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European Standard (Telecommunications series)

Terrestrial Trunked Radio (TETRA);
Voice plus Data (V+D);
Part 3: Interworking at the Inter-System Interface (ISI);
Sub-part 4: Additional Network Feature
Short Data Service (ANF-ISISDS)

Reference

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Keywords

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Foreword

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

The present document is part 3, sub-part 4 of a multi-part deliverable covering the Voice plus Data (V+D), as identified below:

EN 300 392-1:   "General network design";

EN 300 392-2:   "Air Interface (AI)";

EN 300 392-3:   "Interworking at the Inter-System Interface (ISI)";

> EN 300 392-3-1:   "General design";

> EN 300 392-3-2:   "Additional Network Feature Individual Call (ANF-ISIIC)";

> EN 300 392-3-3:   "Additional Network Feature Group Call (ANF-ISIGC)";

> **EN 300 392-3-4:   "Additional Network Feature Short Data Service (ANF-ISISDS)";**

> EN 300 392-3-5:   "Additional Network Feature for Mobility Management (ANF-ISIMM)";

> TS 100 392-3-6:   "Speech Format Implementation for Packet Mode Transmission";

> TS 100 392-3-7:   "Speech Format Implementation for Packet Mode Transmission";

> TS 100 392-3-8:   "Generic Speech Format Implementation";

ETS 300 392-4:   "Gateways basic operation";

EN 300 392-5:   "Peripheral Equipment Interface (PEI)";

EN 300 392-7:   "Security";

EN 300 392-9:   "General requirements for supplementary services";

EN 300 392-10: "Supplementary services stage 1";

EN 300 392-11: "Supplementary services stage 2";

EN 300 392-12: "Supplementary services stage 3";

ETS 300 392-13: "SDL model of the Air Interface (AI)";

ETS 300 392-14: "Protocol Implementation Conformance Statement (PICS) proforma specification";

TS 100 392-15: "TETRA frequency bands, duplex spacing and channel numbering";

TS 100 392-16: "Network Performance Metrics";

TR 100 392-17: "TETRA V+D and DMO specifications";

TS 100 392-18: "Air interface optimized applications".

NOTE: Part 3, sub-parts 6 and 7 (Speech format implementation), part 4, sub-part 3 (Data networks gateway),
         part 10, sub-part 15 (Transfer of control), part 13 (SDL) and part 14 (PICS) of this multi-part deliverable
         are in status "historical" and are not maintained.

National transposition dates	
Date of adoption of this EN:	2 August 2010
Date of latest announcement of this EN (doa):	30 November 2010
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 May 2011
Date of withdrawal of any conflicting National Standard (dow):	31 May 2011

1   Scope

The present document defines the Terrestrial Trunked Radio system (TETRA) supporting Voice plus Data (V+D). It specifies:

-       general design aspects (e.g. reference points, numbering and addressing, or protocol architecture);

-       the system bearer and mobility management services, and the corresponding air interface protocols;

-       the interworking between TETRA networks;

-       the interworking of TETRA networks with other networks, via gateways;

-       the peripheral equipment interface on the mobile station;

-       the security protocols and mechanisms applicable to TETRA networks and to TETRA terminal equipment;

-       the supplementary services applicable to the basic TETRA tele- or bearer services.

The TETRA V+D interworking - basic operation part defines the interworking between TETRA networks over the corresponding interface: the Inter-System Interface (ISI). It comprises the following subparts:

-       ISI general design;

-       Additional Network Feature - ISI Individual Call (ANF-ISIIC);

-       Additional Network Feature - ISI Group Call (ANF-ISIGC);

-       **Additional Network Feature - ISI Short Data service (ANF-ISISDS);**

-       Additional Network Feature - ISI Mobility Management (ANF-ISIMM);

-       8 kbit/s encoding of user information at the ISI.

The present document specifies the Additional Network Function (ANF) - Inter-System Interface (ISI) Short Data service (ANF-ISISDS) which is part of the Interworking Basic Operation of the Terrestrial Trunked Radio system (TETRA) supporting Voice and Data (V+D). Specifically the present document details the stage 1, 2 and 3 aspects of the ANF-ISISDS as seen from the TETRA Switching and Maintenance Infrastructure (SwMI) point of view at the Inter System Interface (ISI). This service comprises of:

-       TETRA user defined short message transmission over the ISI to individual and group addresses;

-       TETRA pre-defined short message transmission over the ISI to individual and group addresses.

ANF-ISISDS enables short data and status messages to be set-up and transferred between a user registered in one TETRA network to another user registered in another TETRA network, operating at the ISI of both SwMIs.

Like all other Additional Network Feature (ANF) specifications, those of ANF-ISISDS are produced in three stages, according to the method described in ITU-T Recommendation I.130 [4]. The present document contains the stage 1 and 2 descriptions of ANF-ISIIC, and its partial stage 3 description. The stage 1 description specifies the ANF as seen by its users, which are essentially the individual call control entities in both TETRA networks. The stage 2 description identifies the functional entities involved in the ANF and the information flows between them. The partial stage 3 description of ANF-ISISDS specifies its protocol.

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 EN 300 392-2: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 2: Air Interface (AI)".

[2] ETSI EN 300 392-3-3: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 3: Additional Network Feature Group Call (ANF-ISIGC)".

[3] ETSI EN 300 392-3-1: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 3: Interworking at the Inter-System Interface (ISI); Sub-part 1: General design".

[4] ITU-T Recommendation I.130: "Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN".

[5] ETSI EN 300 392-7: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 7: Security".

[6] ETSI EN 300 392-12-8: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary services stage 3; Sub-part 8: Area Selection (AS)".

[7] ETSI EN 300 392-9: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 9: General requirements for supplementary services".

[8] ISO/IEC 11571 (1998): "Information technology - Telecommunications and information exchange between systems - Private Integrated Services Networks - Addressing".

[9] ITU-T Recommendation E.164: "The international public telecommunication numbering plan".

[10] ITU-T Recommendation X.121: "International numbering plan for public data networks".

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 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in EN 300 392-2 [1], EN 300 392-3-1 [3] and EN 300 392-3-3 [2] apply.

3.2 Abbreviations

For the purposes of the present document, the abbreviations defined in EN 300 392-2 [1], EN 300 392-3-1 [3] and EN 300 392-3-3 [2] apply.

4 ANF-ISISDS stage 1 specification

4.1 Description

ANF-ISISDS provides support of the SDS service described in EN 300 392-2 [1], clause 13, across the ISI connection between 2 SwMIs. In addition the present document supports the embedded SDS-TL service described in EN 300 392-2 [1].

> NOTE: The interpretation of status code values contained in predefined status or short message services are not defined in the TETRA suite of standards. The consistent interpretation of these code values in user equipment will not be made by the ANF-ISISDS service but will be left to end-users to co-ordinate codeset interpretation.

4.2 Overview of operation

ANF-ISISDS shall transparently take the SDS message as presented by the originating SwMI and transport it to the peer ANF-ISISDS entity in the destination SwMI.

There shall be a single invocation of ANF-ISISDS per SDS transfer. Each message therefore is considered as independent. Group addressed SDS shall be sent to the group controlling SwMI only for further distribution by that SwMI to each participating SwMI.

ANF-ISISDS assumes that an equivalent to the TNSDS-SAP defined in EN 300 392-2 [1], clause 13 exists in the SwMI that provides an equivalent set of primitives.

For outgoing SDS messages the SwMI shall have received an equivalent to the TNSDS-UNITDATA indication primitive with those extensions required to indicate area selection. It shall then determine the destination SwMI. ANF-ISISDS shall only be invoked if the destination is on another SwMI.

For incoming SDS ANF-ISISDS shall deliver the SDS message to the SwMI in like manner to any internal SwMI device.

4.3 Security concerns

The participating SwMIs shall exchange the security class in use at the air interface. The destination SwMI shall discard any message for which the source SwMI is operating at a numerically higher security class.

4.4 Procedures

4.4.1 Provision/withdrawal

ANF-ISISDS shall always be available.

4.4.2 Normal procedures

4.4.2.1 Activation/deactivation/registration/interrogation

ANF-ISISDS shall always be activated. Registration and interrogation are not applicable to this ANF.

4.4.2.2   Invocation and operation

ANF-ISISDS shall be invoked when a short data service request has been received by the originating SwMI and analysis of the destination address has shows that the destination user is not located within the originating SwMI. Analysis of the destination address may reveal one of the following scenarios:

1)   the destination TETRA user identity belongs to the originating SwMI. In this scenario the destination user has migrated to a visited SwMI the details of which are known in the originating SwMI database;

2)   the destination MS TETRA user identity does not belong to the originating SwMI and the destination MS is not migrated to the originating SwMI. In this scenario the details of the destination home SwMI are known from the destination TETRA user identity;

3)   the destination MS TETRA user identity does not belong to the originating SwMI but the destination MS is migrated to the originating SwMI and the originating SwMI has knowledge of the concerned user SDS profiles;

4)   the destination gateway is on another SwMI.

The present document shall address scenarios (1), (2) and (4) only. Scenario (3) shall not invoke ANF-ISISDS.

The originating SwMI becomes the controlling SwMI and shall manage and administer this ANF-ISISDS service. In scenario (2) the destination home SwMI becomes the controlling SwMI and shall manage and administer this ANF-ISISDS service. In the scenario (3) the ANF-ISISDS is not invoked and the SDS shall be managed in the originating SwMI.

4.4.3   Exceptional procedures

4.4.3.1   Activation/deactivation/registration/interrogation

Not applicable.

4.4.3.2   Invocation and operation

ANF-ISISDS can reject a service request for any of the following reasons:

-   user not subscribed to inter system short data service;

-   inter system interface out of order; or

-   remote SwMI does not support short data service.

During the lifetime of the service operation the SwMI may reject the service request with an appropriate failure indication for one of the following reasons:

-   user not reachable; or

-   user not known.

4.5   ANF-ISISDS primitives

4.5.1   Primitive definitions

The flow of short data service primitives shall be as illustrated in figure 1.
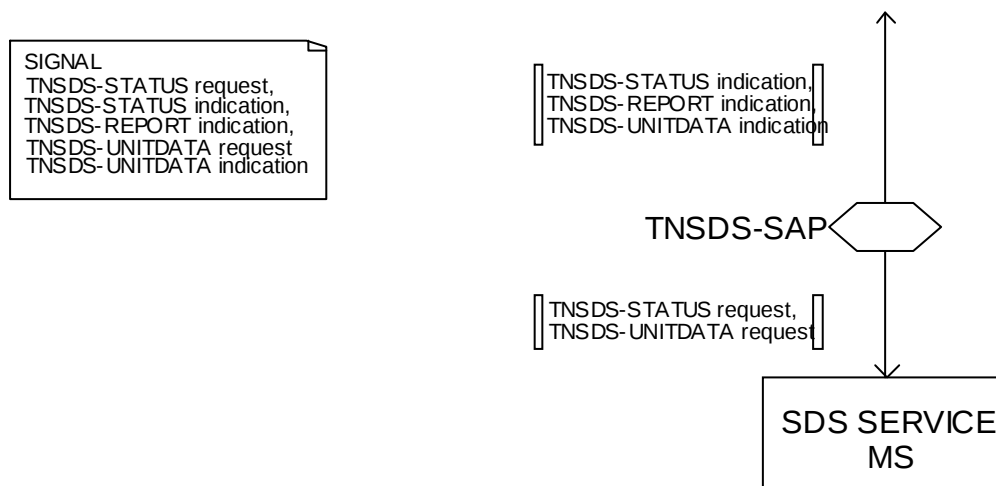
Figure 1: SDS provided at TNSDS-SAP (MS/LS)

The ANF-ISISDS is invoked upon receipt by the SwMI of an equivalent primitive to the TNSDS-UNITDATA or TNSDS-STATUS primitives described in tables 53 and 55 of EN 300 392-2 [1] and as shown in tables 1 and 2 in their translated form as ANFISISDS primitives.

NOTE: The service is unconfirmed at the radio interface and also on the ISI service.

In the tables listing the service elements in primitives, the column headed "Request" indicates which of these service elements are Mandatory (M) and which are Optional (O) in a request/indication information flow, and the column headed "Confirm" indicates which of these service elements are Mandatory (M) and which are Optional (O) in a response/confirmation information flow.

Table 1: Parameters for the ANFISISDS-STATUS primitive

Parameter	Request	Indication
Selected area number	O	O
Called party SSI	M	M
Called party extension	M	M
Called party external subscriber number	O	O
Calling party SSI	M	M
Calling party extension	M	M
Calling party external subscriber number	O	O
Status number	M	M
Hop count	M	M
Security level at the calling user air interface	M	M

Table 2: Parameters for the ANFISISDS-UNITDATA primitive

Parameter	Request	Indication
Selected area number	O	O
Called party SSI	M	M
Called party extension	M	M
Called party external subscriber number	O	O
Calling party SSI	M	M
Calling party extension	M	M
Calling party external subscriber number	O	O
MSISDN present as external subscriber number	O	O
Calling external subscriber number parameters	O	O
Short data type identifier	M	M
User defined data-1	C (see note)	C (see note)
User defined data-2	C (see note)	C (see note)
User defined data-3	C (see note)	C (see note)
User defined data-4	C (see note)	C (see note)
Hop count	M	M
Security level at the calling user air interface	M	M
NOTE: Depending on the value of short data type identifier.		

4.5.2   Parameter description

Parameters shall be part of the primitives at the TNSDS SAP. When applied the parameters shall contain the values specified in this clause.

Called party extension =

MCC + MNC.

Called party SSI =

ISSI; or

GSSI.

Calling external subscriber number parameters =

Numbering plan identification;

Type of number; and

Screening indicator.

Calling party extension =

MCC + MNC.

Calling party SSI =

ISSI; or

GSSI.

External Subscriber Number =

Up to 24 DTMF digits.

Hop count =

    Record of hops in path

MSISDN present as external subscriber number =

    Not an MSISDN; or

    MSISDN.

Security level at the calling user air interface =

    See EN 300 392-7 [5].

Selected area number =

    See SS-AS, EN 300 392-12-8 [6].

Status number =

    0   emergency call;

    1 to 32 767   reserved;

    32 768 to 65 535   available for TETRA network specific definition.

Short data type identifier =

    0   user defined data-1;

    1   user defined data-2;

    2   user defined data-3;

    3   user defined data-4.

User defined data 1 =

    16 bit user defined data 1.

User defined data 2 =

    32 bit user defined data.

User defined data 3 =

    64 bit user defined data.

User defined data-4 =

    user defined data bits, maximum length 2 047 bits.

4.6   Overall SDL

Figure 2 shows the overall SDL model for ANF-ISISDS. In the figure 2 the ISISD-Transfer primitive presents either ANFISISDS-STATUS or ANFISISDS-UNITDATA primitives.
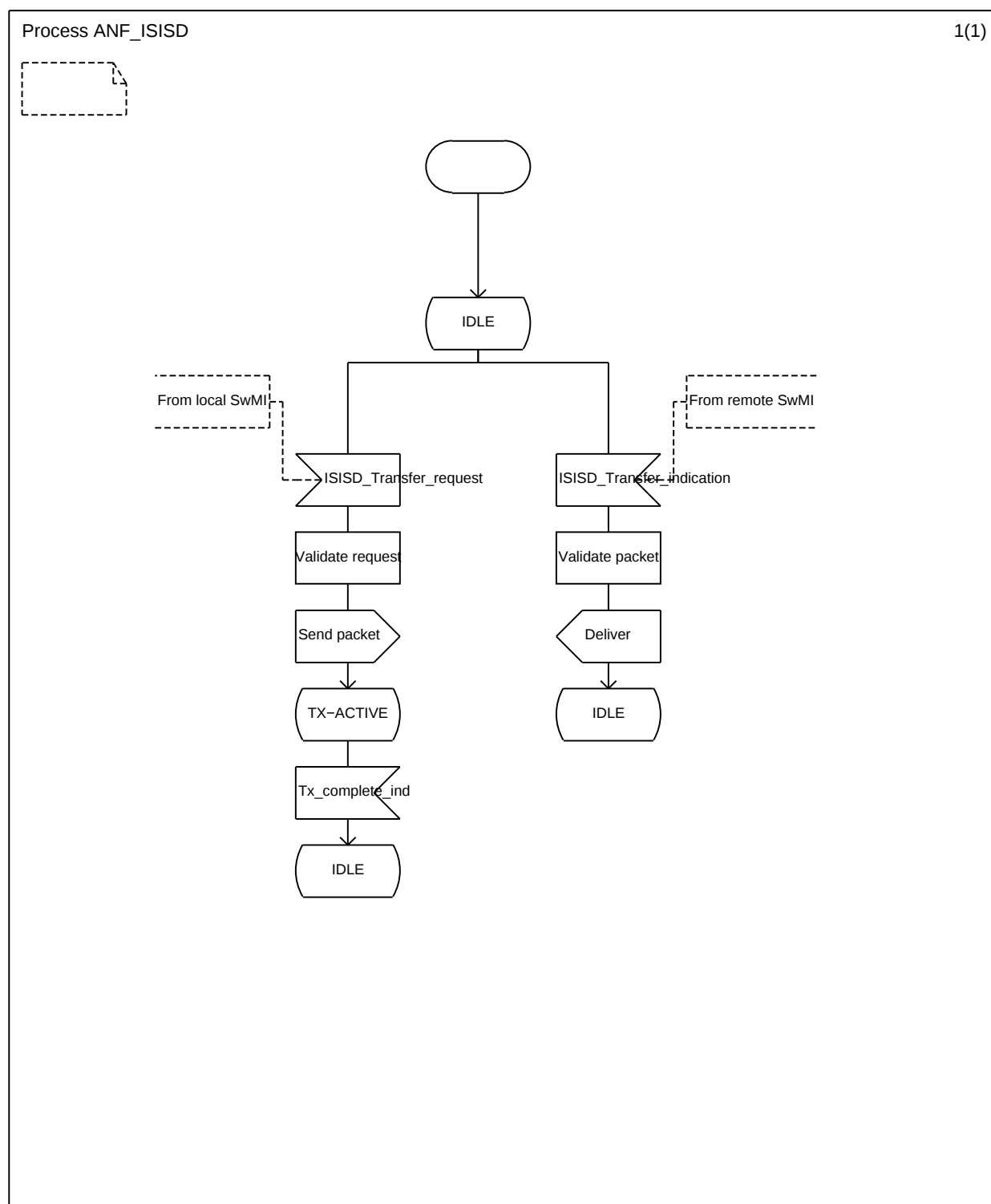
Figure 2: SDL diagram for ANF-ISISDS

5   ANF-ISISDS stage 2 specification

5.1   Overview of functional entities

The following functional entities shall exist:

FE1   Originating Short Data (OSD) functional entity;

FE2   Originating ISI Short Data (OISD) transfer functional entity;

FE3   Destination ISI Short Data (DISD) transfer functional entity;

FE4   Destination Short Data functional entity.

5.1.1   FE2, Originating ISI Short Data transfer functional entity

The role of FE2 is to accept from FE1 a request to deliver an SDS or Status message to the peer FE3 entity.

It shall encode tetraIsiMessage where the ROSE source and destination entities are anfIsisds as defined in clause 8.4.1 of EN 300 392-3-1 [3].

It shall increment the value of hop count on every transmission. This may be used to detect problems (maximum value of hop count should be 2 (i.e. from source to home of destination, from home of destination to SwMI where destination is registered)).

5.1.2   Relationships between FEs

| MS | | SwMI A | | | SwMI B | | MS |

OSDA — r1 — FE1 — r2 — FE2 — r2 — FE2 — r2 — FE3 — r1 — DSDA
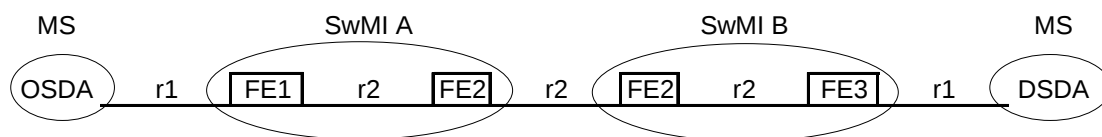
Figure 3: FEs and the relationships between them

5.2   Information flow

5.2.1   Definitions of information flows

Each ANF-ISISDS message is sent from the source SwMI to the home of the destination SwMI, or for group addressed messages to the group controlling SwMI. The transfer is connectionless with the message being carried in a ROSE Invoke APDU. There is limited ROSE confirmation (i.e. the service improves upon best effort).

| Source | | ANF-ISISDS at SwMIA | | ANF-ISISDS at SwMIB | | Destination |

U-UNITDATA

10

ANF-ISISD-UNITDATA

20
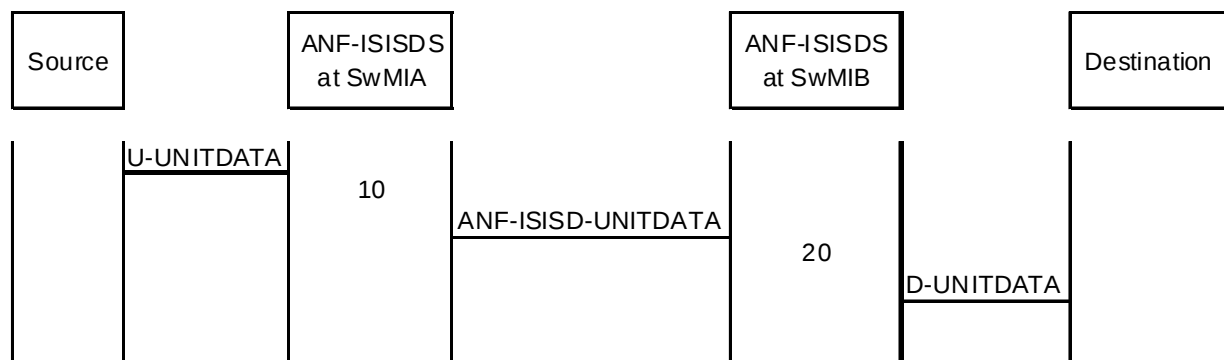
D-UNITDATA

Figure 4: ITSI addressed SDS/Status from SwMIA to SwMIB

The ANF-ISISDS-UNITDATA request is an unconfirmed information flow.

Upon receipt in the SwMI of the U-UNITDATA from the source MS the parameters received shall be translated to an ANFISISDS-UNITDATA primitive which shall invoke the ANF-ISISDS-UNITDATA transmission.

6 ANF-ISISDS stage 3 specification

6.1 General on ANF-ISISDS

As defined in clause 5.2.1 the source SwMI sends the STATUS and SDS messages the home SwMI of the destination MS and the home SwMI of the destination MS will send the message to the visited SwMI or SwMIs of the destination MS or MSs independently of the first leg.

NOTE 1: The protocol requires that all the participating SwMIs, source, home or homes and destination SwMIs support ANF-ISISDS. In other words the forwarding and re-routeing of the STATUS and SDS messages is not applied.

NOTE 2: This arrangement allows that all the information in the corresponding air interface is placed in the TETRA PDU including supplementary service information notably the Selected area number information element.

6.2 ANF-ISISDS coding requirements

ISISDS-UNITDATA PDU shall be carried as an Invoke APDU of the ROSE operation tetraIsiMessage defined in clause 8.4.1 of EN 300 392-3-1 [3].

The exception handling described in clause 8.4.3 of EN 300 392-3-1 [3] shall apply.

6.3 TETRA ANF-ISISDS PDUs

6.3.1 TETRA information encoding

The information contained in the following PDU description shall be encoded using the same rules as defined in annex E of EN 300 392-2 [1] (for TETRA air interface PDUs).

6.3.2   ISISDS-UNITDATA PDU

The contents of the ISISDS-UNITDATA PDU shall be as defined in table 3.

Table 3: Contents of the ISISDS-UNITDATA PDU

Parameter	Type	M/O/C	Length	Notes
PDU type	1	M	3	
Security level at the calling user air interface	1	M	2	
Called party SSI	1	M	24	
Called party extension	1	M	24	
Number of digits in called external subscriber number	1	M	5	
Called party external subscriber number		C	varies	see note 1
Calling party SSI	1	M	24	
Calling party extension	1	M	24	
Number of digits in calling external subscriber number	1	M	5	
Calling party external subscriber number		C	varies	see note 2
MSISDN present as external subscriber number		C	1	see note 7
Calling external subscriber number parameters		C	9	see note 7
ISISDS subtype	1	M	1	
Pre-coded status		C	16	see note 3
Short data type identifier		C	2	see note 4
User defined data-1		C	16	see note 5
User defined data-2		C	32	see note 5
User defined data-3		C	64	see note 5
Length of user defined data-4		C	11	see note 5
User defined data-4		C	varies	see note 6
Hop count	1	M	2	
Selected area number	2	O	8	
NOTE 1: The number of digits in this information element shall be as defined in the Number of digits in called external subscriber number.				
NOTE 2: The number of digits in this information element shall be as defined in the Number of digits in called external subscriber number.				
NOTE 3: This information element shall be present when the ISISDS subtype is "Pre-defined status".				
NOTE 4: This information element shall be present when the ISISDS subtype is "Short data type identifier".				
NOTE 5: One of these shall be present depending on the value of short data type identifier.				
NOTE 6: The length of this information element in bits shall be conditional on the Length of the User defined data-4 information element.				
NOTE 7: Conditional on the value of the information element number of digits in calling external subscriber number being different from 0.				

6.3.3   Information element encoding

6.3.3.1   Called party extension

The called party extension information element shall be encoded as defined in clause 14.8.7 of EN 300 392-2 [1].

6.3.3.2   Called party external subscriber number

The called party external subscriber number can consist of n digits where n shall be less than or equal to 24. The digits of the external subscriber number shall be in descending order (as normally dialled in man machine interface) in the information element. Each digit in the external subscriber number information element shall be encoded as defined in table 108 in clause 14.8.20 of EN 300 392-2 [1].

6.3.3.3   Called party SSI

The called party SSI information element shall be encoded as defined in clause 14.8.8 of EN 300 392-2 [1].

6.3.3.4 Calling party extension

information element shall be encoded as defined in clause 14.8.10 of EN 300 392-2 [1].

6.3.3.5 Calling party external subscriber number

The calling party external subscriber number can consist of n digits where n shall be less than or equal to 24. The digits of the external subscriber number shall be in descending order (as normally dialled in man machine interface) in the information element. Each digit in the external subscriber number information element shall be encoded as defined in table 108 in clause 14.8.20 of EN 300 392-2 [1].

6.3.3.5a Calling party external subscriber number parameters

The calling party external subscriber number parameters information element shall be as shown in table 4, refer also to EN 300 392-9 [7].

Table 4: Calling party external subscriber number parameters information element contents

Information element	Length	Value	Remarks
Numbering plan identification	4	0000_2	Unknown
		0001_2	PSTN/ISDN/GSM (see note 1)
		0010_2	Reserved
		0011_2	Data Numbering Plan (see note 2)
		0100_2	Reserved (Telex)
		0101_2	Reserved
		etc.	etc.
		0111_2	Reserved
		1000_2	National standard numbering plan
		1001_2	Private numbering plan
		1010_2	Reserved for extension
		etc.	etc.
		1111_2	Reserved for extension
Type of number	3	000_2	Unknown/unknown (see note 3)
		001_2	International number/level 2 regional number (see note 3)
		010_2	National number/level 1 regional number (see note 3)
		011_2	Network specific number/PISN specific number (see note 3)
		100_2	Subscriber number/level 0 regional number (see note 3)
		101_2	Reserved for extension
		etc.	etc.
		111_2	Reserved for extension
Screening indicator	2	00_2	User provided, not screened
		01_2	User provided, verified and passed
		10_2	User provided, verified and failed
		11_2	Network provided
NOTE 1: See ITU-T Recommendation E.164 [9]. NOTE 2: See ITU-T Recommendation X.121 [10]. NOTE 3: The second parameter is the meaning of the information element type of number as defined in ISO/IEC 11571 [8] when the numbering plan identification is the private numbering plan (i.e. binary value of the information element equal to 1001).			

6.3.3.6 Calling party SSI

The calling party SSI information element shall be encoded as defined in clause 14.8.11 of EN 300 392-2 [1].

6.3.3.7   Hop count

The hop count information element shall indicate how many times the message is sent over an ISI connection. The value may be 1, 2 or 3. Value 0 is not used in the present document.

6.3.3.8   ISISDS Subtype

The ISISDS subtype information element shall identify the type of the data encoding as defined in table 5.

Table 5: ISISDS subtype information element contents

Information element	Length	Value	Remark
ISISDS subtype	1	0_2	Pre-defined status
		1_2	Short data type identifier (User defined data-1 to 4)

6.3.3.9   Length of user defined data-4

The length of user defined data-4 information element shall indicate the length of the user defined data-4 in bit. The maximum length shall be 2 047 including the protocol identifier information element, refer to clause 14.8.52 of EN 300 392-2 [1].

6.3.3.9a   MSISDN present as external subscriber number

The MSISDN present as external subscriber number information element shall indicate whether or not the related information element external subscriber number corresponds to an MSISDN. It shall be coded as defined in table 6.

Table 6: MSISDN present as external subscriber number information element content

Information element	Length	Value	Remark
MSISDN present as external subscriber number	1	0	The related information element external subscriber number does not correspond to an MSISDN
		1	The related information element external subscriber number corresponds to an MSISDN

6.3.3.10   Number of digits in called party external subscriber number

The number of digits in called party external subscriber number information element shall indicate the length of the calling party external subscriber number in digits.

6.3.3.11   Number of digits in calling party external subscriber number

The number of digits in calling party external subscriber number information element shall indicate the length of the calling party external subscriber number in digits.

6.3.3.12   PDU type

The PDU type information element shall identify the type of TETRA PDU for ANF-ISISDS sent over the ISI in a PSS1 message. This information element shall be coded as defined in table 7.

Table 7: PDU type information element contents

Information element	Length	Value	Remark
PDU type	3	000_2	ISISDS-UNITDATA
		001_2	Reserved
		etc	etc
		111_2	Reserved

6.3.3.13　　　Pre-coded status

The pre-coded status information element shall be encoded as defined in clause 14.8.34 of EN 300 392-2 [1].

6.3.3.14　　　Security level at the calling user air interface

The Security level at calling user air interface information element shall be encoded as presented in table 8.

Table 8: Security level information element contents

Information element	Length	Value	Remark
Security level at the calling user air interface	2	00_2	No air interface encryption required
		01_2	Air interface encryption required 1
		10_2	Air interface encryption required 2
		11_2	Reserved

6.3.3.15　　　Selected area number

The selected area number information element shall be encoded as defined in clause 5.2.2.15 of EN 300 392-12-8 [6].

6.3.3.16　　　Short data type identifier

The short data type identifier information element shall be encoded as defined in clause 145.8.38 of EN 300 392-2 [1].

6.3.3.17　　　User defined data-1

The user defined data-1 information element shall be encoded as defined in clause 14.8.49 of EN 300 392-2 [1].

6.3.3.18　　　User defined data-2

The user defined data-2 information element shall be encoded as defined in clause 14.8.50 of EN 300 392-2 [1].

6.3.3.19　　　User defined data-3

The user defined data-3 information element shall be encoded as defined in clause 14.8.51 of EN 300 392-2 [1].

6.3.3.20　　　User defined data-4

The user defined data-4 information element shall be encoded as defined in clause 14.8.52 of EN 300 392-2 [1].

6.4　　　ROSE operation

ISISDS-UNITDATA PDU shall be transported using a call unrelated ROSE APDU as defined in EN 300 392-3-1 [3], clause 8.3.2.2 and set up as defined in EN 300 392-3-1 [3], clause 8.3.2.2.1 where no call independent signalling connection exists, or as defined in EN 300 392-3-1 [3], clause 8.3.2.2.2 where an independent signalling connection already exists.

The ISISDS-UNITDATA PDU described in table 3 shall be encoded into the TetraMessage element of the ROSE message as follows.

The source entity and destination entity shall be set to "anfIsisds" as defined in EN 300 392-3-1 [3].

Table 9: Encoding of ANF-ISISDS information element in a PSS1 FACILITY message

PSS1 FACILITY message			M/O/C
Protocol discriminator			M
Call reference			M
Message type			M
Facility information element			
Identifier			M
Length			M
Protocol profile (Networking Extensions)			M
Network Facility Extension (NFE)			M
Network Protocol Profile			-
Interpretation APDU			O
Service APDU: ROSE INVOKE			
Identifier			M
InvokeId			M
LinkedId			-
OperationValue			M
ARGUMENT: tetraIsiMessage			
SourceEntity		anfIsisds	
DestinationEntity		anfIsisds	
TetraMessage		M	
	ISISDS-UNITDATA PDU		M
END of TetraMessage			
Extension		O	
END of ARGUMENT			
END of Service APDU			
END of facility information element			
Notification Indicator		O	
END of PSS1 SETUP message			

NOTE 1:	The value put in the information element calling party number will be a PISN number in the range of numbers allocated to the originating SwMI.
NOTE 2:	The value put in the information element calling party number will be a PISN number in the range of numbers allocated to the called SwMI.

Annex A (normative):
Interaction with other TETRA supplementary services and ANFs

Interactions with other TETRA supplementary services and ANFs for which TETRA Standards were available at the time of publication of the present document are specified below. SDS is a connectionless service and that those supplementary services which apply to connection oriented only services shall not apply.

A.1 Calling Line Identification Presentation (SS-CLIP)

Not applicable. The calling party identity is an integral part of SDS.

A.2 Connected Line Identification Presentation (SS-COLP)

Not applicable. Not applicable to SDS as the service is connectionless.

A.3 Calling/Connected Line Identification Restriction (SS-CLIR)

Not applicable. Not applicable to SDS as the calling party identity is an integral part of SDS.

A.4 Connected Name Identification Presentation (SS-CONP)

Not applicable. Not applicable to SDS as the service is connectionless.

A.5 Completion of Calls of Busy Subscriber (SS-CCBS)

Not applicable.

A.6 Completion of Calls on No Reply (SS-CCNR)

Not applicable.

A.7 Call Forward Unconditional (SS-CFU)

Shall be activated upon definition. Shall apply to all ANF-ISISDS messages directing the message to the forwarded to address. The definition of CFU may invoke ANF-ISISDS.

A.8 Call Forwarding Busy (SS-CFB)

Not applicable.

A.9 Call Forwarding No Reply (SS-CFNR)

Not applicable.

A.10 Call Report (SS-CR)

Not applicable.

A.11 Talking Party Identification (SS-TPI)

Not applicable.

A.12 List Search Call (SS-LSC)

Not applicable.

A.13 Call Authorized by Dispatcher (SS-CAD)

Not applicable.

A.14 Short Number Addressing (SS-SNA)

Not applicable.

A.15 Area Selection (SS-AS)

Contained within source Primitive. May be used to qualify the invocation of ANF-ISISDS. Carried in the transferred PDU for interpretation by receiving SwMI.

A.16 Access Priority (SS-AP)

Not applicable.

A.17 Priority Call (SS-PC)

Not applicable.

A.18 Call Waiting (SS-CW)

Not applicable.

A.19 Call Hold (SS-HOLD)

Not applicable.

A.20 Late Entry (SS-LE)

Not applicable.

A.21 Transfer of Control (SS-TC)

Not applicable.

A.22 Pre-emptive Priority Call (SS-PPC)

Not applicable.

A.23 Include Call (SS-IC)

Not applicable.

A.24 Advice of Charge (SS-AoC)

Not applicable.

A.25 Barring of Outgoing Calls (SS-BOC)

Not applicable.

A.26 Barring of Incoming Calls (SS-BIC)

Not applicable.

A.27 Discreet Listening (SS-DL)

Not applicable.

A.28 Ambience Listening (SS-AL)

Not applicable.

A.29   Dynamic Group Number Assignment (SS-DGNA)

Not applicable.

A.30   Call Retention (SS-CRT)

Not applicable.

A.31   ISI Individual Call (ANF-ISIIC)

No interaction.

A.32   ISI group call (ANF-ISIGC)

No interaction.

A.33   ISI Mobility Management (ANF-ISIMM)

The mobility management shall allow SDS to be operated over ISI.

Annex B (informative):
Change Requests

The present version of the present document contains Change Requests as described in table B.1.

Table B.1: Change Requests

No	CR vers.	Standard Version	Clauses affected	Title	CR Status
001	APP	V1.1.1	4.5, 4.5.1, 6, 6.1, new clauses 6.2, 6.3 and 6.4	ANF-ISISD-UNITDATA PDU contents and information elements	EPT approved 030708
101	12	V1.2.1	2.1, 2.2, 4.5.1, 4.5.2, 6.3.2, 6.3.3.5a, 6.3.3.9a	ESN Number Type	WG3 approved 090703
102	10	V1.2.1	6.3.2	Called party address encoding	WG3 approved 090627
103	01	V1.2.1	4.5, 4.6, 5.1.1, 5.2.1, 6.4	Editorial modifications	For information

History

Document history		
V1.1.1	November 2000	Publication
V1.2.1	January 2004	Publication
V1.3.0	April 2010	One-step Approval Procedure OAP 20100731: 2010-04-02 to 2010-08-02
V1.3.1	August 2010	Publication