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Foreword

This final draft European Telecommunication Standard (ETS) has been produced by the Terrestrial Trunked Radio (TETRA) Project of the European Telecommunications Standards Institute (ETSI), and is now submitted for the Voting phase of the ETSI standards approval procedure.

This ETS is a multi-part standard and will consist of the following parts:

- Part 1: "General network design";
- Part 2: "Air Interface (AI)";
- Part 3: "Interworking at the Inter-System Interface (ISI)";
- Part 4: "Gateways basic operation";
- Part 5: "Peripheral Equipment Interface (PEI)";
- Part 6: "Line connected Station (LS)";
- Part 7: "Security";
- Part 9: "General requirements for supplementary services";
- Part 10: "Supplementary services stage 1";
- Part 11: "Supplementary services stage 2";**
- Part 12: "Supplementary services stage 3";
- Part 13: "SDL model of the Air Interface (AI)";
- Part 14: "Protocol Implementation Conformance Statement (PICS) proforma specification".

Proposed transposition dates	
Date of latest announcement of this ETS (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	6 months after doa

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1 Scope

This ETS specifies the stage 2 description of the Supplementary Service Talking Party Identification (SS-TPI) for the Terrestrial Trunked Radio (TETRA).

The SS-TPI supplementary service enables connected parties in a call to receive the identification of the talking party. The SS-TPI is activated against individual identity in individual call and against group identity in group calls. Man-Machine Interface and charging principles are outside the scope of this ETS.

Supplementary service specifications are produced in three stage according to the method defined in CCITT Recommendation I.130 [4]. The stage 2 description identifies the functional capabilities and the information flows needed to support the supplementary service as specified in its stage 1 description (see ETS 300 392-10-3 [2]). The stage 2 description is followed by the stage 3 description, which specifies the protocols at the air interface and at the various Inter-System Interfaces (ISI) to support the service.

2 References

This ETS incorporates by dated and undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] ETS 300 392-2: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 2: Air Interface (AI)".
- [2] ETS 300 392-10-3: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 10: Supplementary services stage 1; Sub-part 3: Talking party identification".
- [3] ETS 300 392-12-3: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 12: Supplementary Services stage 3; Sub-part 3: Talking Party Identification (TPI)".
- [4] CCITT Recommendation I.130 (1988): "Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN (Blue Book)".
- [5] ISO/IEC 11574: "Information technology - Telecommunications and information exchange between systems - Private Integrated Service Network - Circuit-mode 64 kbit/s bearer services - Service description, functional capabilities and information flows".
- [6] ETS 300 392-9: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 9: General requirements for supplementary services".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this ETS, the definitions given in ETS 300 392-9 [6] apply with the following modifications:

authorized user: identified user who is allowed to define, activate, deactivate and/or interrogate the infrastructure about the activation/deactivation state of the supplementary service and its' related parameters

served user: user for whom SS-TPI is invoked. That user will thus receive the SS-TPI information when he is the talking/sending party in a call

user B: talking/sending party in a call

NOTE: The qualifiers listening/receiving and talking/sending are used in the above definitions of SS-TPI as a reminder that this supplementary service applies to both speech and data services.

3.2 General abbreviations

For the purposes of this ETS, the following general abbreviations apply:

CC Basic Service Call Control functional entity
CCA Basic Service Call Control Agent functional entity

NOTE: CC and CCA are applied as defined in ISO/IEC 11574 [5].

FE Functional Entity
GTSI Group TETRA Subscriber Identity
ISI Inter-System Interface
ITSI Individual TETRA Subscriber Identity
LS Line Station
MS Mobile Station
SS Supplementary Service

NOTE: The abbreviation SS is only used when referring to a specific supplementary service.

SwMI Switching and Management Infrastructure

3.3 Supplementary service abbreviations

TPI Talking Party Identification

4 Functional model

4.1 Functional model description

The functional model shall comprise the following Functional Entities (FEs):

FE1 Served user functional entity;
FE21 Served user current SwMI FE;
FE22 Group controlling FE;
FE25 Affected user current SwMI FE;
FE2_{SS-CAD} SS-CAD controlling FE;
FE20 Managed user/group home SwMI FE;
FE3 Authorized user's functional entity.

NOTE: No FE is associated to the affected user since no SS-TPI specific procedures apply for that user.

The following relationships shall exist between these FEs:

- ra between FE1 and FE21 and between FE1 and FE22;
- rb between FE21 and FE25;
- rc between FE22 and FE25;
- rd between FE3 and FE20;
- re between FE21 and FE2_{SS-CAD};
- rf between FE2_{SS-CAD} and FE25.

Figures 1 and 2 show these FEs and relationships for the operational part of SS-TPI in the cases of individual call and group call respectively, and figure 3 for the management part of SS-TPI.

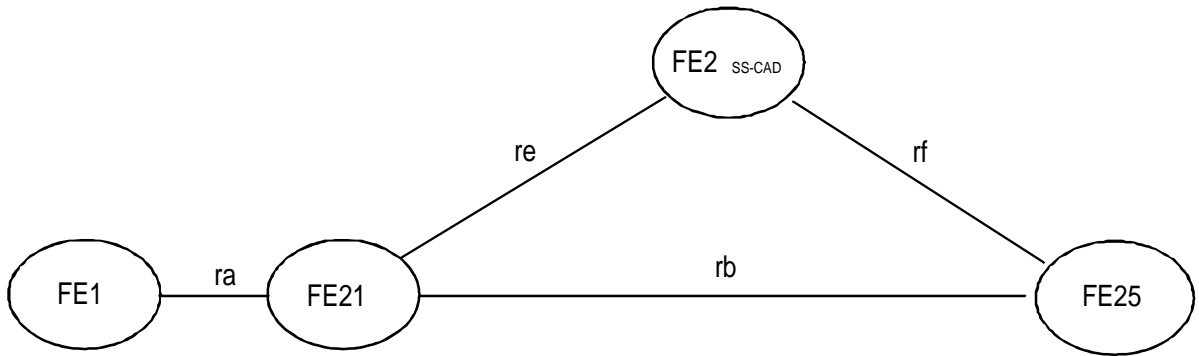


Figure 1: Functional model for the operational part of SS-TPI in the case of individual call

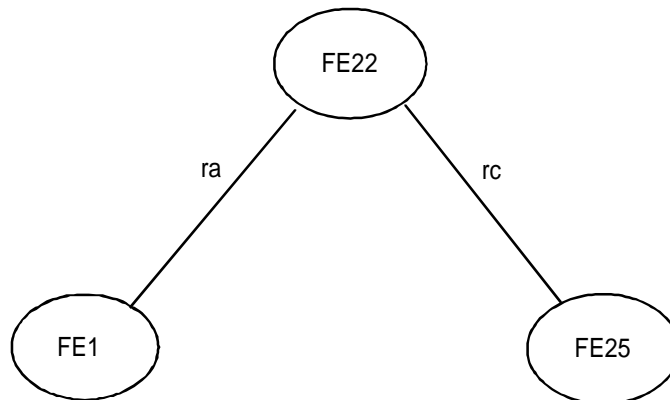


Figure 2: Functional model for the operational part of SS-TPI in the case of group call

NOTE: No FE2_{SS-CAD} has been shown in figure 2, because the interactions between SS-TPI and SS-CAD are either internal to the originating SWMI or to the group controlling SWMI, thus in any case outside the scope of SS-TPI standardization.

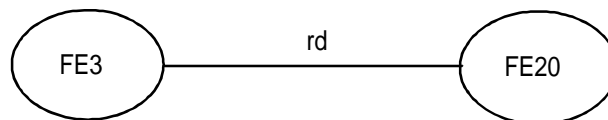


Figure 3: Functional model for the management part of SS-TPI

4.2 Description of functional entities

4.2.1 Served user functional entity, FE1

FE1 is the functional entity that serves the served user application. There shall be no management SS-TPI related function in FE1.

4.2.2 Served user current SwMI functional entity, FE21

When an individual call is being set-up, FE21 shall determine if SS-TPI is activated, and if so, the applicable subscription parameters (i.e. whether talking/sending party mnemonic name has to be delivered and/or the priority of each request for transmission grant sent by the talking/sending party). If SS-TPI has been activated and if the talking/sending party mnemonic name has to be delivered, FE21 shall then invoke SS-TPI in requesting FE25 to send the mnemonic name of the other user involved in the individual call (i.e. the affected user).

NOTE 1: This other user may or may not be granted transmission permission during the call. If yes, he will become the talking/sending user. If not, the served user will not receive any SS-TPI information during the call.

Similarly if SS-TPI has been activated and if the priority of each request for transmission grant from the talking/sending user has to be delivered, FE21 shall then invoke SS-TPI in requesting FE25 to send this priority every time the affected user requests transmission grant, when this information is not readily available through a basic call information flow.

NOTE 2: Since the priority of the request for transmission grant sent by the talking/sending party is delivered in ISI-TX DEMAND, sent from the terminating SwMI to the originating SwMI, FE21 will request FE25 to send this information only when the served user is the connected user.

Still for an individual call, FE21 shall store:

- the affected user identity received by the associated basic call functional entity at call set-up time (see note 3); and
- the affected user mnemonic name if FE21 has received it from FE25 (following its request).

NOTE 3: If the individual call is an intra-TETRA call, the affected user identity is readily available; if it is an inter-TETRA call, the affected user identity is sent as part of one of the ANF-ISIIC SETUP or COMPLETE information flows.

FE21 shall then operate SS-TPI in sending to FE1, either the information received from FE22 during a group call, or the SS-TPI information which it has stored at call set-up time for an individual call plus if it has to be delivered, the priority of each request for transmission grant from the affected user.

4.2.3 Group controlling functional entity, FE22

When establishing a group call, FE22 shall determine if SS-TPI is activated, and if so, the applicable subscription parameters. If SS-TPI has been activated FE22 shall then invoke SS-TPI. If the talking/sending party mnemonic name has to be delivered and if the calling user is not a member of the group and the calling user's FE25 has not already sent his mnemonic name together with the group call set-up request, FE22 shall request that FE25 to send the mnemonic name of that user, if available, when requesting transmission grant for him.

NOTE: According to the specification of group call, it is not possible for users not members of the group other than the calling user to become talking/sending parties in a group call.

FE22 shall then operate SS-TPI in delivering to FE1 the talking/sending party identity, that it shall supplement with the mnemonic name of this party and with the priority of its corresponding request for transmission grant, if these parameters have been subscribed to and are available.

4.2.4 Affected user current SwMI functional entity, FE25

In an individual call, when requested by FE21, FE25 shall send at call set-up time the mnemonic name of the affected user (i.e. the user who is not the served user) if available. Still if requested by FE21 and if in addition the served user is the connected user, FE25 shall send the priority of the request for transmission grant sent by that affected user (who will then become the talking/sending party).

In a group call, when requested by FE22 at call set-up time, the originating SwMI FE25 shall send the mnemonic name of the calling user the first time that user requests transmission permission. In addition, it should send it at call set-up time without prior request by FE22 when the calling user is not member of the group.

NOTE: There no need for FE25 to send the affected user identity, since either it is readily available in the case of an intra-TETRA call, or it is sent as part of one of the ANF-ISIIC or ANF-ISIGC information flows in the case of an inter-TETRA call.

Similarly in a group call there is no need for FE25 to send the priority of the request for transmission grant sent by the party who is to become the talking/sending party since that information is sent in the ANF-ISIGC TX DEMAND request/indication information flow.

4.2.5 SS-CAD diverting SwMI functional entity, FE2_{SS-CAD}

When an individual call is being set-up, when the call is diverted by SS-CAD and when the served user is the calling user, FE2_{SS-CAD} shall store the possible request from FE21 to FE25 to send the affected user mnemonic name. FE2_{SS-CAD} shall reissue it to FE25 when the dispatcher authorizes the call to continue (to the terminating SwMI with which FE25 is collocated).

NOTE: FE2_{SS-CAD} does not exist when the served user is the connected user.

4.2.6 Managed user/group home SwMI FE, FE20

If the optional activation/deactivation procedure is supported by the served user home SwMI, FE20 shall receive SS-TPI activation/deactivation requests from FE3 and check them. For those requests that FE20 finds authorized and correct, it shall carry out the corresponding activations/deactivations in the SwMI and shall confirm their completions to FE3. As to the others, FE20 shall reject them and inform FE3.

Similarly, if the optional definition procedure is supported by the affected user home SwMI, FE20 shall receive SS-TPI definition requests from FE3 and check them. For those requests that FE20 finds authorized and correct, it shall carry out the corresponding definitions in the SwMI and shall confirm their completions to FE3. As to the others, FE20 shall reject them and inform FE3.

Finally, if the optional interrogation procedure is supported by the affected user home SwMI, or by the served user home SwMI, FE20 shall receive SS-TPI interrogation requests from FE3 about availability or state of a SS-TPI service and check them. For those requests that FE20 finds authorized and correct, it shall prepare and send a response to the interrogation. As to the others, FE20 shall reject them and inform FE3.

NOTE: The SS-TPI managed user may be either the served user (e.g. for activating the supplementary service for this user), or the would be talking/sending user (e.g. for defining the supplementary service in giving a mnemonic name to that user, or changing this name).

As a result:

- interrogation requests for getting mnemonic names corresponding to identities are to be addressed to the home SwMIs of the would be talking/sending parties;
- the same applies for interrogation requests for getting identities corresponding to mnemonic names; while
- interrogation requests regarding activation are to be addressed to the home SwMIs of the served users.

4.2.7 Authorized user's functional entity, FE3

If the optional activation/deactivation and/or definition and/or interrogation procedures are supported by the authorized user MS/LS, FE3 shall send SS-TPI activation/deactivation, definition or interrogation requests to FE20. FE3 may perform local checks for the corresponding requests before sending them: it shall then send them only if it finds them valid. If FE3 rejects a request, it shall indicate it to the user application. When it receives the response from FE20, FE3 shall pass the result to the user application.

4.3 Relationship of functional model basic call functional model

Although no formal models have been defined for basic individual call nor for basic group call, those models can be readily derived from the PISN model for basic call, in ISO/IEC 11574 [5].

Being call unrelated, the activation/deactivation, definition and interrogation procedures are independent of CC or CCA.

FE1 shall be collocated with a CCA.

NOTE 1: This CCA may either be that of the calling user, or that:

- of the called user in an individual call; or
- of a participating user in a group call.

FE21 shall be collocated with the originating CC if the calling user is the/(each) served user (the served user in an individual call or a served user in a group call) with the terminating CC if the served user is the connected user in an individual call or with a terminating CC for the called users served by that terminating CC in a group call.

NOTE 2: There is one terminating CC within the group controlling SwMI, serving the group members registered in that SwMI, and one terminating CC per participating SwMI.

FE22 shall be collocated with the transit CC which is controlling the group call.

FE25 shall be collocated with the originating CC if the affected user is the calling user, with the terminating CC if the affected user is the called user in an individual call or with a terminating CC if the affected user is a called user in a group call.

When it exists, FE2_{SS-CAD} shall be collocated with a transit CC (i.e. when the call is diverted to a dispatcher).

Figure 4 shows the relationships between the model for SS-TPI in the case of group call and the model for the basic group call. Figures 5 and 6 show the relationships between the model for SS-TPI in the case of individual call and the model for the basic individual call, figure 5 in the absence of interaction with SS-CAD and figure 6, in the case of interaction with SS-CAD.

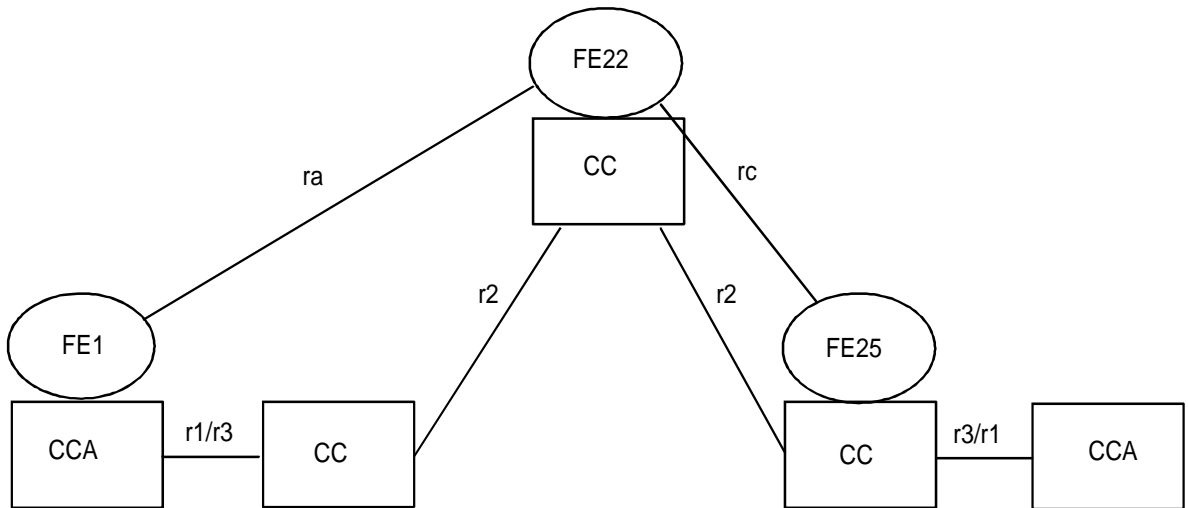


Figure 4: Relationship between models for SS-TPI and basic call in the case of group call

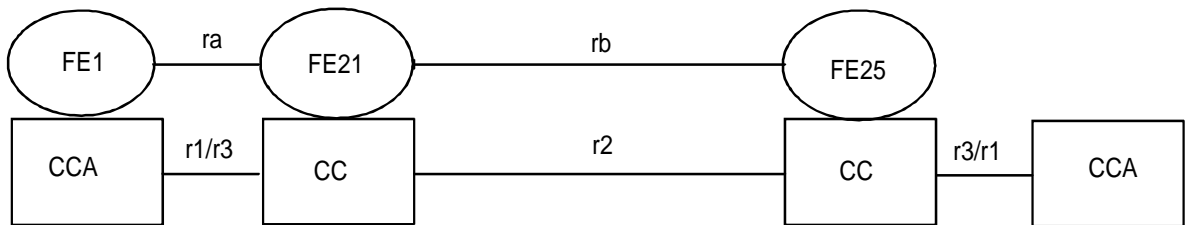


Figure 5: Relationship between models for SS-TPI and basic call in the case of individual call with no interaction with SS-CAD

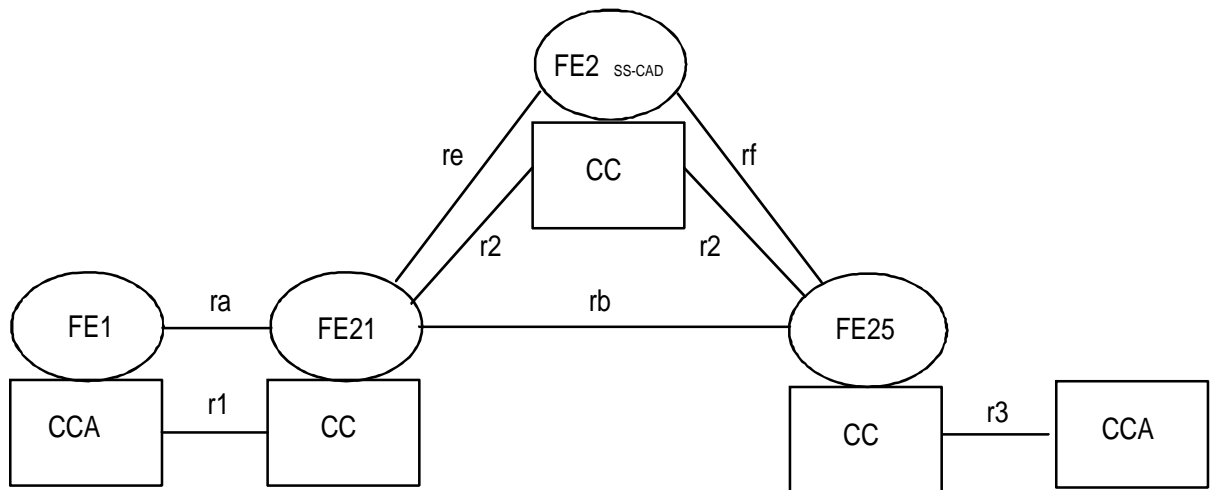


Figure 6: Relationship between models for SS-TPI and basic call in the case of individual call with interaction with SS-CAD

5 Information flows

5.1 Definition of information flows

In the tables listing the elements in information flows, the column headed "Type" indicates which of these elements are Mandatory (M), which are Optional (O) and which are Conditional (C).

5.1.1 ACTIVATE

ACTIVATE is an unconfirmed information flow across relationship rd from FE3 to FE20 which activates or deactivates SS-TPI for one or more identities (either GTSIs or ITSIs).

NOTE: The response/confirmation information flow corresponding to the ACTIVATE request/indication information flow is ACTIVATE ACK (see subclause 5.1.2).

Table 1 lists the elements within the ACTIVATE information flow.

Table 1: Contents of ACTIVATE

Element	Type
Activated/deactivated identity	M (note)
Activation/deactivation request	M
NOTE: May be repeated.	

The element activated/deactivated identity may include a GTSIs or an ITSIs.

The element activation/deactivation request, defined in subclause 5.2.2.5 of ETS 300 392-12-3 [3], indicates if SS-TPI is to be activated/deactivated for speech calls and/or for data calls, with or without mnemonic name.

5.1.2 ACTIVATE ACK

ACTIVATE ACK is actually the response/confirmation information flow corresponding to the ACTIVATE request/indication information flow. It is thus across relationship rd from FE20 to FE3. It is used to acknowledge the activation state of SS-TPI for one or more identities.

NOTE: The definition of how a given ACTIVATE ACK information flow relates to the corresponding ACTIVATE information flow is outside the scope of the stage 2 description.

Table 2 lists the elements within the ACTIVATE ACK information flow.

Table 2: Contents of ACTIVATE ACK

Element	Type
Activated/deactivated identity	M (note 1)
Activation/deactivation result	M (note 2)
Activation state	C (notes 2 and 3)
NOTE 1: May be repeated.	
NOTE 2: Shall be repeated as appropriate if the element activated/deactivated identity is repeated.	
NOTE 3: Present if activation/deactivation result is positive.	

The element activation/deactivation result, defined in subclause 5.2.2.6 of ETS 300 392-12-3 [3], indicates if the ACTIVATE information flow request/indication has been successful or not. If it has been successful, the element activation state, defined in subclause 5.2.2.7 of ETS 300 392-12-3 [3], gives the detail about SS-TPI activation/deactivation.

5.1.3 DEFINE

DEFINE is an unconfirmed information flow across relationship rd from FE3 to FE20 which defines mnemonic names of one or more individual identities.

NOTE 1: The response/confirmation information flow corresponding to the DEFINE request/indication information flow is DEFINE ACK (see subclause 5.1.4).

Table 3 lists the elements within the DEFINE information flow.

Table 3: Contents of DEFINE

Element	Type
Individual identity	M (note 1)
Mnemonic name	M (note 2)
NOTE 1: May be repeated.	
NOTE 2: Shall be repeated if the element individual identity is repeated.	

NOTE 2: The DEFINE request/indication information flow may not be used with the element identity being a group identity.

5.1.4 DEFINE ACK

DEFINE ACK is actually the response/confirmation information flow corresponding to the DEFINE request/indication information flow. It is thus across relationship rd from FE20 to FE3. This flow is used to inform FE3 about the completion of the corresponding definition request.

NOTE: The definition of how a given DEFINE ACK information flow relates to the corresponding DEFINE information flow is outside the scope of the stage 2 description.

Table 4 lists the elements within the DEFINE ACK information flow.

Table 4: Contents of DEFINE ACK

Element	Type
Individual identity	M (note 1)
Definition result	M (note 2)
Activation state	C (note 3)
NOTE 1: May be repeated.	
NOTE 2: Shall be repeated as appropriate if the element individual identity is repeated.	
NOTE 3: Conditional on the definition result being positive.	

The element definition result, defined in subclause 5.2.2.11 of ETS 300 392-12-3 [3], indicates if the DEFINE request/indication information flow has been successful or not. If it has been successful, the element activation state, defined in subclause 5.2.2.7 of ETS 300 392-12-3 [3], gives the detail about SS-TPI activation/deactivation.

5.1.5 INFORM

INFORM is an unconfirmed information flow across relationship ra from FE21 or FE22 to FE1 which delivers SS-TPI information to FE1.

Table 5 lists the elements within the INFORM information flow.

Table 5: Contents of INFORM

Element	Type
Talking party identity	O (note)
Talking party mnemonic name	O
TX demand priority	O
NOTE:	Shall be present except in the specific case where the served user at set-up time is the connected user of an individual call. In that specific case, two INFORM information flows may be sent, the second one being sent only to carry the mnemonic name of the talking/sending party (i.e. the calling party), if it is available and if SS-TPI is to be provided with the corresponding subscription parameter, i.e. with no element talking party identity being present.

The element TX demand priority, defined in subclause 5.2.2.24 of ETS 300 392-12-3 [3], indicates the urgency status that the subscriber may have added in its request to transmit.

5.1.6 INTERROGATE

INTERROGATE is an unconfirmed information flow across relationship rd from FE3 to FE20 which is used to interrogate the home SwMI of a user known by its identity about:

- the activation state of SS-TPI for this user;
- the mnemonic name of this user as a potential talking/sending user.

NOTE: The response/confirmation information flow corresponding to the INTERROGATE request/indication information flow is INTERROGATE ACK (see subclause 5.1.7).

Table 6 defines the content of the INTERROGATE information flow.

Table 6: Contents of INTERROGATE

Element	Type
Interrogated identity	M (note)
NOTE:	May be repeated.

5.1.7 INTERROGATE ACK

INTERROGATE ACK is actually the response/confirmation information flow corresponding to the INTERROGATE request/indication information flow. It is thus across relationship rd from FE20 to FE3. It is used to respond to the corresponding interrogation request.

NOTE: The definition of how a given INTERROGATE ACK information flow relates to the corresponding INTERROGATE information flow is outside the scope of the stage 2 description.

Table 7 lists the elements within the INTERROGATE ACK information flow.

Table 7: Contents of INTERROGATE ACK

Element	Type
Interrogated identity	M (note 1)
Interrogation result	M (note 2)
Activation state	C (notes 2 and 3)
Mnemonic name	C (notes 2 and 4)
NOTE 1:	May be repeated.
NOTE 2:	Shall be repeated as appropriate if the element interrogated identity is repeated.
NOTE 3:	Conditional on the interrogation result being positive.
NOTE 4:	May be absent even with an interrogation result positive.

NOTE: The reason why no mnemonic name may be given for a user in the INTERROGATE ACK response/confirmation information flow even with an interrogation result positive may be either because the interrogated SwMI does not support mnemonic names or simply because no mnemonic name has been given to that user.

5.1.8 INTERROGATE BY NAME

INTERROGATE BY NAME is an unconfirmed information flow across relationship rd from FE3 to FE20 which is used to interrogate the home SwMI of a user known by its mnemonic name about the identity of this user and the activation state of SS-TPI for this user.

NOTE: The response/confirmation information flow corresponding to the INTERROGATE BY NAME request/indication information flow is INTERROGATE BY NAME ACK (see subclause 5.1.9).

Table 8 defines the content of the INTERROGATE BY NAME information flow.

Table 8: Contents of INTERROGATE BY NAME

Element	Type
Interrogated mnemonic name	M (note)
NOTE:	May be repeated.

5.1.9 INTERROGATE BY NAME ACK

INTERROGATE BY NAME ACK is actually the response/confirmation information flow corresponding to the INTERROGATE BY NAME request/indication information flow. It is thus across relationship rd from FE20 to FE3. It is used to respond to the corresponding interrogation request.

NOTE: The definition of how a given INTERROGATE BY NAME ACK information flow relates to the corresponding INTERROGATE BY NAME information flow is outside the scope of the stage 2 description.

Table 9 lists the elements within the INTERROGATE BY NAME ACK information flow.

Table 9: Contents of INTERROGATE BY NAME ACK

Element	Type
Interrogated mnemonic name	M (note 1)
Interrogation result	M (note 2)
Identity	C (notes 2 and 3)
Activation state	C (notes 2 and 3)
NOTE 1: May be repeated.	
NOTE 2: Shall be repeated as appropriate if the element interrogated mnemonic name is repeated.	
NOTE 3: Conditional on the value of the element interrogation result.	

5.1.10 NAME

NAME is a confirmed information flow:

- across relationships rb, and re and rf, from FE21 to FE25, in the case of an individual call to request the mnemonic name of the user at the other end (i.e. the calling or the connected user);
- across relationship rc, from FE22 to FE25, in the case of a group call to request the mnemonic name of the calling user when such user is not a member of the group.

NOTE 1: According to the specification of group call, it is not possible for users not members of the group other than the calling user to become talking/sending parties in a group call.

The response indicates this mnemonic name, if available.

NOTE 2: The response/confirmation information flow corresponding to the NAME request/indication information flow is NAME ACK (see subclause 5.1.11).

The NAME information flow does not include any element.

5.1.11 NAME ACK

NAME ACK is actually the response/confirmation information flow corresponding to the NAME request/indication information flow: it is used to indicate the requested mnemonic name, if available. It is across relationship rb from FE25 to FE21 in the case of an individual call, and across relationship rc, from FE25 to FE22, in the case of a group call.

As a SwMI option, independent from the previous one, NAME ACK may also be an unconfirmed information flow across relationship rc from FE25 to FE22, i.e. with no NAME information flow sent before, when the calling user is not a member of the group. It is then sent together with the SETUP request/indication information flow.

Table 10 defines the contents of the NAME ACK information flow.

Table 10: Contents of NAME ACK

Element	Type
Mnemonic name	M (note)
NOTE: NAME ACK shall not be sent if the mnemonic name requested is not available, as well as if FE25 does not support this information flow.	

5.1.12 TX PRIORITY REQUEST

TX PRIORITY REQUEST is an unconfirmed information flow used across relationship rb from FE21 to FE25, (i.e. for individual call) when the served user is the connected user. It requests that the priority level of the request for transmission grant sent by the calling user application be relayed by FE25 to FE21 every time this request is granted during the (individual) call.

NOTE 1: The priority level of the request for transmission grant from a user is given by the element TX demand priority included of the basic call TX request/indication information flow.

NOTE 2: This flow does not exist for an individual call when the calling user is the served user nor for a group call, since it would be redundant with the ISI-TX DEMAND basic call flow, which being addressed to the controlling SwMI is thus sent across the same relationships as rb and rc.

The TX PRIORITY REQUEST information flow does not include any element.

5.1.13 TX DEMAND PRIORITY

TX DEMAND PRIORITY is an unconfirmed information flow used across relationships rb from FE25 to FE21, (i.e. for individual call) when FE25 has previously received TX PRIORITY REQUEST.

NOTE: Thus like TX PRIORITY REQUEST this flow exists only when the served user is the connected user.

This flow is sent every time the calling user application is granted permission to transmit, to relay the element TX demand priority included in this request.

The TX DEMAND PRIORITY information flow does not include any element.

5.1.14 Information flow elements

The element contents of the information flows are derived from the service primitives and operational and management requirements. Unless they are self-explanatory (e.g. individual identity in table 3), those elements have been given the same names as the corresponding PDU information elements defined in ETS 300 392-12-3 [3].

5.2 Relationship of information flows to basic call information flows

Table 11 shows the relationship of the SS-TPI information flows to those of the basic call, both over the air interface and Inter-System Interface (ISI).

Table 11: Relationship of SS-TPI information flows to basic call

Information flow	Independent of basic call?	With basic call?	Basic call flows:
ACTIVATE	yes	no	
ACTIVATE ACK	yes	no	
DEFINE	yes	no	
DEFINE ACK	yes	no	
INTERROGATE	yes	no	
INTERROGATE ACK	yes	no	
INTERROGATE BY NAME	yes	no	
INTERROGATE BY NAME ACK	yes	no	
INFORM	yes (note 12)	yes	D-SETUP (note 1) ANF-ISIGC-SETUP (note 1) D-CONNECT (note 2) ANF-ISIGC-CONNECT (note 2) D-CONNECT ACKNOWLEDGE (note 3) D-MODIFY (note 4) D-TX GRANTED ANF-ISIGC-TX GRANTED D-TX INTERRUPT ANF-ISIGC-TX INTERRUPT
NAME	no	yes	ANF-ISIIC-SETUP (note 5) ISI-CONNECT (note 6) ISI-THROUGH CONNECT(note 6)
NAME ACK	no	yes	ANF-ISIGC -SETUP (note 7) ANF-ISIIC-CONNECT (note 8) ANF-ISIIC-THROUGH CONNECT (note 8) ANF-ISIIC-CONNECT ACKNOWLEDGE (note 9) ANF-ISIIC-THROUGH CONNECT ACKNOWLEDGE (note 9) ISI-TX DEMAND (note 10)
TX PRIORITY REQUEST	no	yes	ANF-ISIIC-CONNECT (note 6) ANF-ISIIC-THROUGH CONNECT (note 6)
TX DEMAND PRIORITY	no	yes	ISI-TX GRANTED (note 11) ISI-TX INTERRUPT (note 11)
<p>NOTE 1: INFORM shall be sent together with the D-SETUP request/indication information flow when transmission permission is granted automatically at set-up time:</p> <ul style="list-style-type: none"> - to the calling user, in an individual call, the served user being then the called user. In such a case INFORM will not include the mnemonic name, since this iname will only be available later to FE21 (see note 3); - to the calling user or to another user, in a group call, the served users being then the called users. In such a case, INFORM shall include the mnemonic name if SS-TPI is to be provided with the subscription parameter delivery of the talking party mnemonic name, unless: <ul style="list-style-type: none"> - SS-CLIR has been invoked for the calling user; or - the calling user is not a member of the group and the NAME ACK request/indication information flow has not been sent together with the ISI-SETUP request/indication information flow from the originating SwMI to the group controlling SwMI (see note 7). <p>In the group call case described above, where INFORM will be sent together with the D-SETUP request/indication information flow, INFORM shall first be sent by the group controlling SwMI to the participating SwMI together with the corresponding ISI-SETUP request/indication information flow.</p>			
(continued)			

Table 11 (continued): The relationship between SS-TPI information flows and basic service information flows

Information flow	Independent of basic call?	With basic call?	Basic call flows:
NOTE 2:	INFORM shall be sent together with the D-CONNECT information flow when the served user is the calling user and when transmission permission has been automatically granted to the/(a) connected user in the SETUP request/indication information flow(s). This holds both for individual call and for group call. For the latter, INFORM shall first be sent by the group controlling SwMI to the originating SwMI together with the corresponding ISI-CONNECT information flow.		
NOTE 3:	If SS-TPI is to be provided with the subscription parameter delivery of the talking party mnemonic name, INFORM shall be sent together with the D-CONNECT ACKNOWLEDGE information flow to inform the served user about that name when: <ul style="list-style-type: none"> - the served user is the called user in an individual call; and - that name is available to FE21 (see note 9); and - transmission permission has been granted to the calling user (in the CONNECT information flow). 		
NOTE 4:	INFORM shall be sent together with the D-MODIFY information flow when: <ul style="list-style-type: none"> - the served user is the calling user; and - SS-CAD has been invoked for the call, with the call being diverted to a dispatcher; and - the dispatcher was the talking/sending party when he authorized the establishment of the call originally requested (in transferring its call with the calling user); and - the call established to the connected user has been modified compared to the call with the dispatcher when it ended. 		
NOTE 5:	If SS-TPI is to be provided with the subscription parameter delivery of the talking party mnemonic name, the NAME request/indication information flow shall be sent together with the ISI-SETUP request/indication information flow when the served user is the calling user in an individual call.		
NOTE 6:	If SS-TPI is to be provided with the subscription parameter delivery of the talking party mnemonic name, the NAME request/indication information flow shall be sent together with ISI-THROUGH CONNECT if the call has been diverted to a dispatcher as a result of SS-CAD operation, and with ISI-CONNECT otherwise: <ul style="list-style-type: none"> - in an individual call when the served user is the connected user; - in a group call, when the calling user is not a member of this group and the NAME ACK request/indication information flow has not been sent together with the ISI-SETUP request/indication information flow (see note 7). <p>Similarly, if SS-TPI is to be provided with the subscription parameter delivery of the TX demand priority sent by the talking party as part of its request for transmission grant, the TX PRIORITY REQUEST request/indication information flow shall be sent together with the ISI-CONNECT when the served user is the connected user in an individual call. This holds even if the call has been diverted to a dispatcher, as a result of a specific SS-CAD invocation or operation.</p>		
NOTE 7:	The NAME ACK request/indication information flow should be sent together with the ISI-SETUP request/indication information flow in the case of a group call from the originating SwMI to the group controlling SwMI when the calling user is not a member of this group. It is an unconfirmed information flow and not the NAME response/confirmation information flow because no corresponding NAME request/indication information flow can have possibly been sent at this stage.		
NOTE 8:	When the NAME request/indication information flow has been sent together with the ISI-SETUP request/indication information flow for an individual call, the NAME ACK request/indication information flow shall be sent together with: <ul style="list-style-type: none"> - ISI-THROUGH CONNECT if the call has been diverted to a dispatcher, as a result of a specific SS-CAD operation; - ISI-CONNECT otherwise. 		
NOTE 9:	In an individual call, the NAME ACK request/indication information flow shall be sent together with: <ul style="list-style-type: none"> - ISI-CONNECT ACKNOWLEDGE when the NAME request/indication information flow has been sent together with ISI-CONNECT; - ISI-THROUGH CONNECT ACKNOWLEDGE when the NAME request/indication information flow has been sent together with ISI-THROUGH CONNECT if the call has been diverted to a dispatcher, as a result of a specific SS-CAD operation. 		

(continued)

Table 11 (concluded): The relationship between SS-TPI information flows and basic service information flows

Information flow	Independent of basic call?	With basic call?	Basic call flows:
<p>NOTE 10: In a group call, NAME ACK shall be sent together with the ISI-TX DEMAND request/indication information flow sent following the first request for transmission grant made by the calling user:</p> <ul style="list-style-type: none"> - when that user is not a member of the group; and - when the NAME request/indication information flow has been sent together with the ISI-CONNECT request/indication information flow for this call; and - when NAME ACK has not already been sent together with ISI-SETUP request/indication information flow (see note 7 above). 			
<p>NOTE 11: When SS-TPI is to be provided with the subscription parameter delivery of the element TX demand priority and when the served user is the connected user in an individual call, TX DEMAND PRIORITY shall be sent to FE21 together with ISI TX-GRANTED or ISI-TX INTERRUPT. If the served user is the calling user, no TX DEMAND PRIORITY flow exists because it would be redundant with ISI-TX DEMAND, which includes the element TX demand priority. This holds even if the call has been diverted to a dispatcher, as a result of a specific SS-CAD invocation or operation.</p>			
<p>NOTE 12: INFORM shall be sent independently from any TETRA basic call information flow when:</p> <ul style="list-style-type: none"> - the served user is the calling user; and - SS-CAD has been invoked for the call, with the call being diverted to a dispatcher; and - the dispatcher was the talking/sending party when he authorized the establishment of the call originally requested (in transferring its call with the calling user); and - the call established to the connected user has not been modified compared to the call with the dispatcher when it ended. 			

NOTE: In table 11 the term ISI-CONNECT has been used to identify the ISI basic call information flow corresponding to either ISI SETUP response/confirmation or ISI-COMPLETE request/indication, depending on whether the call has been established using direct set-up signalling or on/off hook signalling. Similarly the term ISI-CONNECT ACKNOWLEDGE has been used to identify the ISI basic call information flow corresponding to either ISI-COMPLETE request/indication or ISI-COMPLETE response/confirmation, depending on whether the call has been established using direct set-up signalling or on/off hook signalling.

5.3 Service primitives

This subclause lists SS-TPI service primitives used to invoke or being a result of information flow sequences. The SS-TPI service primitives are defined in ETS 300 392-12-3 [3], subclause 5.4 and the basic call service primitives are defined in ETS 300 392-2 [1], clause 11.

The only SS-TPI service primitive for the served user (FE1) at the MS/LS TNSS-SAP shall be INFORM indication.

The SS-TPI service primitives for the authorized user (FE3) at the MS/LS TNSS-SAP shall be:

- ACTIVATE request;
- ACTIVATE ACK indication;
- DEFINE request;
- DEFINE ACK indication;
- INTERROGATE request;
- INTERROGATE ACK indication;
- INTERROGATE BY NAME request;
- INTERROGATE BY NAME ACK indication.

5.4 Examples of information flow sequences

ETS 300 392-12-3 [3], on SS-TPI stage 3 description, specifies the signalling procedures in support of the information flow sequences specified in the following subclauses. In addition, it specifies signalling procedures to cover other sequences arising from service specific error situations, interactions with basic call, interactions with other supplementary services, different topologies etc.

In the figures, SS-TPI information flows are represented by solid arrows and basic call information flows are represented by broken arrows. An ellipse embracing two information flows indicates that the two information flows occur together. Within a column representing an SS-TPI functional entity, the numbers refer to functional entity actions listed in clause 6.

5.4.1 Activation/deactivation

Figure 7 shows the information flow sequence of SS-TPI activation/deactivation.

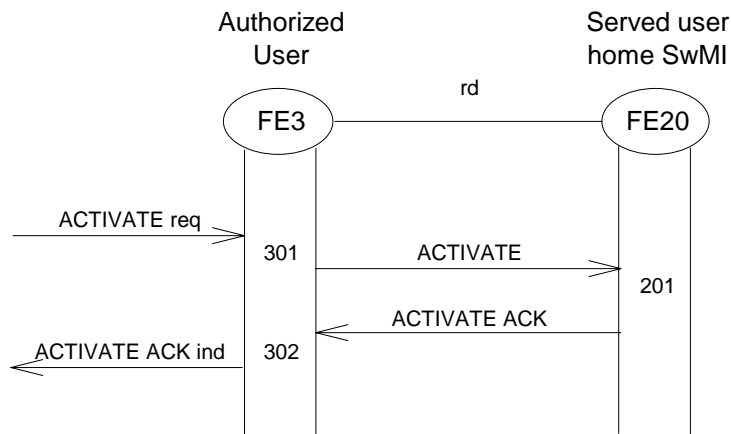


Figure 7: Activation of SS-TPI

5.4.2 Definition

Figure 8 shows the information flow sequence of SS-TPI definition.

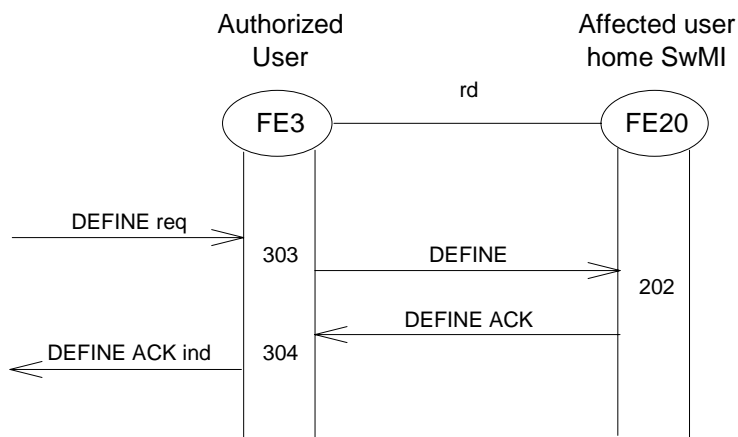
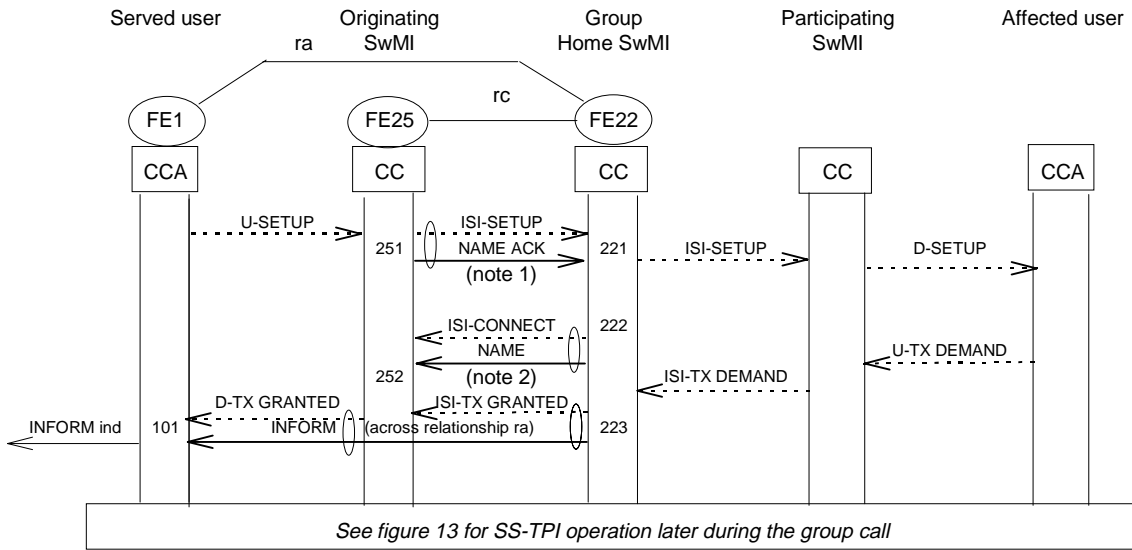


Figure 8: Definition of SS-TPI

5.4.3 Operation of SS-TPI in a group call

Figure 9 shows the information flow sequence of SS-TPI operation at call set-up time when the served user is the calling party of a group call and when an affected user has specifically requested transmission permission.



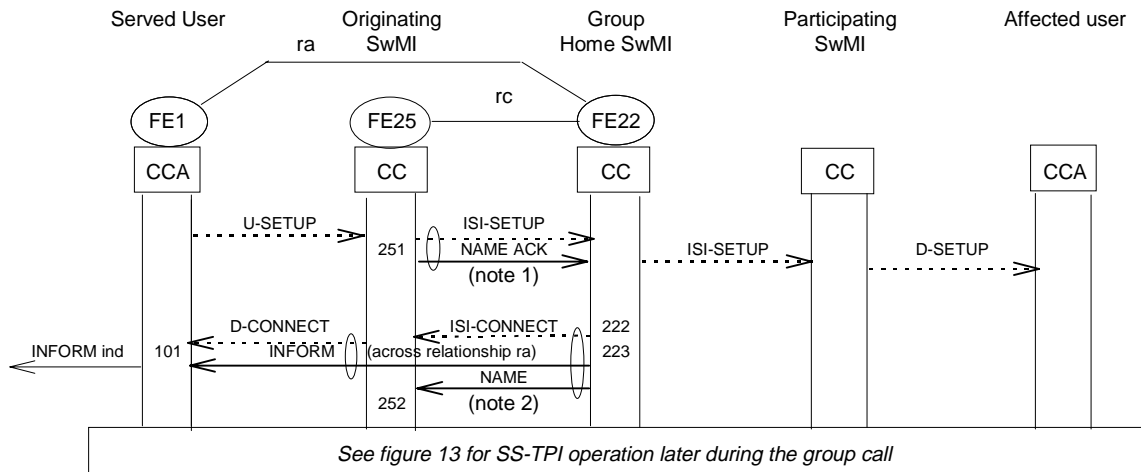
NOTE 1: The NAME ACK request/indication information flow should be sent together with the basic call ISI SETUP information flow only if the calling user is not a member of the group.

NOTE 2: The NAME request/indication information flow shall be sent together with ISI CONNECT (i.e. by FE22 to the originating SwMI FE25) only if:

- SS-TPI is to be provided with the subscription parameter delivery of the mnemonic name; and
- the calling user is not a member of the group; and
- NAME ACK has not already been sent (see note 1).

Figure 9: Operation of SS-TPI in a group call, with the served user being the calling user and an affected user having requested transmission permission

Figure 10 shows the information flow sequence of SS-TPI operation at call set-up time when a served user is the calling party of a group call and when an affected user has been granted transmission permission automatically.



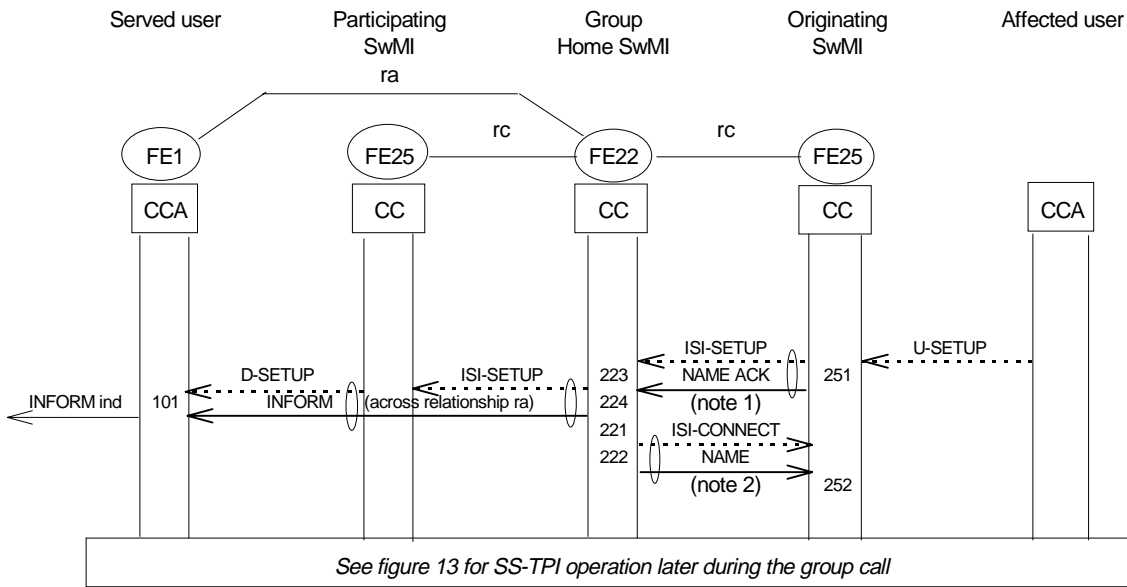
NOTE 1: The NAME ACK request/indication information flow should be sent together with the basic call ISI SETUP information flow only if the calling user is not a member of the group.

NOTE 2: The NAME request/indication information flow shall be sent together with ISI CONNECT (i.e. by FE22 to the originating SwMI FE25) only if:

- SS-TPI is to be provided with the subscription parameter delivery of the mnemonic name; and
- the calling user is not a member of the group; and
- NAME ACK has not already been sent (see note 1).

Figure 10: Operation of SS-TPI in a group call, with the served user being the calling user and an affected user having been granted transmission permission automatically

Figure 11 shows the information flow sequence of SS-TPI operation at call set-up time when the served user is a participating user in a group call and when the calling user has been granted transmission permission.



NOTE 1: The NAME ACK request/indication information flow should be sent together with the basic call ISI SETUP information flow only if the calling user is not a member of the group.

NOTE 2: The NAME request/indication information flow shall be sent together with ISI CONNECT (i.e. by FE22 to the originating SwMI FE25) only if:

- SS-TPI is to be provided with the subscription parameter delivery of the mnemonic name; and
- the calling user is not a member of the group; and
- NAME ACK request/indication has not been already sent (see note 1).

Figure 11: Operation of SS-TPI in a group call, with the calling user having been granted transmission permission at call set-up time and the served user being another user

Figure 12 shows the information flow sequence of SS-TPI operation at group call set-up time when the served user and the talking/sending user are different from the calling user, the calling user having been granted transmission permission automatically.

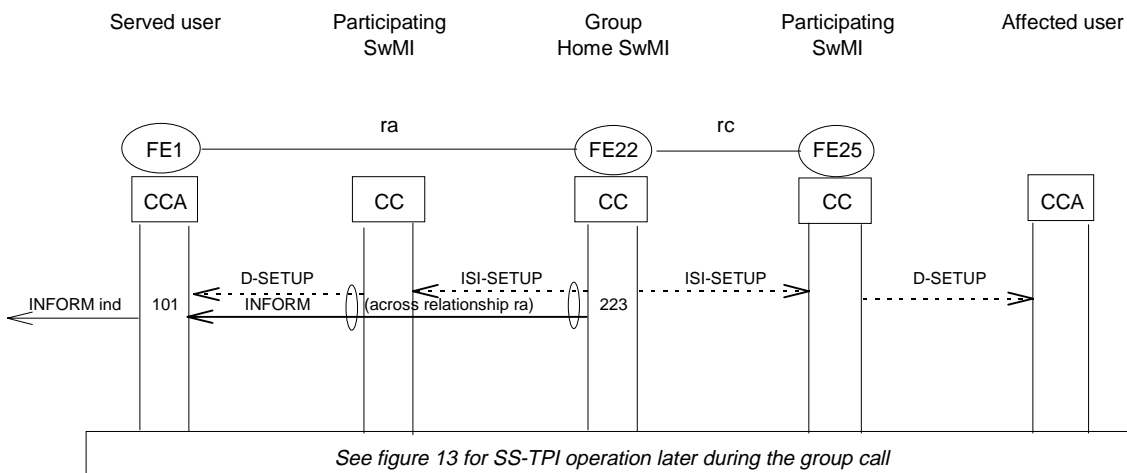
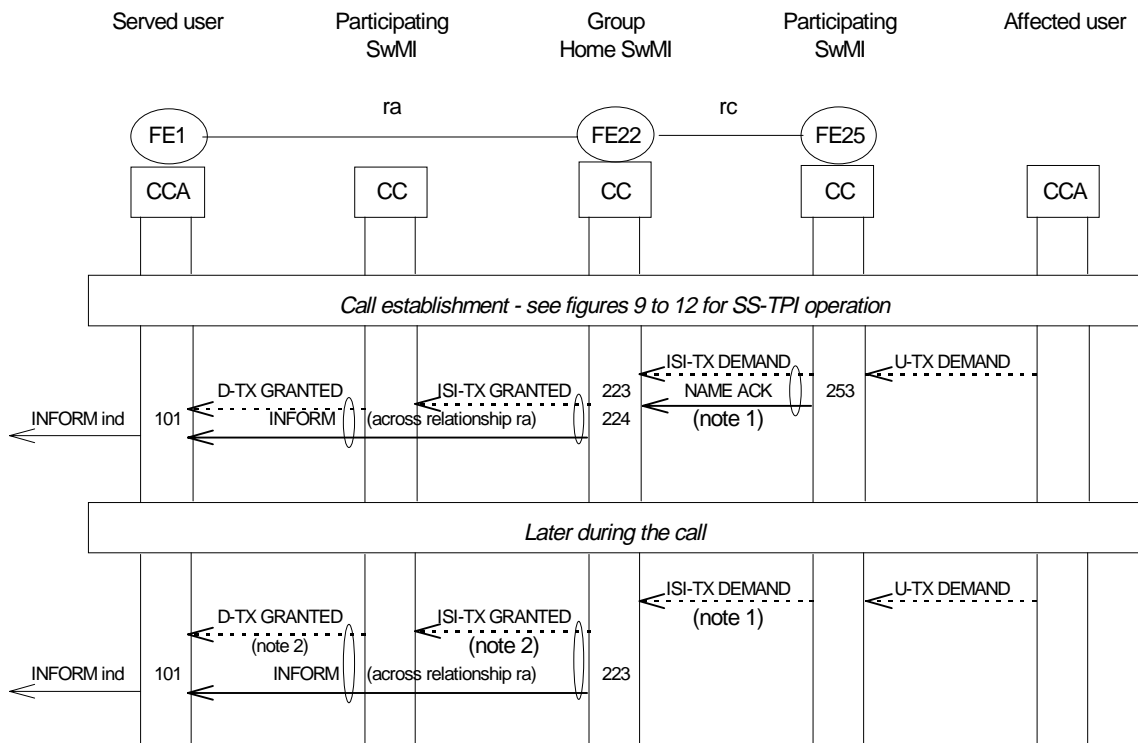


Figure 12: Operation of SS-TPI in a group call, with the served users and the talking/sending user different from the calling user at call set-up time

Figure 13 shows the information flow sequence of SS-TPI operation at call set-up time when the served user during a group call.



- NOTE 1: NAME ACK is sent for the affected user only if:
- that user is the calling user (i.e. the participating SwMI where FE25 is shown is the originating SwMI) and is not a member of the group; and
 - it has not already been sent (see figures 9 to 11); and
 - FE22 has sent the NAME request/indication information flow at the beginning of the call (again see figures 9 to 11).
- NOTE 2: TX INTERRUPT information flows may be sent instead of TX GRANTED ones (see subclause 14.5.2.2 of ETS 300 392-2 [1]).

Figure 13: Operation of SS-TPI during a group call

NOTE: There is no need to for FE25 to send the identity of the party who is requesting transmission permission since this identity is systematically included in the basic call ISI-TX DEMAND information flow in the case of a group call.

5.4.4 SS-TPI operation in an individual call

Figure 14 shows the information flow sequence of SS-TPI operation when the served user is the calling party of an individual call with transmission permission granted to the connected user at set-up time.

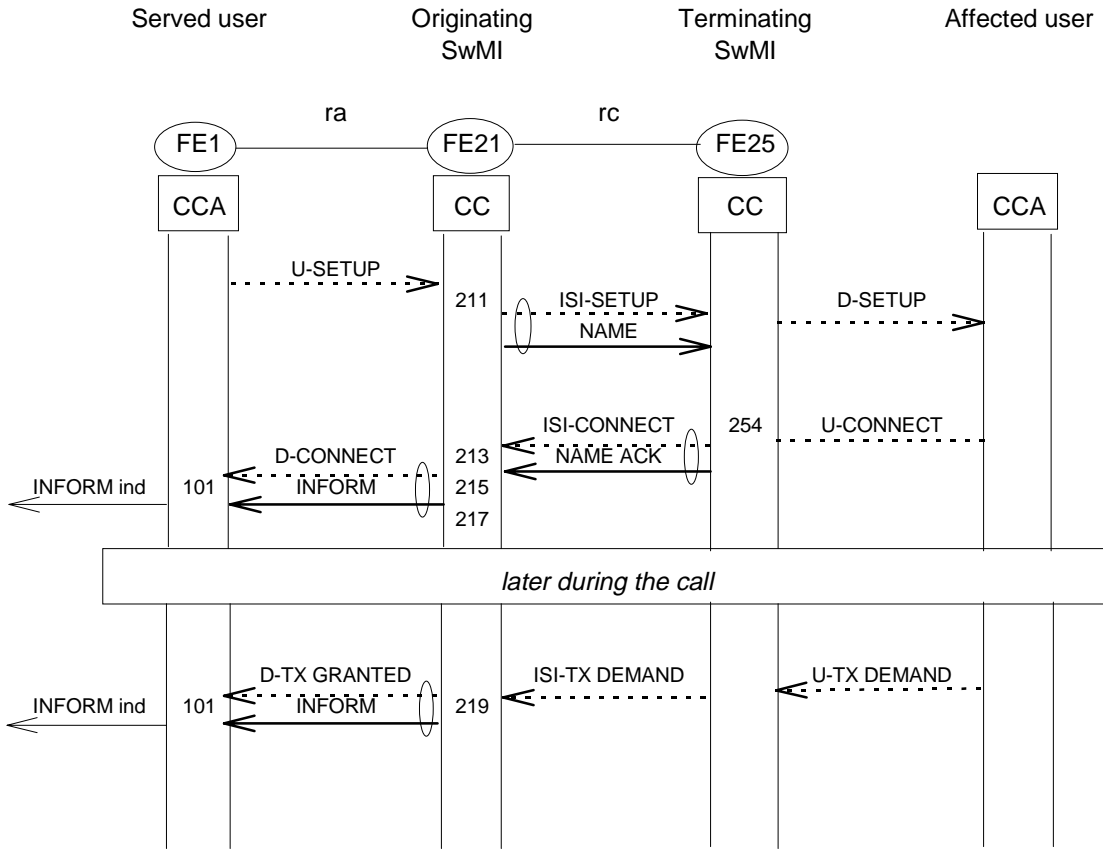
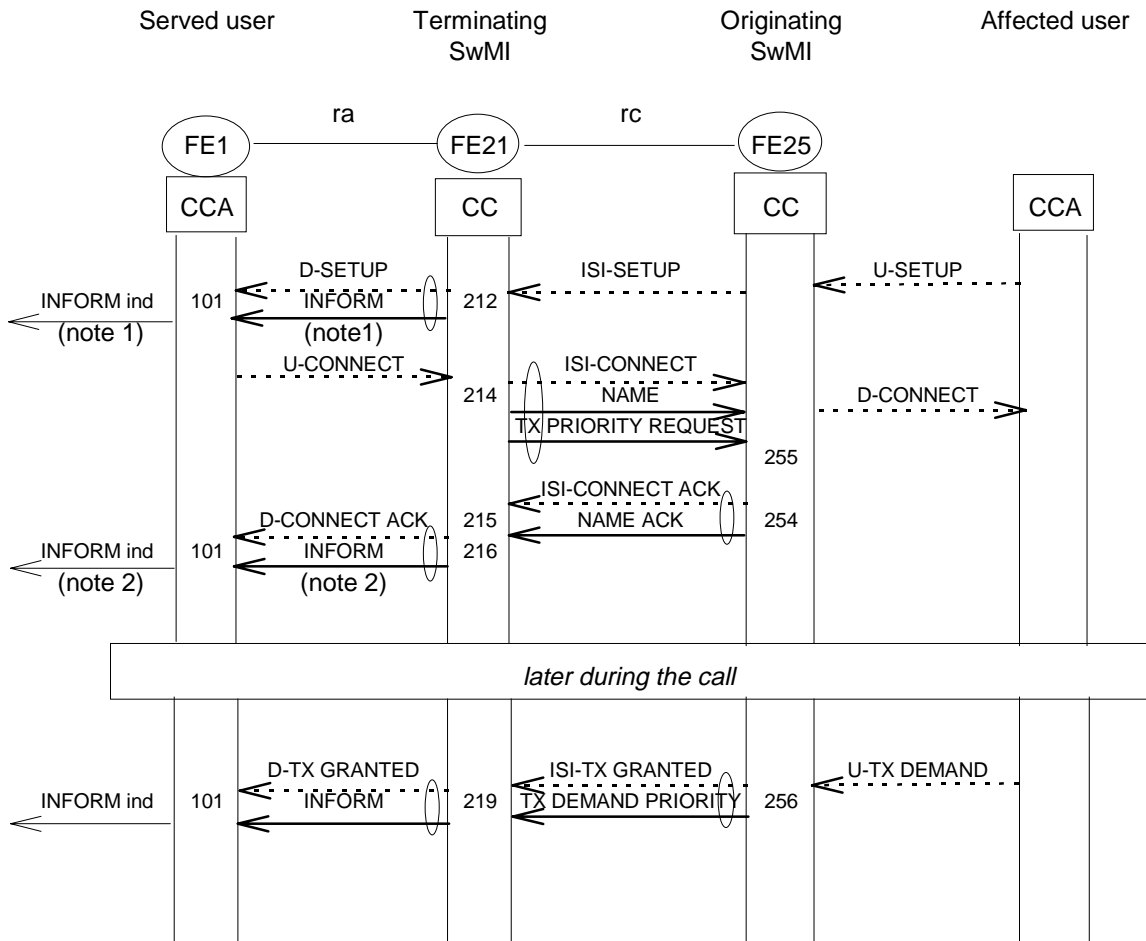


Figure 14: Operation of SS-TPI in an individual call, with the served user being the calling user

Figure 15 shows the information flow sequence of SS-TPI operation when the served user is the connected user in an individual call with transmission permission granted to the calling user at set-up time.



NOTE 1: The first INFORM request/indication information flow shown carries only the identity of the talking/sending party (i.e. the calling party), with possibly an information about the priority level of the transmission grant at set-up time to the calling party (see specific comments on this issue in subclauses 5.2.1.5 and 5.2.1.6 of ETS 300 392-12-3 [3]).

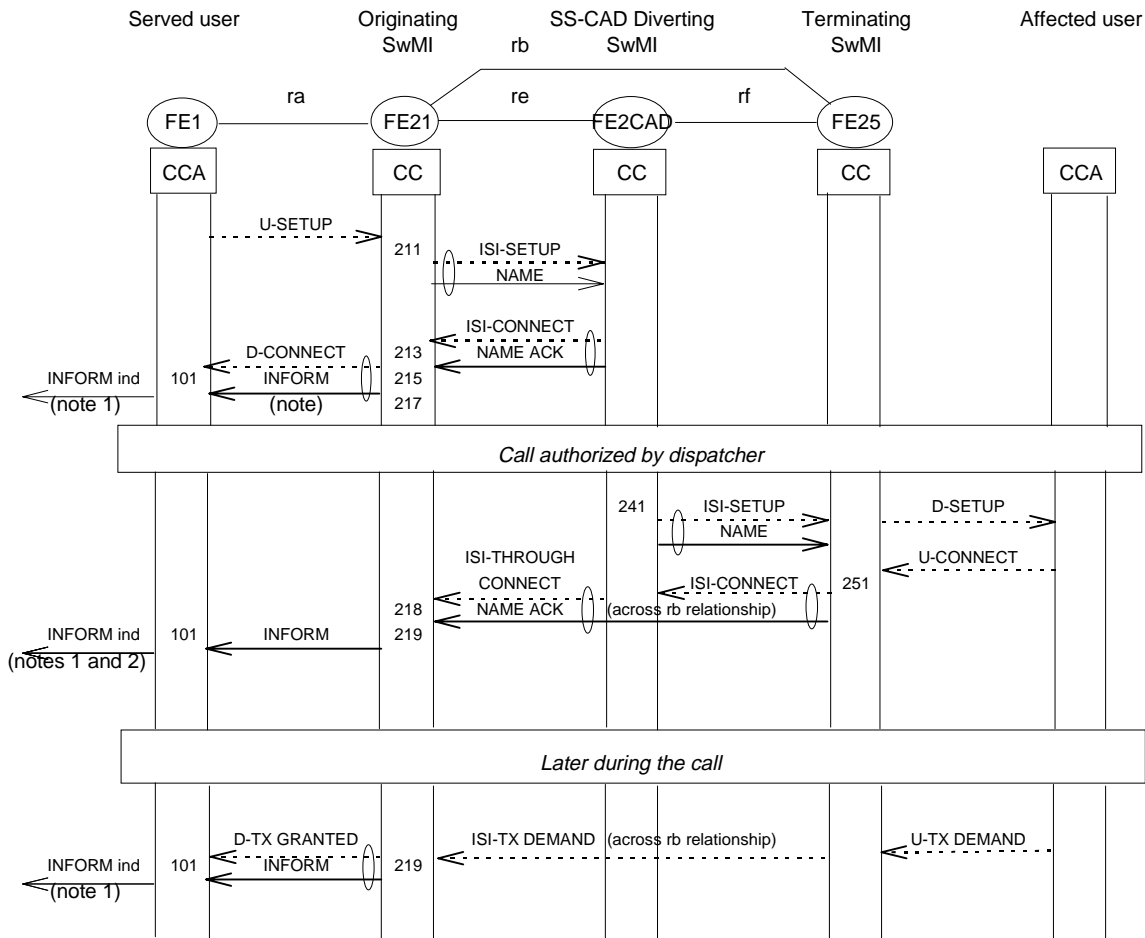
NOTE 2: The second INFORM request/indication information flow shown is complementary to the first one shown. It is sent only if the affected user mnemonic name has itself been sent by the terminating SwMI (in NAME ACK information flow).

Figure 15: Operation of SS-TPI in an individual call, with the served user being the connected user

NOTE: In both figures 14 and 15, D-TX INTERRUPT may be sent instead of D-TX GRANTED.

5.4.5 SS-TPI operation in the case of SS-CAD diverted call

Figure 16 shows the information flow sequence of SS-TPI operation when the served user is the calling party in an individual call, with transmission permission granted first to the dispatcher at set-up time and later to the connected user when the call with that user is set-up.



NOTE 1: The first INFORM request/indication information flow shown carries SS-TPI information related to the dispatcher. The other INFORM request/indication information flows shown carry SS-TPI information related to the connected user.

NOTE 2: That INFORM request/indication information flow shall exist only when the dispatcher was the talking/sending user the dispatcher was the talking/sending party when he authorized the establishment of the call originally requested (in transferring its call with the calling user) - since according to the specification of SS-CAD, the calling user remains the listening/receiving user when the call is established with the connected user.

Figure 16: Operation of SS-TPI in an individual call diverted by SS-CAD, with the served user being the calling user

NOTE 1: For the sake of simplicity, the dispatcher FE25 has not been shown on figure 16. Instead the hypothesis has been made in drawing the ISI-CONNECT and NAME ACK information flows shown on figure 16 that the dispatcher FE25 coincides with FE2_{SS-CAD} (i.e. the dispatcher is registered in the SS-CAD diverting SwMI). The dispatcher FE25 action (254) has not been indicated under FE2_{SS-CAD}.

NOTE 2: In figure 16, D-TX INTERRUPT may be sent instead of D-TX GRANTED.

5.4.6 Interrogation about name and activation, using identity

Figure 17 shows the information flow sequence for normal operation of SS-TPI interrogation about name and activation, using identity.

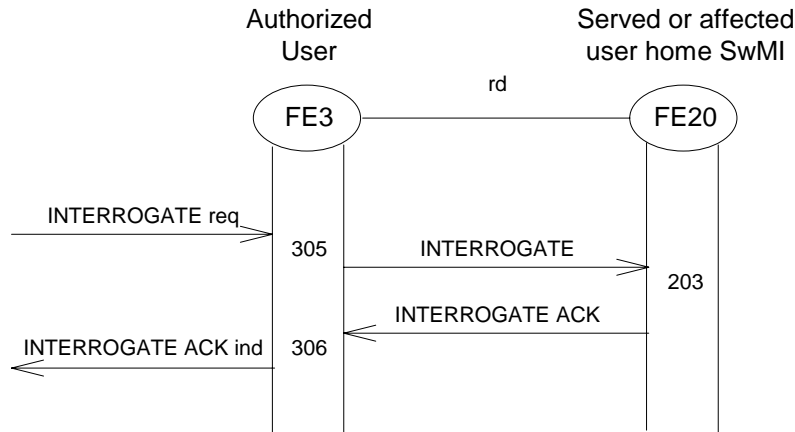


Figure 17: Interrogation of SS-TPI using identity

5.4.7 Interrogation about identity and activation, using name

Figure 17 shows the information flow sequence for normal operation of SS-TPI interrogation about identity and activation, using name.

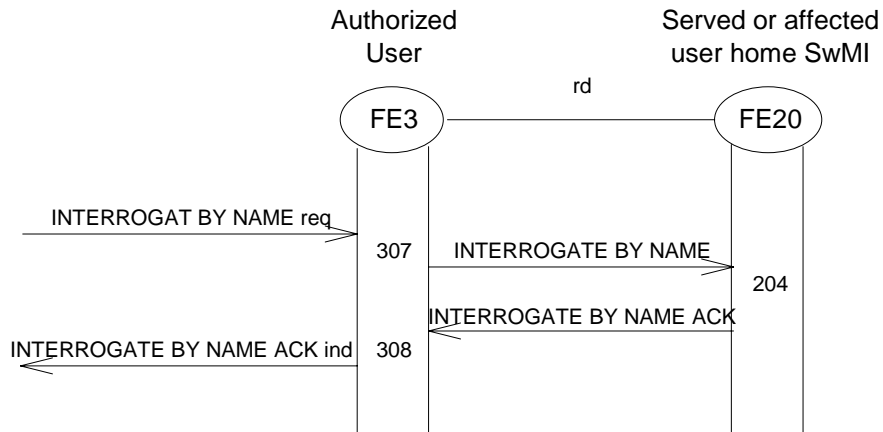


Figure 18: Interrogation of SS-TPI using name

6 Functional entity actions

These functional entity actions cover items presented in the previous scenarios. There may be other actions due to exceptional cases.

6.1 Functional Entity actions of FE1

101 Receive the SS-TPI information and delivers it to the user application.

NOTE: In the case where the connected user of an individual call is the served user and where transmission permission is granted at set-up time to the calling user, that information will be sent in two steps: first the identity of the talking/sending party (i.e. the calling party), with possibly an information about the priority level of this transmission grant (see specific comments on this issue in subclauses 5.2.1.5 of ETS 300 392-12-3 [3]), is included in the D-SETUP PDU, next the mnemonic name is included, if available, in the D-CONNECT ACKNOWLEDGE PDU.

6.2 Functional Entity actions of FE20

- 201 On receipt of ACTIVATE, verify that the request is allowed. If the request is allowed and its parameters are valid, activate the SS-TPI and send the ACTIVATE ACK information flow to FE3. If the request is not valid or authorized, return an error indication to FE3.
- 202 On receipt of DEFINE request/indication information flow, verify the identity/identities and the authorization for the request. If the definition is acceptable, make the SS-TPI definition to the SwMI and send the DEFINE ACK information flow to FE3. If the request is not valid or authorized, return an error indication to FE3.
- 203 On receipt of INTERROGATE request/indication information flow, verify that the request is allowed and its parameters are valid. If the request is valid, fetch the SS-TPI data and send it in the INTERROGATE ACK information flow to FE3. If the request is not valid or authorized, return an error indication to FE3.
- 204 On receipt of INTERROGATE NAME, verify that the request is allowed and its parameters are valid. If the request valid, fetch the SS-TPI data and send them in INTERROGATE NAME ACK information flow to FE3. If the request is not valid or authorized, return an error indication to FE3.

6.3 Functional entity actions of FE21

- 211 On receipt of the SETUP request/indication information flow, check if SS-TPI has been activated for the calling user. If yes, invoke SS-TPI for that user, in determining if this supplementary service is to be provided with the subscription parameter delivery of the talking/sending party mnemonic name. If so, request the name of the other party from FE25 in sending the NAME request/indication information flow.
- 212 On receipt of the SETUP request/indication information flow, check if SS-TPI has been activated for the connected user. If yes:
- invoke SS-TPI for that user;
 - fetch and store the calling user identity received in the SETUP request/indication information flow;
 - if transmission has been granted to the calling user, or if the call is duplex, send to FE1 the INFORM request/indication information flow. This flow shall include the calling user identity.
- 213 If the calling user is the served user, fetch and store the connected user identity in the ISI-CONNECT basic call information flow.
- 214 If the connected user is the served user, determine if SS-TPI is to be provided with the subscription parameter delivery of the talking/sending party mnemonic name. If so, request the name of the other party from FE25 in sending the NAME request/indication information flow. Determine also if SS-TPI is to be provided with the subscription parameter delivery of the TX demand priority included in every request for transmission grant sent by the talking/sending party. If so, and if the served user is the connected user, request that FE21 be informed about this TX demand priority for every transmission grant in sending the TX PRIORITY REQUEST request/indication information flow (together with ISI-CONNECT).
- 215 Store the mnemonic name of the other party sent by FE25 in NAME ACK.
- 216 If the served user is the connected user and if transmission has been granted to the calling user, or if the call is duplex, send to FE1 the mnemonic name, if available, in a second INFORM request/indication information flow.
- 217 If the served user is the calling user and if transmission has been granted to the connected user, or if the call is duplex, send to FE1 the connected user identity and its mnemonic name, if available, in the INFORM request/indication information flow.
- 218 If the served user is the calling user and if the call has been diverted to a dispatcher (i.e. specific interaction with SS-CAD), supersede the connected party identity sent by the dispatcher with that received in ISI-CONNECT and possibly the mnemonic name sent by the dispatcher with that received in NAME ACK request/indication information flow, sent by FE25.

- 219 Send to FE1 the INFORM request/indication information flow (containing SS-TPI information, i.e. the other party identity, plus if SS-TPI is to be provided with the corresponding subscription parameters, the mnemonic name of that other party, if available, and/or the element TX demand priority) every time the other party is granted transmission permission.
If the served user is the calling user, if the call has been diverted to a dispatcher (i.e. specific interaction with SS-CAD), and if the dispatcher was the talking/sending party when he authorized the establishment of the call originally requested (in transferring its call with the calling user) send to FE1 the INFORM request/indication information flow containing SS-TPI information related to the connected user.

NOTE: All FE21 actions defined above relate only to individual call, since FE21 does not exist in the case of group call.

6.4 Functional entity actions of FE22

- 221 If SS-TPI has been activated and if it is to be provided with the subscription parameter delivery of the talking/sending party mnemonic name, store the calling user name if the NAME ACK request/indication information flow is received together the SETUP request/indication information flow.
- 222 If SS-TPI is to be provided with the subscription parameter delivery of the talking/sending party mnemonic name and if the calling user is not a member of the group, send the NAME request/indication information flow together with ISI-CONNECT.
- 223 Send to FE1 the INFORM request/indication information flow (containing SS-TPI information, i.e. the talking/sending party identity, plus if SS-TPI is to be provided with the corresponding subscription parameters, the mnemonic name of this other party, if available, and/or the element TX demand priority) every time the other party is granted transmission permission.
- 224 Store the mnemonic names received in each NAME ACK (for the originating user or participating users not members of the group).

6.5 Functional entity actions of FE25

- 251 When requesting the establishment of a group call in sending the ISI-SETUP request/indication information flow, possibly send NAME ACK information flow (containing the mnemonic name of the calling party) together with the former information flow (i.e. without a previous NAME request/indication information flow) if the calling party is not a member of the group.
- 252 When the NAME request/indication information flow is received (together with ISI-CONNECT) during a group call, store the corresponding request.
- 253 During a group call, after the NAME request/indication information flow has been received, send NAME ACK in the first (basic call) request for transmission grant originating from the calling user (since this user is not a member of the group).
- 254 During an individual call, on receipt of the NAME request/indication information flow, fetch the mnemonic name of the corresponding party (i.e. connected party if the served user is the calling party, or calling party if the served user is the connected party), and send it to FE21 in NAME ACK information flow.
- 255 During an individual call, if the TX PRIORITY REQUEST request/indication information flow is received is received together ISI-CONNECT, store the corresponding request.
- 256 During an individual call, if the TX PRIORITY REQUEST request/indication information flow has been received, send TX DEMAND PRIORITY every time transmission is granted to the talking/sending party.

6.6 Functional entity actions of FE2_{SS-CAD}

- 240 If FE2_{SS-CAD} has received the NAME request/indication information flow from FE1, relay this flow to FE25.

6.7 Functional Entity actions of FE3

- 301 Detect the user application request for activation and send to FE20 the corresponding ACTIVATE request/indication information flow.
- 302 Deliver to the user application the information received in ACTIVATE ACK.
- 303 Detect the user application request for defining a SS-TPI definition and send to FE20 the corresponding DEFINE request/indication information flow.
- 304 Deliver to the user application the information received in DEFINE ACK.

- 305 Detect the user application request for interrogation based on identity/identities and send to FE20 the corresponding INTERROGATE request/indication information flow.
- 306 Deliver to the user application the information received in INTERROGATE ACK.
- 307 Detect the user application request for interrogation based on name/names and send to FE20 the corresponding INTERROGATE BY NAME request/indication information flow.
- 308 Deliver to the user application the information received in INTERROGATE BY NAME ACK.

7 Allocation of functional entities to physical equipment

The possible scenarios for the allocation of functional entities to SwMIs and MS/LSs are shown in the following tables:

- table 12 for the case of individual call;
- table 13 for the case of group call;
- table 14 for the management of SS-TPI.

Table 12: Scenarios for the allocation of FEs to physical equipment/SwMIs in the case of individual call

	FE1	FE21	FE2 _{SS-CAD}	FE25
Scenario 1	MS/LS	Originating SwMI	-	Terminating SwMI
Scenario 2	MS/LS	Originating SwMI	-	PSTN/ISDN/PISN Gateway
Scenario 3	MS/LS	Terminating SwMI	-	Originating SwMI
Scenario 4	MS/LS	Terminating SwMI	-	PSTN/ISDN/PISN Gateway
Scenario 5	MS/LS	Originating SwMI	Called user home SwMI	Terminating SwMI
Scenario 6	MS/LS	Originating SwMI	Called user home SwMI	PSTN/ISDN/PISN Gateway

Table 13: Scenarios for the allocation of FEs to physical equipment/SwMIs in the case of group call

	FE1	FE22	FE25
Scenario 1	MS/LS	Group home SwMI	Originating SwMI
Scenario 2	MS/LS	Group home SwMI	PSTN/ISDN/PISN Gateway

Table 14: Scenarios for the allocation of FEs to physical equipment/SwMIs in the case of management

	FE3	FE20
Scenario 1	MS/LS	Home SwMI of managed user (note 1)
Scenario 2	Home SwMI of managed user (note 2)	Home SwMI of managed user (note 1)
NOTE 1:	Depending on the management procedure (i.e. activation, definition or interrogation), the user may be the user who has been provided with SS-TPI (i.e. the served user) or the would be talking/sending user (i.e. the affected user when in a call).	
NOTE 2:	This scenario is outside the scope of SS-TPI standardization.	

8 Interworking considerations

The case where SS-TPI extends to several TETRA networks has already been taken into account in the preceding clauses, except for the exchange of supplementary service profile information when a subscriber migrates into a SwMI different from his home SwMI. Such exchange is ensured by SS-ISI-PROFILE and SS-ISI-PROFILE ACK information flows, containing specific elements for each supplementary service.

Table 15 lists the SS-TPI elements in the SS-ISI-PROFILE information flow.

Table 15: SS-TPI elements in SS-ISI-PROFILE

Element	Type
Activation state	M
SS-CLIR activated	M
Mnemonic name	O

Table 16 lists the SS-TPI elements in the SS-ISI-PROFILE ACK information flow.

Table 16: SS-TPI elements in SS-ISI-PROFILE ACK

Element	Type
SS-TPI supported	M (note 1)
Activation state	C (note 2)
SS-CLIR supported	O (note 3)
Support of FE25 mnemonic name sending	O (note 4)
NOTE 1:	The support of SS-TPI FE21 functional entity shall imply the support of SS-CLIR for the non presentation of the identity of the distant party for which SS-CLIR has been invoked.
NOTE 2:	The activation state element shall be conditional on SS-TPI being supported by the visited SwMI. Its contents shall then be that of the corresponding SS-ISI-PROFILE modified to take into account the options not supported by the visited SwMI.
NOTE 3:	The element SS-CLIR supported shall be present when SS-CLIR has been activated for the migrating subscriber, as indicated by the value of the element SS-CLIR activated in the corresponding SS-ISI-PROFILE.
NOTE 4:	The element support of FE25 mnemonic name sending shall be present when the element mnemonic name has been included in the corresponding SS-ISI-PROFILE.

As to the case of interworking with PSTN, ISDN or PISN, it is limited to the case where the served user is a TETRA user, i.e. the only party who may be external is the talking/sending party, assuming that these networks offer a mechanism for granting transmission permission. In such a case, FE25 shall be allocated to the corresponding gateway (see tables 12 and 13).

The INFORM request/indication information flow shall then include the identity and the mnemonic name of the external user if the gateway has sent them in the relevant basic call information flows - unless they are restricted by the supplementary service CLIR, or SS-TPI has not been subscribed with the optional delivery of the mnemonic name. In addition, The INFORM request/indication information flow shall include the gateway ITSI.

History

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