where an ETSI Abstract Test Suite (in TTCN) is published in both .GR and .MP format these two forms shall be considered equivalent. In the event that there appears to be syntactical or semantic differences between the two then the problem shall be resolved and the erroneous format (whichever it is) shall be corrected.

Annex B (normative): Partial PIXIT proforma for TETRA DMO MS-REP1 protocol

The PIXIT proforma is based on ISO/IEC 9646-5. Any additional information needed can be found in this international standard document.

B.1 Partial PIXIT proforma for TETRA DMO MS-REP1 MAC layer protocol

B.1.1 Identification summary

Table B.1

PIXIT number:	
Test laboratory name:	
Date of issue:	
Issued to:	

B.1.2 ATS summary

Table B.2

Protocol specification:	EN 300 396-4
Protocol to be tested:	
ATS specification:	ETS 300 394-4-5.
Abstract test method:	Remote test method, embedded variant.

B.1.3 Test laboratory

Table B.3

Test laboratory identification:	
Test laboratory manager:	
Means of testing:	
SAP address:	

B.1.4 Client identification

Table B.4

Client identification:	
Client test manager:	
Test facilities required:	

B.1.5 SUT

Table B.5

Name:	
Version:	
SCS number:	
Machine configuration:	
Operating system identification:	
IUT identification:	
PICS reference for IUT:	
Limitations of the SUT:	
Environmental conditions:	

B.1.6 Protocol layer information

B.1.6.1 Protocol identification

Table B.6

Name:	TETRA - DMO - Type 1 repeater Air Interface EN 300 396-4, MAC protocol
Version:	
PICS references:	EN 300 396-8-2

B.1.6.2 IUT information

B.1.6.2.1 Implicit send events

Table B.7: Implicit send events

Item	PIXIT (see note)	Related implicit send message (PDU)	Invocation description
1	IMP_SYNC_or_DATA_Release	True if it is possible to cause the IUT to send a DM-RELEASE PDU in a DMAC SYNC or DMAC DATA PDU	
2	IMP_SYNC_PREEMPT_ONGOING	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-PREEMPT SDU to preempt the ongoing call	
3	IMP_SYNC_SETUP	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP SDU	
4	IMP_SYNC_SETUP_PRES	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SETUP PRES SDU	
5	IMP_SYNC_SDS_DATA	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SDS DATA SDU	
6	IMP_SYNC_SDS_UDATA	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-SDS UDATA SDU	
7	IMP_SYNC_TIMING_REQUEST	True if it is possible to cause the IUT to send a DMAC-SYNC PDU containing a DM-TIMING REQUEST SDU	
NOTE: The PIXIT names for the implicit send events in this table are the same as those of the test steps in which the implicit send events are used.			

B.1.6.2.2 Parameter values

Table B.8: Parameter values

Item	Parameter	Parameter type	Explanation	Value or reference
1	PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	Traffic channel type and interleaving depth supported by the IUT.	
2	PIX_MS_SSI	SSI_Type	SSI of the IUT.	
3	PIX_POWER_CLASS	Power_Class_Type	The power class of the IUT.	
4	PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	Power control flag, which indicate whether or not power control by slave is permitted.	
5	PIX_TESTER_GSSI	SSI_Type	GSSI of the tester.	
6	PIX_TESTER_MNI	MNI_Type	MNI of the tester.	
7	PIX_TESTER_SSI	SSI_Type	SSI of the tester.	
8	PIX_MS_SLAVE_MNI	MNI_Type	MNI of a slave MS.	
9	PIX_MS_SLAVE_SSI	SSI_Type	SSI of a slave MS.	
10	PIX_MS_MASTER_MNI	MNI_Type	MNI of a master MS.	
11	PIX_MS_MASTER_SSI	SSI_Type	SSI of a master MS.	
12	PIX_MS_GSSI	SSI_Type	GSSI for a group of MS's.	
13	PIX_TESTER_REPEATER_ADDRESS	Repeater_Address_Type	Repeater address of the tester.	
14	PIX_TESTER_POWER_CLASS	Power_Class_Type	Power class of the tester.	
15	PIX_TESTER_POWER_CONTROL_FLAG	Power_Control_Flag_Type	Power control flag of the tester.	

Table B.9: SDS parameter values

Item	Parameter	Parameter type	Explanation	Value or reference
1	PIX_SDS_TIME_REMAINING	SDS_Time_Remaining_Type	Value of the SDS time remaining element used to indicate the current estimate of the SDS channel occupation time	
2	PIX_SDS_DATA_2	BitString_32_Type	Value of SDS data type 2	
3	PIX_SDS_DATA_3	BitString_64_Type	Value of SDS data type 3	
4	PIX_SDS_DATA_4	User_Defined_Data_4_Type	Value of SDS data type 4	
5	PIX_SDS_DATA_4_LENGTH	INTEGER	Length of the value of the SDS data type 4	
6	PIX_SDS_CURRENTLY_TESTING	INTEGER	The type (1 to 4) of SDS data currently testing	

B.2 Partial PIXIT proforma for TETRA DMO MS-REP1 DMCC protocol

B.2.1 Identification summary

Table B.10

PIXIT number:	
Test laboratory name:	
Date of issue:	
Issued to:	

B.2.2 ATS summary

Table B.11

Protocol specification:	EN 300 396-4
Protocol to be tested:	
ATS specification:	EN 300 394-4-5
Abstract test method:	Remote test method, embedded variant

B.2.3 Test laboratory

Table B.12

Test laboratory identification:	
Test laboratory manager:	
Means of testing:	
SAP address:	

B.2.4 Client identification

Table B.13

Client identification:	
Client test manager:	
Test facilities required:	

B.2.5 SUT

Table B.14

Name:	
Version:	
SCS number:	
Machine configuration:	
Operating system identification:	
IUT identification:	
PICS reference for IUT:	
Limitations of the SUT:	
Environmental conditions:	

B.2.6 Protocol layer information

B.2.6.1 Protocol identification

Table B.15

Name:	TETRA - DMO - Repeater type 1 Air Interface EN 300 396-4, DMCC protocol.
Version:	
PICS references:	EN 300 396-8-2.

B.2.6.2 IUT information

B.2.6.2.1 Implicit send events

Table B.16: Implicit send events

Item	PIXIT (see note)	Related implicit send message (PDU)	Invocation description
1	PIX_IMP_DM_PREEMPT	True if it is possible to cause the IUT to send a DM-PREEMPT PDU.	
2	PIX_IMP_DM_RELEASE	True if it is possible to cause the IUT to send a DM-RELEASE PDU.	
3	PIX_IMP_SDS_DATA	True if it is possible to cause the IUT to send a DM-SDS DATA PDU.	
4	PIX_IMP_SDS_UDATA	True if it is possible to cause the IUT to send a DM-SDS UDATA PDU.	
5	PIX_IMP_DM_SETUP	True if it is possible to cause the IUT to send a DM-SETUP PDU.	
6	PIX_IMP_DM_SETUP_Group	True if it is possible to cause the IUT to send a DM-SETUP PDU for a group call.	
7	PIX_IMP_DM_SETUP_PRES	True if it is possible to cause the IUT to send a DM-SETUP PRES PDU.	
8	PIX_IMP_DM_TX_CEASED	True if it is possible to cause the IUT to send a DM-TX CEASED PDU.	
9	PIX_IMP_DM_TX_REQUEST	True if it is possible to cause the IUT to send a DM-TX REQUEST PDU.	
NOTE: The PIXIT names for the implicit send events in this table are the same as those of the test steps in which the implicit send events are used.			

B.2.6.2.2 Parameter values

Table B.17: Parameter values

Item	Parameter	Parameter type	Explanation	Value or reference
1	PIX_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	Traffic channel type and interleaving depth supported by the IUT.	
2	PIX_OTHER_TSI	TSI_Type	A TSI not recognized by the IUT and the tester.	
3	PIX_POWER_CLASS	Power_Class_Type	The power class of the IUT.	
4	PIX_POWER_CONTROL_FLAG	Power_Control_Flag_Type	Power control flag, which indicate whether or not power control by slave is permitted.	
5	PIX_RESERVATION_TIME	Reservation_Time_Remaining_Type	Value of the reservation time remaining used by the master MS.	
6	PIX_UNACCEPTABLE_CIRCUIT_MODE_TYPE	Circuit_Mode_Type_Type	Traffic channel type and interleaving depth not acceptable to the IUT.	
7	PIX_TESTER_POWER_CLASS	Power_Class_Type	Power class of the tester.	
8	PIX_TESTER_POWER_CONTROL_FLAG	Power_Control_Flag_Type	Power control flag of the tester.	
9	PIX_MAX_DN303_DN304	INTEGER	The maximal value of DN303 and DN304.	
10	PIX_MIN_DN303_DN304	INTEGER	The minimum value of DN303 and DN304.	
11	PIX_MAX_DN314_DN317	INTEGER	The maximum value of DN314 and DN317.	
12	PIX_MAX_DN316_DN317	INTEGER	The maximum value of DN316 and DN317.	

Table B.18: SDS parameter values

Item	Parameter	Parameter type	Explanation	Value or reference
1	PIX_SDS_TIME_REMAINING	SDS_Time_Remaining_Type	Value of the SDS time remaining element used to indicate the current estimate of the SDS channel occupation time.	
2	PIX_SDS_DATA_1	User_Defined_Data_1_Type	Value of SDS data type 1.	
3	PIX_SDS_DATA_1_FCS	FCS_Type	Value of the Frame Check Sequence for the SDS DATA 1 data.	
4	PIX_SDS_DATA_2	User_Defined_Data_2_Type	Value of SDS data type 2.	
5	PIX_SDS_DATA_2_FCS	FCS_Type	Value of the Frame Check Sequence for the SDS DATA 2 data.	
6	PIX_SDS_DATA_3	User_Defined_Data_3_Type	Value of SDS data type 3.	
7	PIX_SDS_DATA_3_FCS	FCS_Type	Value of the Frame Check Sequence for the SDS DATA 3 data.	
8	PIX_SDS_DATA_4	User_Defined_Data_4_Type	Value of SDS data type 4.	
9	PIX_SDS_DATA_4_FCS	FCS_Type	Value of the Frame Check Sequence for the SDS DATA 4 data.	
10	PIX_SDS_DATA_4_LENGTH	Length_Indicator_Type	Length of the value of the SDS data type 4.	
11	PIX_SDS_CURRENTLY_TESTING	INTEGER	The type (1 to 4) of SDS data currently testing.	

Annex C (normative): Protocol Conformance Test Report (PCTR) proforma for TETRA DMO MS-REP1 protocol

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 PCTR proforma in this clause so that it can be used for its intended purposes and may further publish the completed PCTR.

The PCTR Proforma is based on ISO/IEC 9646-5. Any additional information needed can be found in this referenced document.

C.1 PCTR proforma for TETRA DMO MS-REP1 MAC layer protocol

C.1.1 Identification summary

C.1.1.1 Protocol conformance test report

Table C.1

PCTR number:	
PCTR date:	
Test laboratory identification:	
Accreditation status:	
Accreditation reference:	
Technical authority:	
Signature:	
Test laboratory manager:	
Signature:	

C.1.1.2 IUT identification

Table C.2

Name:	
Version:	
Protocol specification:	
PICS:	
Previous PCTR if any:	

C.1.1.3 Testing environment

Table C.3

PIXIT number:	
ATS specification:	
Abstract test method:	Remote test method, embedded variant.
Means of testing identification:	
Period of testing:	
Conformance log reference(s):	
Retention date for log reference(s):	

C.1.1.4 Limits and reservation

Additional information relevant to the technical contents or further use of the test report, or the rights and obligations of the test laboratory and the client, may be given here. Such information may include restriction on the publication of the report.

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C.1.1.5 Comments

Additional comments may be given by either the client or the test laboratory on any of the contents of the PCTR, for example, to note disagreement between the two parties.

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C.1.2 IUT conformance status

This IUT has or has not been shown by conformance assessment to be non-conforming to the specified protocol specification.

Strike the appropriate words in this sentence. If the PICS for this IUT is consistent with the static conformance requirements as specified in clause C.3 in the present document and there are no "FAIL" verdicts to be recorded in clause C.6 strike the words "has or" otherwise strike the words "or has not".

C.1.3 Static conformance summary

The PICS for this IUT is or is not consistent with the static conformance requirements in the specified protocol.

Strike the appropriate words in this sentence.

C.1.4 Dynamic conformance summary

The test campaign did or did not reveal errors in the IUT.

Strike the appropriate words in this sentence. If there are no "FAIL" verdicts to be recorded in clause C.6 of the present document strike the words "did or" otherwise strike the words "or did not".

Summary of the results of groups of test:

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C.1.5 Static conformance review report

If clause C.3 indicates non-conformance, this subclause itemizes the mismatches between the PICS and the static conformance requirements of the specified protocol specification.

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C.1.6 Test campaign report

Table C.4

ATS reference	Selected	Run	Verdict	Observations (see note)
DMO_MSREP1_MAC_CA_01	Yes/No	Yes/No		
DMO_MSREP1_MAC_CA_02	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_CU_01	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_CU_02	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_CU_03	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_CU_04	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_CU_05	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_CU_06	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_CU_07	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_CU_08	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_SM_01	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_SM_01b	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_SM_01c	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_SM_02	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_SM_03	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_SM_04	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_SM_05	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_SM_06	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_SM_08	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_SM_09	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_SM_10	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_SM_11	Yes/No	Yes/No		
DMO_MSREP1_MAC_BV_TI_01	Yes/No	Yes/No		
NOTE: Reference to any observations made in clause C.1.7 in the present document.				

C.1.7 Observations

Additional information relevant to the technical content of the PCTR are given here.

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C.2 PCTR proforma for TETRA DMO MS-REP1 DMCC layer protocol

C.2.1 Identification summary

C.2.1.1 Protocol conformance test report

Table C.5

PCTR number:	
PCTR date:	
Test laboratory identification:	
Accreditation status	
Accreditation reference	
Technical authority	
Signature:	
Test laboratory manager:	
Signature:	

C.2.1.2 IUT identification

Table C.6

Name:	
Version:	
Protocol specification:	
PICS:	
Previous PCTR if any:	

C.2.1.3 Testing environment

Table C.7

PIXIT number:	
ATS specification:	
Abstract test method:	Remote test method, embedded variant.
Means of testing identification:	
Period of testing:	
Conformance log reference(s):	
Retention date for log reference(s):	

C.2.1.4 Limits and reservation

Additional information relevant to the technical contents or further use of the test report, or the rights and obligations of the test laboratory and the client, may be given here. Such information may include restriction on the publication of the report.

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C.2.1.5 Comments

Additional comments may be given by either the client or the test laboratory on any of the contents of the PCTR, for example, to note disagreement between the two parties.

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C.2.2 IUT conformance status

This IUT has or has not been shown by conformance assessment to be non-conforming to the specified protocol specification.

Strike the appropriate words in this sentence. If the PICS for this IUT is consistent with the static conformance requirements as specified in clause C.3 in the present document and there are no "FAIL" verdicts to be recorded in clause C.6 strike the words "has or". otherwise strike the words "or has not".

C.2.3 Static conformance summary

The PICS for this IUT is or is not consistent with the static conformance requirements in the specified protocol.

Strike the appropriate words in this sentence.

C.2.4 Dynamic conformance summary

The test campaign did or did not reveal errors in the IUT.

Strike the appropriate words in this sentence. If there are no "FAIL" verdicts to be recorded in clause C.6 of the present document strike the words "did or" otherwise strike the words "or did not".

Summary of the results of groups of test:

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C.2.5 Static conformance review report

If clause C.3 indicates non-conformance, this subclause itemizes the mismatches between the PICS and the static conformance requirements of the specified protocol specification.

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C.2.6 Test campaign report

Table C.8

ATS reference	Selected	Run	Verdict	Observations (see note)
DMO_MSREP1_DMCC_CM_CA_01	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_CA_02	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_CA_03	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_ID_01	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_ID_02	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_ID_03	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_ID_04	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_ID_05	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_ID_06	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_IB_01	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_TXO_01	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_TXO_02	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_TXO_03	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_TXO_04	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_TXO_05	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_TXO_06	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_RO_01	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_RO_02	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_RO_03	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_RO_04	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_TR_01	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_TR_02	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_TR_03	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_TR_04	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_TR_05	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_TR_06	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_TR_07	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_TR_08	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_RR_01	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_RR_02	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_RR_03	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_RR_04	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_TI_01	Yes/No	Yes/No		
DMO_MSREP1_DMCC_CM_BV_TI_02	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_CA_01	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_ID_01	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_ID_02	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_ID_03	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_ID_04	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_ID_05	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_IB_01	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_IB_02	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_IB_03	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_IB_04	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_RO_01	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_RO_02	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_RO_03	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_RO_04	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_RO_05	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_RO_06	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_RO_08	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_RO_09	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_TR_01	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_TR_02	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_TR_03	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_RR_01	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_RR_02	Yes/No	Yes/No		

ATS reference	Selected	Run	Verdict	Observations (see note)
DMO_MSREP1_DMCC_SDS_BV_RR_03	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_BV_RR_04	Yes/No	Yes/No		
DMO_MSREP1_DMCC_SDS_TI_01	Yes/No	Yes/No		
NOTE: Reference to any observations made in clause C.2.7 in the present document.				

C.2.7 Observations

Additional information relevant to the technical content of the PCTR are given here.

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History

Document history		
	November 2000	According to EPT#12 decision, TS 100 394-4-5 was created when EN 300 394-4-5 was sent to Vote
V1.1.1	November 2000	Publication