



SLOVENSKI STANDARD
SIST EN 300 396-10 V1.1.2:2003
01-december-2003

Df]nYa b]gbc dc j b]fUX]c`fH9HF5ŁĚHY\ b] bY`nU\ H]j Y`nU bYdcgfYXb]`bU]b
XY`c j Ub`UfB ACŁĚ`%\$`rXY. I dfUj `Ub]`bYdcgfYXb]`bU]b`XY`c j Ub`UfA!8 ACŁ

Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 10: Managed Direct Mode Operation (M-DMO)

ITeh STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: **EN 300 396-10 Version 1.1.2**

SIST EN 300 396-10 V1.1.2:2003
<https://standards.iteh.ai/catalog/standards/sist/0e0605c7-3901-413c-8067-0779ce433e9d/sist-en-300-396-10-v1-1-2-2003>

ICS:

33.070.10	Prizemni snopovni radio (TETRA)	Terrestrial Trunked Radio (TETRA)
-----------	---------------------------------	-----------------------------------

SIST EN 300 396-10 V1.1.2:2003 **en**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 300 396-10 V1.1.2:2003

<https://standards.iteh.ai/catalog/standards/sist/0e0b03c7-3901-413e-8067-0779ce433e9d/sist-en-300-396-10-v1-1-2-2003>

ETSI EN 300 396-10 V1.1.2 (2002-08)

European Standard (Telecommunications series)

Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 10: Managed Direct Mode Operation (M-DMO)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 300 396-10 V1.1.2:2003](https://standards.iteh.ai/catalog/standards/sist/0e0b03c7-3901-413e-8067-0779ce433e9d/sist-en-300-396-10-v1-1-2-2003)

<https://standards.iteh.ai/catalog/standards/sist/0e0b03c7-3901-413e-8067-0779ce433e9d/sist-en-300-396-10-v1-1-2-2003>



Reference

DENT/TETRA-02042-10

Keywords

DMO, PDO, TETRA, data, radio**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
Sous-Préfecture de Grasse (06) N° 7803/88

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 300 396-10 V1.1.2:2003<https://standards.iteh.ai/catalog/standards/sist/0e0b03c7-3901-413e-8067-0779ce433e94/sist-300-396-10-v1-1-2-2003>
Important notice

Individual copies of the present document can be downloaded from:

<http://www.etsi.org>

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at

<http://portal.etsi.org/tb/status/status.asp>

If you find errors in the present document, send your comment to:

editor@etsi.fr

Copyright Notification

No part may be reproduced except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2002.
All rights reserved.

DECT™, **PLUGTESTS™** and **UMTS™** are Trade Marks of ETSI registered for the benefit of its Members.
TIPHON™ and the **TIPHON logo** are Trade Marks currently being registered by ETSI for the benefit of its Members.
3GPP™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

Contents

Intellectual Property Rights	5
Foreword.....	5
1 Scope	6
2 References	7
3 Definitions and abbreviations.....	7
3.1 Definitions	7
3.2 Abbreviations	9
4 Overview of M-DMO.....	10
5 M-DM-MS	13
5.1 Operation of M-DM-MS	13
5.2 M-DM-MS authorized by M-DM-AUTH	13
5.3 V+D authorized M-DM-MS.....	14
5.4 Transmit authorization for M-DM-MS.....	15
5.4.1 Transmit authorization for M-DM-MS authorized by M-DM-AUTH.....	15
5.4.2 Transmit authorization for V+D authorized M-DM-MS	16
5.4.3 Release cause element	16
6 M-DM-AUTH	16
6.1 Operation of M-DM-AUTH	16
6.2 Loss of link to SwMI.....	18
6.3 Managed out-of-range or dual mode operation	18
6.4 Maintaining link to M-DM-MSS	18
6.5 M-DM-AUTH direct mode procedures.....	18
6.5.1 Direct mode procedures for stand-alone M-DM-AUTH	18
6.5.1.1 General	18
6.5.1.2 Basic capabilities of stand-alone M-DM-AUTH's physical layer	19
6.5.1.3 State definitions for stand-alone M-DM-AUTH	19
6.5.1.4 Channel surveillance procedures for stand-alone M-DM-AUTH	19
6.5.1.4.1 Initial determination of DM channel state by stand-alone M-DM-AUTH	20
6.5.1.4.2 Channel surveillance procedures after initial determination of channel state.....	20
6.5.1.4.3 Channel surveillance only prior to transmission of presence signal	21
6.5.1.5 Criteria for changing state for stand-alone M-DM-AUTH	21
6.5.1.6 Linearization by stand-alone M-DM-AUTH.....	21
6.5.2 Direct mode procedures for M-DM-REP, M-DM-GATE or M-DM-REP/GATE.....	21
6.6 M-DM-AUTH V+D procedures.....	21
7 Operation of M-DMO channels	22
7.1 General procedures.....	22
7.2 Withdrawing authorization	22
7.3 Power class.....	22
8 Authorization presence signal	23
8.1 M-DMO presence signal	23
8.2 Transmission rules for authorization presence signal.....	23
8.2.1 Transmission of presence signal by stand-alone M-DM-AUTH	23
8.2.1.1 Channel free	23
8.2.1.1.1 Carrier free	23
8.2.1.1.2 One DM channel free	24
8.2.1.2 Channel occupied or reserved	24
8.2.2 Transmission of presence signal by M-DM-REP	24
8.2.3 Transmission of presence signal by M-DM-GATE or M-DM-REP/GATE	25
8.3 DPRES-SYNC PDU.....	25
8.3.1 DPRES-SYNC PDU for stand-alone M-DM-AUTH	26
8.3.1.1 Definition of DPRES-SYNC PDU for stand-alone M-DM-AUTH	26

8.3.1.2	DPRES-SYNC element definitions for stand-alone M-DM-AUTH	27
8.3.1.2.1	Addressing for URT = 0010 ₂	27
8.3.1.2.2	Addressing for URT = 0011 ₂	27
8.3.1.2.3	Addressing for URT = 0100 ₂ or 0101 ₂	28
8.3.1.2.4	Addressing for URT = 0110 ₂	28
8.3.1.2.5	Channel state	28
8.3.1.2.6	Channel usage.....	29
8.3.1.2.7	Device address.....	29
8.3.1.2.8	Frequency efficient mode flag.....	29
8.3.1.2.9	Maximum DM-MS power class	29
8.3.1.2.10	M-DMO flag.....	30
8.3.1.2.11	MNI of controlling SwMI.....	30
8.3.1.2.12	Number of validity time units.....	30
8.3.1.2.13	Presence signal dual watch synchronization flag	30
8.3.1.2.14	Usage restriction type (URT)	31
8.3.1.2.15	Validity time unit.....	31
8.3.2	DPRES-SYNC PDU for M-DM-REP	31
8.3.3	DPRES-SYNC PDU for M-DM-GATE or M-DM-REP/GATE	32
Annex A (normative):	Timers and constants specific to M-DMO	33
A.1	Timers and constants in M-DM-MS	33
A.2	Timers and constants in M-DM-AUTH	33
Annex B (normative):	Differences for direct MS-MS operation	34
Annex C (normative):	Differences for type 1 repeater operation	37
C.1	Differences for M-DM-MS	37
C.2	Differences for M-DM-REP.....	37
Annex D (normative):	Differences for gateway operation.....	38
D.1	Differences for M-DM-MS	38
D.2	Differences for M-DM-GATE or M-DM-REP/GATE	38
Annex E (normative):	Differences for type 2 repeater operation.....	39
E.1	Differences for M-DM-MS	39
E.2	Differences for M-DM-REP.....	39
Annex F (normative):	Differences for V+D authorized M-DM-MS.....	40
Annex G (informative):	Bibliography.....	41
History		42

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<http://webapp.etsi.org/IPR/home.asp>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

This European Standard (Telecommunications series) has been produced by ETSI Project Terrestrial Trunked Radio (TETRA).

The present document is part 10 of a multi-part deliverable covering the Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO), as identified below:

- Part 1: General network design;
- Part 2: Radio aspects;
- Part 3: Mobile Station to Mobile Station (MS-MS) Air Interface (AI) protocol;
- Part 4: Type 1 repeater air interface;
- Part 5: Gateway air interface;
- Part 6: Security; <https://standards.iteh.ai/catalog/standards/sist/0e0b03c7-3901-413e-8067-0779ce433e9d/sist-en-300-396-10-v1-1-2-2003>
- Part 7: Type 2 repeater air interface;
- Part 8: Protocol Implementation Conformance Statement (PICS) proforma specification;
- Part 10: Managed Direct Mode Operation (M-DMO).**

National transposition dates	
Date of adoption of this EN:	16 August 2002
Date of latest announcement of this EN (doa):	30 November 2002
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 May 2003
Date of withdrawal of any conflicting National Standard (dow):	31 May 2003

1 Scope

The multi-part deliverable ETS/EN 300 396 defines the Terrestrial Trunked Radio (TETRA) Direct Mode Operation (DMO). It specifies the basic air interface, the interworking between Direct Mode (DM) groups via repeaters, and interworking with the TETRA Voice plus Data (V+D) system via gateways. It also specifies the security aspects in TETRA DMO, and the intrinsic services that are supported in addition to the basic bearer and teleservices.

The present document defines TETRA Managed Direct Mode Operation (M-DMO).

M-DMO provides a means to restrict the use of Direct Mode Operation (DMO) by requiring prior authorization before a Direct Mode Mobile Station (DM-MS) is permitted to transmit on a radio frequency. This modifies the operation of DM-MSs from that specified in ETS 300 396-3 [3], EN 300 396-4 [4], ETS 300 396-5 [5] and EN 300 396-7 [7].

M-DMO provides a control mechanism by which radio frequencies (M-DMO frequencies) may be given for DMO use for a period of time; those frequencies are considered to be managed frequencies. All M-DMO devices operating on a managed frequency shall comply with the transmit restrictions defined in the present document.

An M-DMO DM-MS (M-DM-MS) may receive the authorization to transmit from a broadcast signal sent on the M-DMO frequency. Or, alternatively, it may obtain the authorization directly on the V+D side from the SwMI or from an M-DMO management station.

The authorizing unit which sends the broadcast signal on the M-DMO frequency is referred to as an M-DM-AUTH. It obtains the authorization to operate as an M-DM-AUTH from the V+D SwMI or from a management station that is authorized to allocate frequencies for M-DMO. An M-DM-AUTH may be a stand-alone unit (performing only the authorization function), or it may perform also the function of a DM-REP, DM-GATE or DM-REP/GATE.

The content of the present document is as follows:

- Clause 4: provides an overview of M-DMO;
- Clause 5: describes the procedures for M-DMO mobile stations;
- Clause 6: describes the procedures for M-DM-AUTHs;
- Clause 7: describes the operation of M-DMO frequencies;
- Clause 8: describes the usage of the authorization presence signal;
- Annex A: lists the timers and constants specific to M-DMO;
- Annexes B through F: describe the differences from ETS 300 396-3 [3], EN 300 396-4 [4], ETS 300 396-5 [5] and EN 300 396-7 [7] arising from M-DMO.

The present document assumes familiarity with operation of TETRA in a network environment as described in EN 300 392, and with operation of TETRA in Direct Mode as described in other parts of ETS/EN 300 396.

The present document does not define the process for deciding which frequencies are allocated to M-DMO use.

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.

- [1] ETSI ETS 300 396-1: "Terrestrial Trunked Radio (TETRA); Technical Requirements for Direct Mode Operation (DMO); Part 1: General Network Design".
- [2] ETSI EN 300 396-2: " Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 2: Radio aspects".
- [3] 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".
- [4] ETSI EN 300 396-4: "Terrestrial Trunked Radio (TETRA); Technical Requirements for Direct Mode Operation (DMO); Part 4: Type 1 repeater air interface".
- [5] ETSI ETS 300 396-5: "Terrestrial Trunked Radio (TETRA); Technical Requirements for Direct Mode Operation (DMO); Part 5: Gateway air interface".
- [6] ETSI ETS 300 396-6: "Terrestrial Trunked Radio (TETRA); Direct Mode Operation (DMO); Part 6: Security".
- [7] ETSI EN 300 396-7: "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 7: Type 2 repeater air interface".
- [8] ETSI EN 300 392-2: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 2: Air Interface (AI)".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

authorization datum point: geographical point in space from which M-DMO is allowed

authorization presence signal: message that is transmitted by an M-DM-AUTH on an M-DMO RF carrier

NOTE: It permits M-DM-MSs which receive this message to know that the M-DM-AUTH is within range. It indicates which M-DM-MSs are authorized to transmit on the RF carrier, and the validity time for which those M-DM-MSs are authorized.

call: individual call or group call

NOTE 1: An individual call is a complete sequence of related call transactions between two MSs. There are always two participants in an individual call.

NOTE 2: A group call is a complete sequence of related call transactions involving two or more MSs. The number of participants in a group call is not fixed, but is at least two.

NOTE 3: Participants may join (late entry) and leave an ongoing call.

call transaction: all of the functions associated with a complete unidirectional transmission of information during a call

NOTE: A call is made up of one or more call transactions. In a simplex call these call transactions are sequential.

changeover: within a call, the process of effecting a transfer of the master role (and hence transmitting MS) at the end of one call transaction so that another can commence

Direct Mode Call Control (DMCC): layer 3 entity responsible for setting up and maintaining a call in DMO

DM channel: specific grouping of timeslots in the DM multiplex structure related to a particular DM RF carrier i.e. DM frequency (or to a pair of duplex-spaced RF carriers for operation with a type 1B or type 2 DM-REP or a type 1B DM-REP/GATE)

NOTE: The grouping may not always be fixed, but in DMO when operating in frequency efficient mode as an example, there are two DM channels, identified by the letters A and B.

Direct Mode Operation (DMO): mode of simplex operation where mobile subscriber radio units may communicate using radio frequencies which may be monitored by, but which are outside the control of, the TETRA V+D network

NOTE: DM operation is performed without intervention of any base station.

direct mode presence signal: message that is transmitted by a DM-REP, DM-GATE, DM-REP/GATE or M-DM-AUTH in order to indicate its presence on a DM RF carrier

NOTE: It permits DM-MSs which receive this message to know that the DM-REP, DM-GATE, DM-REP/GATE or M-DM-AUTH is within range.

Direct Mode Mobile Station (DM-MS): physical grouping that contains all of the mobile equipment that is used to obtain TETRA DM services

NOTE: A DM-MS may have one of three roles:

- **master:** if the DM-MS is either active in a call transaction transmitting traffic or control data, or is reserving the channel by means of channel reservation signalling;
- **slave:** if the DM-MS is receiving traffic and/or signalling in a call; or
- **idle:** if the DM-MS is not in a call.

Dual Mode switchable Mobile Station (DU-MS): MS that is capable of both TETRA DMO and TETRA V+D operation

NOTE: Only one mode can be selected at any given time and the MS is not capable of monitoring a DM RF carrier while in V+D mode or a V+D channel while in DMO.

Dual Watch Mobile Station (DW-MS): MS that is capable of both TETRA DMO and TETRA V+D operation

NOTE: The MS is capable of periodically monitoring the V+D control channel while in a DM call, a DM RF carrier while in a V+D call and, when idle, it periodically monitors both the DM RF carrier and the V+D control channel.

Direct Mode GATEway (DM-GATE): device which provides gateway connectivity between DM-MS(s) and the TETRA V+D network

NOTE: The gateway provides the interface between TETRA DMO and TETRA V+D mode.

Direct Mode REPeater (DM-REP): device that operates in TETRA DMO and provides a repeater function to enable two or more DM-MSs to extend their coverage range

NOTE: It may be either a type 1 DM-REP, capable of supporting only a single call on the air interface, or a type 2 DM-REP, capable of supporting two calls on the air interface. A type 1 DM-REP may operate on either a single RF carrier (type 1A DM-REP) or a pair of duplex-spaced RF carriers (type 1B DM-REP). A type 2 DM-REP operates on a pair of duplex-spaced RF carriers. In the case of a type 1B or type 2 DM-REP, one of the RF carriers is used as the "uplink" from DM-MSs to the DM-REP and the other is used as the "downlink" from the DM-REP to DM-MSs.

Direct Mode REPeater/GATEway (DM-REP/GATE): device that combines the functions of a Direct Mode repeater and a Direct Mode gateway in a single implementation and is capable of providing both functions simultaneously (so that, during a call transaction initiated by a DM-MS, the DM-REP/GATE provides gateway connectivity to the TETRA V+D network and also provides a repeater function on the DM channel)

NOTE: The repeater part of the combined implementation may be either a type 1A repeater, operating on a single DM RF carrier, or a type 1B repeater, operating on a pair of duplex-spaced DM RF carriers.

frequency efficient mode: mode of operation where two independent DM communications are supported on a single RF carrier (or pair of duplex-spaced RF carriers for operation with a type 2 DM-REP)

NOTE: In frequency efficient mode the two DM channels are identified as channel A and channel B.

gateway: generic term used to describe either a pure DM-GATE or a combined implementation with a repeater (DM-REP/GATE)

Managed Direct Mode Operation (M-DMO): method of operation in which a direct mode terminal is only permitted to transmit when it has received a signal authorizing it to do so

Managed Direct Mode AUTHorizing unit (M-DM-AUTH): device that transmits an authorization presence signal on a DM RF carrier

NOTE: An M-DM-AUTH may be a stand-alone unit, performing only the authorization function, or it may perform also the function of a DM-REP, DM-GATE or DM-REP/GATE (in which case it is referred to as an M-DM-REP, M-DM-GATE or M-DM-REP/GATE respectively).

M-DMO management station: station that is accessed via the V+D network and is authorized to allocate frequencies for M-DMO

Managed Direct Mode Mobile Station (M-DM-MS): DM-MS that is using managed direct mode operation

NOTE: An M-DM-MS is not permitted to transmit on the DM RF carrier unless it has received a signal containing authorization and the authorized time has not expired. The authorization may have been received from an M-DM-AUTH transmitting on the DM RF carrier. Alternatively the authorization may have been received from the V+D SwMI or an M-DMO management station (in which case the M-DM-MS is referred to as a V+D authorized M-DM-MS).

normal mode: mode of operation where only one DM communication is supported on an RF carrier (or pair of duplex-spaced RF carriers for operation with a type 1B DM-REP or type 1B DM-REP/GATE)

surveillance: process of determining the current state of the DM RF carrier when in idle mode

trunked voice and data network: network which uses the TETRA V+D operation

V+D authorized M-DM-MS: type of M-DM-MS that receives its authorization to transmit on the DM RF carrier directly from the V+D SwMI or from an M-DMO management station via the V+D network

V+D operation: mode of operation where MSs may communicate via the TETRA V+D air interface which is controlled by the TETRA Switching and Management Infrastructure (SwMI)

3.2 Abbreviations

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

DM	Direct Mode
DMO	Direct Mode Operation
DM-MS	Direct Mode Mobile Station
DU-MS	DUal mode (V+D/Direct Mode) switchable Mobile Station
DW-MS	Dual Watch Mobile Station
DM-REP	Direct Mode REPeater
DM-GATE	Direct Mode GATEway
DM-REP/GATE	Direct Mode REPeater/GATEway
DMCC	Direct Mode Call Control entity
DSB	Direct Mode Synchronization Burst

GPS	Global Positioning System
MAC	Medium Access Control
M-DMO	Managed Direct Mode Operation
M-DM-MS	Managed Direct Mode Mobile Station
M-DM-AUTH	Managed Direct Mode AUTHORIZATION unit
M-DM-REP	Managed Direct Mode REPEater
M-DM-GATE	Managed Direct Mode GATEway
M-DM-REP/GATE	Managed Direct Mode REPEater/GATEway
MNI	Mobile Network Identity
MS	Mobile Station
PDU	Protocol Data Unit
RF	Radio Frequency
SDS	Short Data Service
SDS-TL	SDS Transport Layer
SSI	Short Subscriber Identity
SwMI	Switching and Management Infrastructure
TETRA	TERrestrial Trunked RAdio
TSI	TETRA Subscriber Identity
V+D	Voice plus Data

4 Overview of M-DMO

Managed Direct Mode Operation (M-DMO) enables the use of DMO to be controlled by providing a mechanism by which frequencies may be given for DMO use for a period of time. The objective of M-DMO is to constrain the transmission by the M-DMO terminals such that they will not transmit in a geographical area in which they are not authorized to transmit.

There are two types of M-DMO terminal: standards.iteh.ai

- M-DMO mobile station (M-DM-MS);
- M-DMO authorizing unit (M-DM-AUTH).

An M-DM-MS shall not transmit on an M-DMO RF carrier (i.e. frequency) unless it has received a signal containing authorization and the authorized time has not expired. The M-DM-MS may have received the authorization from an M-DM-AUTH transmitting on the managed RF carrier. Alternatively, an M-DM-MS may be capable of receiving the authorization directly on the V+D side from the SwMI or from an M-DMO management station via the V+D network.

Visual and/or audible indications should be given to the user of the M-DM-MS indicating whether transmission is enabled or inhibited.

NOTE: The term "M-DM-MS" in the present document refers to an MS when it is operating on an RF carrier on which the use of M-DMO is required. It is expected that some MSs will only be permitted to operate as an M-DM-MS. Other MSs may be permitted to use non-managed DMO in some frequency bands (where they may use ETS 300 396-3 [3], EN 300 396-4 [4], ETS 300 396-5 [5] and EN 300 396-7 [7] without amendment), whereas they may be required to operate as an M-DM-MS in other frequency bands.

The M-DM-AUTH receives its authorization to operate on an RF carrier from the V+D SwMI, or from a management station that is authorized to allocate frequencies for M-DMO. An M-DM-AUTH may be a stand-alone unit, performing only the authorization function, or it may perform also the function of a DM-REP, DM-GATE or DM-REP/GATE (in which case it is designated as an M-DM-REP, M-DM-GATE or M-DM-REP/GATE respectively).

The authorization signal broadcast by an M-DM-AUTH is the direct mode presence signal. For an M-DM-REP, M-DM-GATE or M-DM-REP/GATE, this is the DM-REP or gateway presence signal defined in EN 300 396-4 [4] and ETS 300 396-5 [5]. The authorization presence signal for a stand-alone M-DM-AUTH is defined in clause 8.3.1.

The authorization presence signal is a signalling message transmitted by the M-DM-AUTH on the managed RF carrier. It indicates to any M-DM-MSs monitoring the RF carrier that the M-DM-AUTH is within range. It also indicates which M-DM-MSs are authorized to transmit on the RF carrier, and the validity time for which those M-DM-MSs are authorized. The authorization presence signal authorizes transmission by the indicated M-DM-MSs on the RF carrier on which the signal is sent (except in the case of a two-frequency M-DM-REP or M-DM-REP/GATE (see clause 7.1)).

The authorization presence signal is not sent during direct MS-MS calls. Therefore, a stand-alone M-DM-AUTH sends the authorization presence signal only when the channel is free. An M-DM-REP, M-DM-GATE or M-DM-REP/GATE sends the authorization presence signal when the channel is free; it also sends the authorization presence signal during calls made through that repeater or gateway, as defined in EN 300 396-4 [4] and ETS 300 396-5 [5].

An example of a scenario in which M-DMO works is shown in figure 1. The example shows direct MS-MS operation authorized by a stand-alone M-DM-AUTH. The M-DM-AUTH has received its authorization to transmit the authorization presence signal on the DM RF carrier from an M-DMO management station, using the V+D Short Data Service Transport Layer (SDS-TL) data transfer service.

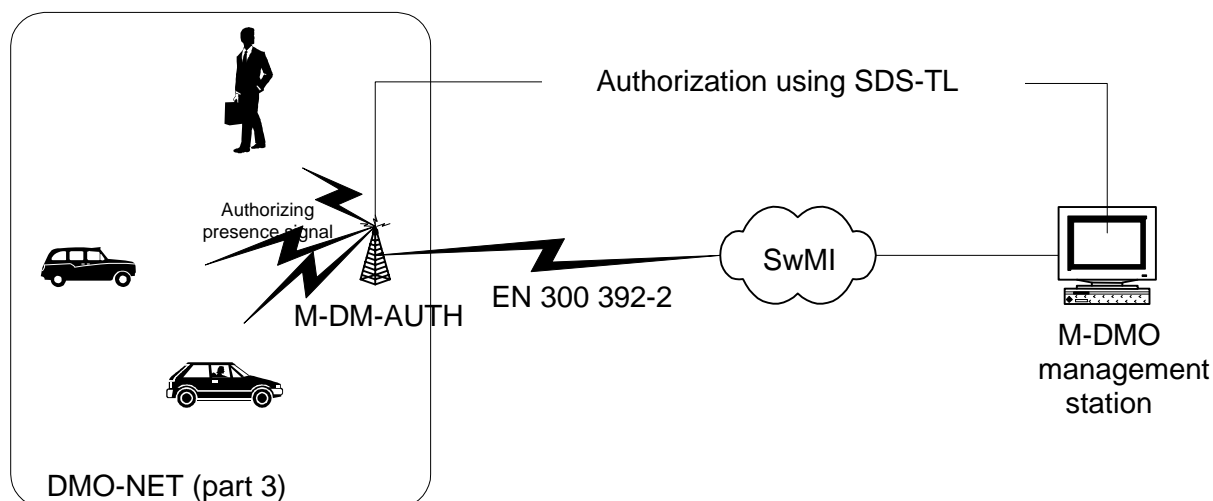


Figure 1: M-DMO Operational scenario
(standards.iteh.ai)

The normal sequence of events for an M-DM-MS authorized by an M-DM-AUTH is as shown in the simplified message sequence chart of figure 2 and described in the following text.

[SIST EN 300 396-10 V1.1.2:2003](https://standards.iteh.ai/catalog/standards/sist/0e0b03c7-3901-413e-8067-0779ce433e9d/sist-en-300-396-10-v1-1-2-2003)

<https://standards.iteh.ai/catalog/standards/sist/0e0b03c7-3901-413e-8067-0779ce433e9d/sist-en-300-396-10-v1-1-2-2003>