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## Foreword

This European Telecommunication Standard (ETS) has been produced by the Digital Enhanced Cordless Telecommunications (DECT) Project of the European Telecommunications Standards Institute (ETSI).

Transposition dates	
Date of adoption:	6 June 1997
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## Introduction

This ETS is a part of a set of standards for the DECT/GSM Interworking Profile (IWP) concept that includes:

- general description of service requirements, functional capabilities and information flows, (ETS 300 466 [13]);
- access and mapping (protocol/procedure description for 3,1 kHz speech service), (ETS 300 370 [10]);
- GSM-MSC/DECT-FP fixed interconnection (ETS 300 499 [14]);
- GSM Phase 2 supplementary services implementation (ETS 300 703 [23]);
- short message services, point to point and cell broadcast (ETS 300 764 [26]);
- implementation of bearer services (ETS 300 756 [25]);
- implementation of facsimile group 3 (this ETS).

This ETS is based on Digital Enhanced Cordless Telecommunications (DECT) Common Interface (CI) specification ETS 300 175, parts 1 to 8 [1] to [8] to enable DECT terminals to interwork in the public and private environment with DECT systems which are connected to a Global System for Mobile communications (GSM) core infrastructure.

In addition, this ETS is based on the DECT Generic Access Profile (GAP), ETS 300 444 [12] to enable the same DECT/GSM terminal to interwork with a DECT Fixed Part (FP) complying to the GAP requirements, irrespective of whether this FP provides residential, business or public access services. General attachment requirements and speech attachment requirements are based on TBR 6 [28] and TBR 10 [29].

Further details on the DECT system may be found in ETR 015 [30], ETR 043 [31], ETR 056 [32], and in ETS 300 176 [9].

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## 1 Scope

This European Telecommunication Standard (ETS) is a part of the Digital Enhanced Cordless Telecommunications / Global System for Mobile communications (DECT/GSM) Interworking Profile (IWP) and specifies the Portable Part (PP) interworking requirements and Fixed Part (FP) interworking requirements/mappings necessary to ensure that the GSM facsimile group 3 service can be provided over DECT, as specified in ETS 300 466 [13]. To enable DECT terminals to interwork with DECT systems which are connected to the GSM infrastructure, from the DECT side this ETS is based on ETS 300 755 [24].

NOTE: The DECT data service profile is based upon the Generic Access Profile (GAP) ETS 300 444 [12] and on the DECT Common Interface specification ETS 300 175, parts 1 to 8 [1] to [8].

Interworking functions/mappings are specified for Mobile Switching Centre (MSC) attachment for the DECT FP as the FP is using the A-interface towards the GSM MSC in the respect that the FP emulates a GSM Base Station Controller (BSC) with regards to the GSM messages which are relevant to this ETS. The complete interface used between the DECT Fixed Part (FP) and the GSM Mobile Switching Centre (MSC) is specified in ETS 300 499 [14]. Attachment via other interfaces to GSM-networks is outside the scope of this ETS.

The DECT access protocols and FP and PP interworking/mappings necessary for the support of basic voice telephony service are specified in ETS 300 370 [10]. Support of bearer services is specified in ETS 300 756 [25].

## 2 Normative references

This ETS incorporates, by dated or 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 300 175-1: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 1: Overview".
- [2] ETS 300 175-2: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 2: Physical layer (PHL)".
- [3] ETS 300 175-3: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 3: Medium Access Control (MAC) layer".
- [4] ETS 300 175-4: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 4: Data Link Control (DLC) layer".
- [5] ETS 300 175-5: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 5: Network (NWK) layer".
- [6] ETS 300 175-6: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 6: Identities and addressing".
- [7] ETS 300 175-7: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 7: Security features".
- [8] ETS 300 175-8: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 8: Speech coding and transmission".
- [9] ETS 300 176: "Digital Enhanced Cordless Telecommunications (DECT); Approval test specification".

- [10] ETS 300 370: "Digital Enhanced Cordless Telecommunications / Global System for Mobile communications (DECT/GSM) inter-working profile; Access and mapping (Protocol/procedure description for 3,1 kHz speech service)".
- [11] ETS 300 435: "Digital European Cordless Telecommunications (DECT); Data Services Profile (DSP); Base standard including interworking to connectionless networks (service types A and B, Class 1)".
- [12] ETS 300 444: "Digital European Cordless Telecommunications (DECT); Generic Access Profile (GAP)".
- [13] ETS 300 466: "Digital European Cordless Telecommunications/Global System for Mobile Communications (DECT/GSM) interworking profile; General description of service requirements; Functional capabilities and information flows".
- [14] ETS 300 499: "Digital Enhanced Cordless Telecommunications / Global System for Mobile Communications (DECT/GSM) interworking profile; Mobile services Switching Centre (MSC) - Fixed Part (FP) interconnection".
- [15] ETS 300 538: "European digital cellular telecommunications system (Phase 2); Technical realization of facsimile group 3 transparent (GSM 03.45)".
- [16] ETS 300 539: "European digital cellular communications system (Phase 2); Technical realization of facsimilé group 3 non-transparent (GSM 03.46)".
- [17] ETS 300 557: "Digital cellular telecommunications system (Phase 2); Mobile radio interface layer 3 specification (GSM 04.08)".
- [18] ETS 300 562: "European digital cellular telecommunications system (Phase 2); Rate adaption on the Mobile Station - Base Station System (MS - BSS) Interface (GSM 04.21)".
- [19] ETS 300 563: "European digital cellular telecommunications system (Phase 2); Radio Link Protocol (RLP) for data and telematic services on the Mobile Station - Base Station System (MS - BSS) interface and the Base Station System - Mobile-services Switching Centre (BSS - MSC) interface (GSM 04.22)".
- [20] ETS 300 584: "European digital cellular telecommunications system (Phase 2); Terminal Adaptation Functions (TAF) for services using synchronous bearer capabilities (GSM 07.03)".
- [21] ETS 300 590: "Digital cellular telecommunications system (Phase 2); Mobile-services Switching Centre - Base Station System (MSC - BSS) interface; Layer 3 specification (GSM 08.08)".
- [22] ETS 300 651: "Digital Enhanced Cordless Telecommunications (DECT); Data Services Profile (DSP); Generic data link service; Service type C, class 2".
- [23] ETS 300 703: "Digital Enhanced Cordless Telecommunications / Global System for Mobile communications (DECT/GSM) Inter-Working Profile (IWP); GSM phase 2 supplementary services implementation".
- [24] ETS 300 755: "Digital Enhanced Cordless Telecommunications (DECT); Data services profile; Multimedia Messaging Service (MMS) with specific provision for facsimile services; (Service type F, class 2)".
- [25] ETS 300 756: "Digital Enhanced Cordless Telecommunications / Global System for Mobile communications (DECT/GSM) interworking profile; Implementation of bearer services".



- [26] ETS 300 764: "Digital Enhanced Cordless Telecommunications / Global System for Mobile communications (DECT/GSM) Interworking Profile (IWP); Implementation of short message service, point-to-point and cell broadcast".
- [27] EN 301 238: "Digital Enhanced Cordless telecommunications (DECT); Data Service Profile (DSP); Isochronous data bearer services with mobility (service type D, mobility class 2)".
- [28] TBR 6: "Digital Enhanced Cordless Telecommunications (DECT); General terminal attachment requirements".
- [29] TBR 10: "Digital Enhanced Cordless Telecommunications (DECT); General terminal attachment requirements; Telephony applications".
- [30] ETR 015: "Radio Equipment and Systems; Digital European Cordless Telecommunications (DECT); Reference document".
- [31] ETR 043: "Digital European Cordless Telecommunications (DECT); Common interface; Services and facilities requirements specification".
- [32] ETR 056: "Digital European Cordless Telecommunications (DECT); System description document".
- [33] ETR 100: "European digital cellular telecommunications system (Phase 2); Abbreviations and acronyms (GSM 01.04)".
- [34] DEN/DECT-020087: "Digital Enhanced Cordless Telecommunications (DECT); Dynamic Multimedia Service Change on the DECT access interface".
- [35] ISO/IEC 9646-6: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 6: Protocol profile test specification".
- [36] ITU-T Recommendation Q.6xx series: "Interworking of signalling systems".
- [37] ITU-T Recommendation T.4: "Standardization of Group 3 facsimile apparatus for document transmission".
- [38] ITU-T Recommendation T.30: "Procedures for document facsimile transmission in the general switched telephone network".
- [39] ITU-T Recommendation T.31 (1995): "Asynchronous facsimile DCE control - Service Class 1".
- [40] ITU-T Recommendation T.32 (1995): "Asynchronous facsimile DCE control - Service Class 2".
- [41] CCITT Recommendation V.24 (1988): "List of definitions for interchange circuits between data terminal equipment (DTE) and data circuit-terminating equipment (DCE)".
- [42] CCITT Recommendation V.25bis (1988): "Automatic calling and/or answering equipment on the general switched telephone network (GSTN) using the 100-series interchange circuits".
- [43] CCITT Recommendation V.110: "Support of data terminal equipments with V-Series type interfaces by an integrated services digital network".

### 3 Definitions, abbreviations and symbols

#### 3.1 Definitions

GSM-specific definitions may be found in ETR 100 [33]. In addition, for the purposes of this ETS, the following definitions apply:

**attach:** The process whereby a PP within the coverage area of a FP to which it has access rights, notifies this FP that it is operative. The reverse process is detach, which reports the PP as inoperative.

NOTE 1: An operative PP is assumed to be ready to receive calls.

**authentication:** The process whereby a DECT subscriber is positively verified to be a legitimate user of a particular FP.

NOTE 2: Authentication is generally performed at call set-up, but may also be done at any other time (e.g. during a call).

**bearer service:** A type of telecommunication service that provides a defined capability for the transmission of signals between user-network interfaces.

NOTE 3: The DECT user-network interface corresponds to the top of the network layer (layer 3).

**C-Plane:** The control plane of the DECT protocol stacks, which contains all of the internal DECT protocol control, but may also include some external user information.

NOTE 4: The C-Plane stack always contains protocol entities up to and including the network layer.

**call:** All of the Network (NWK) layer processes involved in one network layer peer-to-peer association.

NOTE 5: Call may sometimes be used to refer to processes of all layers, since lower layer processes are implicitly required.

**DECT Network (DNW):** A network that uses the DECT air interface to interconnect a local network to one or more portable applications. The logical boundaries of the DECT network are defined to be at the top of the DECT network layer.

NOTE 6: A DECT Network (DNW) is a logical grouping that contains one or more fixed radio termination plus their associated portable radio termination. The boundaries of the DECT network are not physical boundaries.

**Fixed Part (DECT Fixed Part) (FP):** A physical grouping that contains all of the elements in the DECT network between the local network and the DECT air interface.

NOTE 7: A DECT FP contains the logical elements of at least one fixed radio termination, plus additional implementation specific elements.

**fixed part GSM PLMN attachment (DECT fixed part attached to a GSM MSC):** A definition of a functional environment where a DECT system (FP) is attached to an GSM MSC. The MSC in this case refers to a functional entity providing the required MM and CC functionality defined in this ETS in order to communicate with the FP.

**Fixed radio Termination (FT):** A logical group of functions that contains all of the DECT processes and procedures on the fixed side of the DECT air interface.

NOTE 8: A fixed radio termination only includes elements that are defined in the DECT CI standard. This includes radio transmission elements together with a selection of layer 2 and layer 3 elements.

**Generic Access Profile (GAP):** A defined part of the DECT Common Interface standard (DECT CI) that ensures inter-operability between FPs and PPs for public business and residential access services.

**geographically unique identity:** This term relates to FP identities, Primary Access Rights Identities (PARIs) and Radio Fixed Part Identities (RFPIs). It indicates that two systems with the same PARI, or respectively two Radio Fixed Parts (RFPs) with the same RFPI, can not be reached or listened to at the same geographical position.

**Global Network (GNW):** A telecommunication network capable of offering a long distance telecommunication service.

NOTE 9: The term does not include legal or regulatory aspects, nor does it indicate if the network is a public or a private network.

**globally unique identity:** The identity is unique within DECT (without geographical or other restrictions).

**handover:** The process of switching a call in progress from one physical channel to another physical channel. These processes can be internal (see internal handover) or external (see external handover).

NOTE 10: There are two physical forms of handover, intra-cell handover and inter-cell handover. Intra-cell handover is always internal. Inter-cell handover can be internal or external.

**incoming call:** A call received at a PP.

**inter-cell handover:** The switching of a call in progress from one cell to another cell.

**internal handover:** Handover processes that are completely internal to one Fixed radio Termination (FT). Internal handover re-connects the call at the lower layers, while maintaining the call at the NWK layer.

NOTE 11: The lower layer reconnection can either be at the Data Link Control (DLC) layer (connection handover) or at the MAC layer (bearer handover).

**inter-operability:** The capability of FPs and PPs, that enable a PP to obtain access to teleservices in more than one location area and/or from more than one operator (more than one service provider).

**inter-operator roaming:** Roaming between FP coverage areas of different operators (different service providers).

**Interworking Unit (IWU):** A unit that is used to interconnect sub-networks.

NOTE 12: The IWU will contain the interworking functions necessary to support the required sub-network interworking.

**intra-cell handover:** The switching of a call in progress from one physical channel of one cell to another physical channel of the same cell.

**intra-operator roaming:** Roaming between different FP coverage areas of the same operator (same service provider).

**Local Network (LNW):** A telecommunication network capable of offering local telecommunication services.

NOTE 13: The term does not include legal or regulatory aspects, nor does it indicate if the network is a public network or a private network.

**locally unique identity:** The identity is unique within one FP or location area, depending on application.

**location area:** The domain in which a PP may receive (and/or make) calls as a result of a single location registration.

**location registration:** The process whereby the position of a DECT portable termination is determined to the level of one location area, and this position is updated in one or more databases.

NOTE 14: These databases are not included within the DECT FT.

**Medium Access Control (MAC) connection:** An association between one source MAC Multi-Bearer Control (MBC) entity and one destination MAC MBC entity. This provides a set of related MAC services (a set of logical channels), and it can involve one or more underlying MAC bearers.

**Multimedia Messaging Service (MMS):** The MMS is a generic set of commands, information elements and functionality for file/messaging service. MMS can be regarded as a DECT internal teleservice that can be interworked to the similar services in external networks.

**Multimedia Messaging Service Protocol (MMSP):** A protocol that is used for the provision of MMS services and functionality that is a stateless protocol which defines a set of messages, framing rules and information elements each containing optional and mandatory information fields.

**outgoing call:** A call originating from a PP.

**Portable Application (PA):** A logical grouping that contains all the elements that lie beyond the DECT network boundary on the portable side.

NOTE 15: The functions contained in the portable application may be physically distributed, but any such distribution is invisible to the DECT network.

**Portable Part (DECT Portable Part) (PP):** A physical grouping that contains all elements between the user and the DECT air interface. PP is a generic term that may describe one or several physical pieces.

NOTE 16: A DECT PP is logically divided into one portable termination plus one or more portable applications.

**Portable radio Termination (PT):** A logical group of functions that contains all of the DECT processes and procedures on the portable side of the DECT air interface.

NOTE 17: A PT only includes elements that are defined in the DECT CI standard. This includes radio transmission elements (layer 1) together with a selection of layer 2 and layer 3 elements.

**Radio Fixed Part (RFP):** One physical sub-group of an FP that contains all the radio end points (one or more) that are connected to a single system of antennas.

**registration:** An ambiguous term, that should always be qualified. See either location registration or subscription registration.

**roaming:** The movement of a PP from one FP coverage area to another FP coverage area, where the capabilities of the FPs enable the PP to make or receive calls in both areas.

NOTE 18: Roaming requires the relevant FPs and PP to be inter-operable.

**service type F:** An application profile specifically supporting teleservices such as fax, building upon the services offered by the type A/B and C profiles, optimized for terminal simplicity, spectrum efficiency and network flexibility.

**subscription registration:** The infrequent process whereby a subscriber obtains access rights to one or more FPs.

NOTE 19: Subscription registration is usually required before a user can make or receive calls.

### 3.2 Abbreviations

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

ARI	Access Rights Identity
BCD	Binary Coded Decimal
BCS	Binary Coded Signalling
BSC	GSM Base Station Controller
CC	Call Control
CI	Common Interface
CISS	Call Independent Supplementary Services
CK	Cipher Key.
CLMS	Connectionless Message Service
CNG	Calling tone
COMS	Connection Oriented Message Service
C-Plane	Control Plane
CRSS	Call Related Supplementary Services
DAM	DECT Authentication Module
DECT	Digital Enhanced Cordless Telecommunications
DLC	Data Link Control, Layer 2b of the DECT protocol stack
DSAA	DECT Standard Authentication Algorithm
DTMF	Dual Tone Multi-Frequency
FA	Fax Adaptor
FP	Fixed Part
FT	Fixed radio Termination
GAP	Generic Access Profile
GIP	DECT/GSM Interworking Profile
IMEI	International Mobile Equipment Identity
IMSI	International Mobile Subscriber Identity
IPEI	International Portable Equipment Identity
IPUI	International Portable User Identity
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
IWU	Interworking Unit
K	authentication Key
LAP-U	Link Access Procedure (U-Plane)
LCE	Link Control Entity
LLME	Lower Layer Management Entity
MAC	Medium Access Control
MAP	GSM Mobile Application Part
MM	Mobility Management, a NWK layer functional grouping
MMS	Multimedia Messaging Service
MMSP	Multimedia Messaging Service Protocol
MSB	Most Significant Bit
MS	Mobile Station
MSC	Mobile Switching Centre
NWK	Network
OSI	Open Systems Interconnection
PA	Portable Application
PARI	Primary Access Rights Identity
PARK	Portable Access Rights Key
PCM	Pulse Coded Modulation
PE	Portable Equipment
PLMN	Public Land Mobile Network
PP	Portable Part
PSTN	Public Switched Telephone Network
PT	Portable radio Termination
PTNX	Private Telecommunications Network Exchange
PUN	Portable User Number
PUT	Portable User Type
RAND	a Random challenge issued by a FP
RES	a Response calculated by a PP
RFP	Radio Fixed Part

RFPI	Radio Fixed Part Identity
RS	a value used to establish authentication session keys
SARI	Secondary Access Rights Identity
SS	Supplementary Services
SRES	a GSM specific authentication response calculated by the GSM SIM or the DAM
TAF	Terminal Adaptation Function
TARI	Tertiary Access Rights Identity
TMSI	Temporary Mobile Subscriber Identity
TPUI	Temporary Portable User Identity
TUP	Telephony User Part
UPI	User Personal Identification
U-Plane	User Plane

### 3.3 Symbols for status columns

The symbols defined in this subclause are applied for procedures, features, messages, information elements, fields and field codings in this ETS if not explicitly otherwise stated. The interpretation of status columns in all tables is as follows:

M	Mandatory to map/support/use;
O	Optional to map/support/use;
I	out-of-scope (not subject for testing);
X	prohibited or excluded to map/support/use (the message, information element may be allowed to be used in the standard/standards but it is not allowed to be mapped/used depending on the environment/dynamic conditions etc.);
N/A or -(dash)	Not Applicable to map/support/use;
C	Conditional to map/support/use (the message, information element mapping depends on the selection of other optional or/and conditional items).

NOTE: The symbol "-" in the mapping section of this ETS means that there is no message, information element or coding specified in this column.

## 4 General

This ETS specifies how GSM facsimile services are provided over the DECT air interface.

One of the main objectives is to describe how the GSM teleservice 62, automatic facsimile group 3, is mapped across the DECT air interface in a formal way, so that inter-operability of different manufacturer's equipment can be achieved. This is done by describing the interworking unit procedures and mappings loosely following CCITT Recommendations Q.601 - Q.699 [36] and by describing an air interface profile following ISO/IEC 9646-6 [35]. The later document enables the subsequent generation of tests cases, if required.

This ETS is made up of 3 main clauses:

Clause 5: Interworking requirements - includes reference configurations and the protocol architecture models. Also describes the main service requirements. The context of the interworking profile is also required.

Clause 6: Interworking mappings, FP attached to the GSM PLMN - Interworking Unit (IWU) mappings for the facsimile services shows the C-Plane and U-Plane mappings for the FP GSM PLMN attachment in respective order. Two IWUs are considered; the FP IWU and the PP IWU, although the FP IWU is expected to be the largest. The signalling mappings are described in terms of IWU procedures with informative data flow diagrams. Detailed descriptions follow using tables of what is mapped, what is ignored, and what is transferred transparently. This clause also include other profile specific information.

Clause 7: Interworking connection types - this clause identifies the main DECT connection types (U-Plane + C-Plane) at the air interface supporting optimized groups of services, from the IWU mappings for different configurations/models.

## 5 Interworking requirements

### 5.1 General

This ETS defines the mandatory requirements for the FP in terms of interworking functions between the air interface and the external network as well as minimum requirements at the DECT air interface. It also defines the mandatory requirements for the PP in terms of interworking functions between the air interface and the PA as well as the minimum requirements for the PP at the DECT air interface.

If not stated otherwise the ETS 300 756 [25] requirements are the basis of this ETS.

NOTE 1: ETS 300 756 [25] is based on ETS 300 370 [10] and ETS 300 651 [22].

The interworking mappings shall be based on the Phase 2 GSM standards.

The basis for interworking shall be the protocols defined in ETS 300 557 [17] (GSM 04.08), in ETS 300 590 [21] (GSM 08.08), in ETS 300 538 [15] (GSM 03.45) and in ETS 300 539 [16] (GSM 03.46).

The requirements of ETS 300 755 [24], annex C shall be fulfilled in the PT and FT in respect to the features listed in subclause 5.2 of this ETS.

The procedures which are used depend on which Access Rights Identity (ARI) type is chosen by the PP; either according to the minimum requirements of ETS 300 755 [24], annex C, or the procedures as described in this ETS i.e. the PPs, which are based on this ETS shall always be capable of interworking with FP which fulfil the minimum requirements of the Data Services Profile (DSP) F, class 2, ETS 300 755 [24], annex C. The FPs, which fulfil the requirements of this ETS, and which support also non-GSM ARIs (classes A, B or C) shall also support the minimum requirements of ETS 300 755 [24], annex C.

NOTE 2: The DSP F, class 2 annex C (Interworking conventions to real time facsimile group 3) describes how interworking to ITU-T Recommendation T.30 [38] real time facsimile services by using the data service profile F MMSP protocol can be achieved (see ETS 300 755 [24]). The C-Plane procedures required by this profile are based on those of a GAP telephone (ETS 300 444 [12]) with additional mandatory elements to cover data specific aspects of the call set-up and to cover the MMSP requirements.

This ETS defines interworking environments for the FP and the PP in the case when DECT FPs are functionally attached to the GSM MSC i.e. broadcast attribute a39 "SIM services available" set to '1'B in all environments (public, business and residential). The PP shall be in alignment with the requirements as defined in this ETS.

**5.2 Supported ITU-T Recommendation T.30 features**

The facsimile group 3 ITU-T Recommendation T.30 [38] protocol requirements of the data service profile F, ETS 300 755 [24], annex C shall apply. In addition the requirements specified in subclause 4.2.3 of ETS 300 538 [15] (GSM 03.45) shall apply if the A-interface implementation is based on the transparent service. The requirements specified in subclause 7.2.1.2 of ETS 300 539 [16] (GSM 03.46) shall apply if the A-interface implementation is based on non-transparent service. The support of a feature shall be required if both the GSM (ETS 300 538 [15] (GSM 03.45) or ETS 300 539 [16] (GSM 03.46)) and DECT parts (ETS 300 755 [24], annex C) support that feature as a mandatory requirement. If a feature is supported as optional in both DECT and GSM parts the feature may be supported optionally as specified in the respective standards.

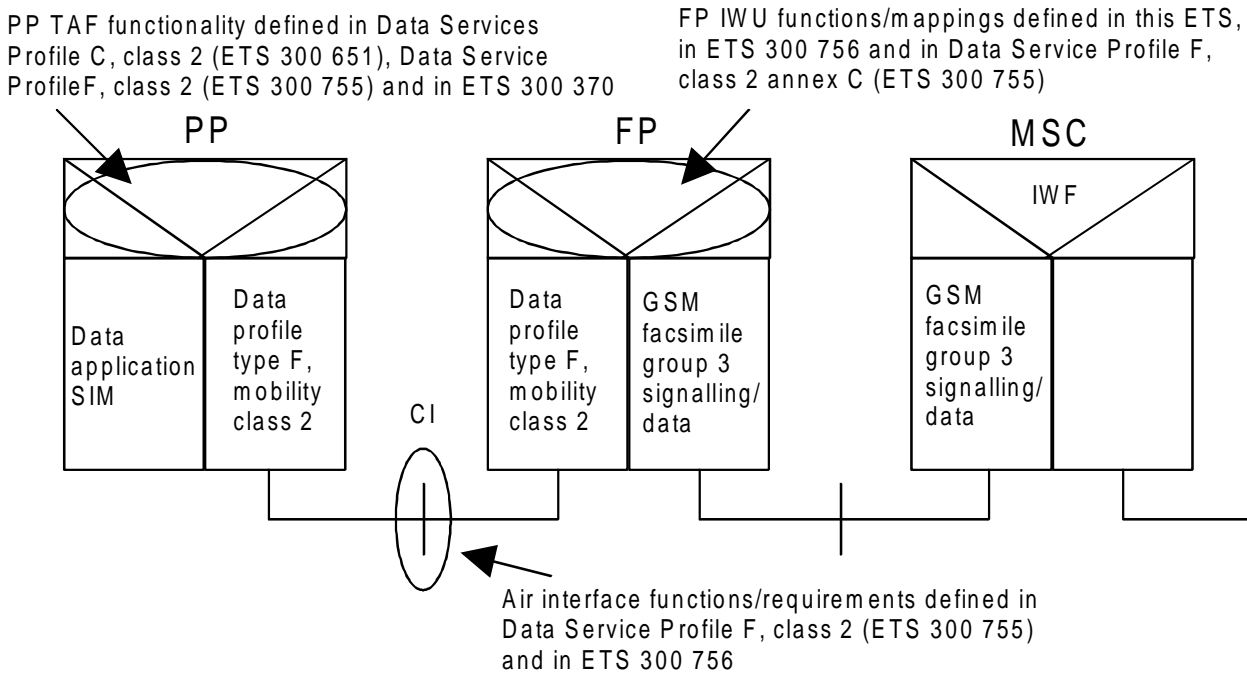
NOTE: This implies that only basic ITU-T Recommendation T.30 [38] telefax based on ITU-T Recommendation T.4 [37] with automatic calling (ITU-T Recommendation T.30 [38] operating method 4) is supported and no group 1 and 2 facsimile interworking is provided. In addition only the standard 300 bit/s Binary Coded Signalling (BCS) and fax transmission rates up to 9 600 bit/s are provided. Some features, such as error correcting mode, can be optionally supported.

**5.3 Reference configurations**

For the reference configuration the requirements of subclause 5.2 of ETS 300 370 [10] shall apply.

**5.4 General interworking model for FP GSM PLMN attachment**

The general interworking model shown in figure 1 describes the general profile reference configuration of the FP and PP containing both Control (C) and User (U) planes. The model also shows the location of the IWUs and the requirements of the air interface.



**Figure 1: Interworking model of facsimile group 3 for FP GSM PLMN attachment**

The C-Plane part of the IWU (figure 1) in the FP provides the mapping between a subset of the GSM Layer 3 protocols and the corresponding DECT NWK protocols (MM and CC).

The communication model of the U-Plane has been illustrated in figure 2. The U-Plane part of the IWU in the FP provides the mapping of the GSM facsimile service ITU-T Recommendation T.30 [38] protocol to the DECT F data profile, class 2 MMSP layer and vice versa. The A-interface regarding the facsimile service functionality shall be according to ETS 300 538 [15] (GSM 03.45) or ETS 300 539 [16] (GSM 03.46).



The interworking in FP IWU shall be according to ETS 300 755 [24] annex C and to this ETS.

The IWU in the PP provides the mapping of a subset of the DECT layer 3 protocols to the SIM. The Terminal Adaptation Function (TAF) is part of the IWU in the PP and it provides mapping and control of the DECT U-Plane and C-Plane data related to the end-to-end service to the GSM application or the data application/interface. A Fax Adaptor (FA) may be used to provide a standard facsimile group 3 interface on the PP side. However, the interworking between the DECT PP and a Fax Adaptor (FA) as well as the functionality of the FA is outside of the scope of this standard. The PP TAF procedures defined in ETS 300 651 [22], clause C.4 and used in ETS 300 756 [25] shall apply if a CCITT Recommendation V.24 [41] connection is provided in the PP TAF. These optional procedures have been defined in subclause 6.3. The MMSP conversion back to the ITU-T Recommendation T.30 [38] protocol in the PP/TAF is outside of the scope of this ETS.

NOTE: This implies that, e.g. the tonal signal generation for the ITU-T Recommendation T.30 [38] facsimile equipment is outside of the scope of this ETS.

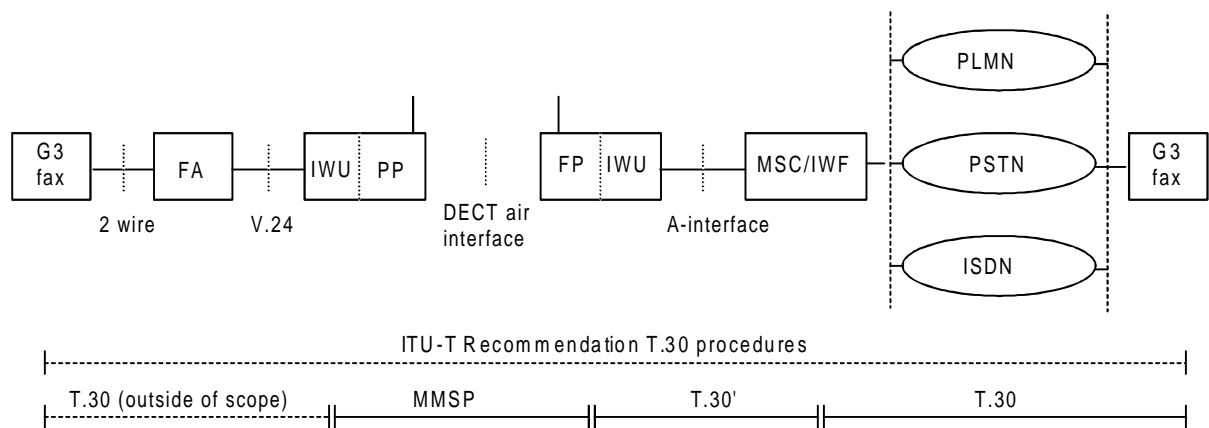


Figure 2: Communication model

### 5.5 Service requirements

General description of service requirements, functional capabilities and information flows are specified in ETS 300 466 [13]. The detailed information regarding the supported service and service types required by this ETS are defined in table 1. The service provided by the data profile F, ETS 300 755 [24] is transparent on the service level i.e. the data profile F profile MMSP protocol is interworking with ITU-T Recommendation T.30 [38] protocol in the FP IWU. Therefore, it is irrelevant to the DECT air interface whether the A-interface solution is based on the GSM non-transparent or transparent facsimile group 3 implementation.

Table 1: The GSM teleservices supported by this ETS

GSM teleservice number	Teleservice name	Connection type	Rates (note 2)
62	Automatic facsimile group 3	non-transparent or transparent (note 1)	9,6 kbit/s 4,8 kbit/s 2,4 kbit/s
NOTE 1:	The DECT air interface does not separate the cases of the non-transparent and transparent since the interworking shall take place in the ITU-T Recommendation T.30 [38] protocol level. The DECT air interface U-Plane is based on the LAPU protocol error correction. The support of true transparent facsimile service, where the ITU-T Recommendation T.30 [38] is run over the air interface intact can be supported by the data service profile D, class 2 (see EN 301 238 [27]) and will be studied for future versions of this specification.		
NOTE 2:	The rates defined in the table 1 are the rates that are used by the facsimile service. The maximum rate is 9,6 kbit/s due to the limitation of the GSM A interface limitations even though the data service profile F (ETS 300 755 [24]) can support a rate of 24 kbit/s in single slot operation.		

Even though low bit rates, such as 2,8 kbit/s and 4,8 kbit/s, are supported, It is recommended to operate on the 9 600 bit/s rate over the GSM A-interface.

## 5.6 Interworking context

### 5.6.1 General

The CC entity of a PP and FP shall fulfil the requirements of ETS 300 756 [25] and the requirements of ETS 300 755 [24] based on full GAP Call Control (CC) entity.

NOTE 1: The additional requirements over ETS 300 756 [25] to the CC and U-Plane entities is the support of the MMSP.

NOTE 2: If ETS 300 764 [26] is implemented to the PP and FP some of the MMSP C-Plane requirements are already fulfilled.

The MM entity in the FP and PP shall fulfil the minimum requirements of ETS 300 370 [10].

NOTE 3: As a result this the PP profile also fulfils the minimum MM requirements of ETS 300 755 [24] and ETS 300 444 [12].

The minimum U-Plane requirements in the FT and PT shall fulfil the data service profile F, class 2 requirements based on the service type A (see ETS 300 755 [24]). The BPAD functionality as specified in ETS 300 651 [22], clause C.4 shall be supported in the FP and PP. The CCITT Recommendation V.24 [41] interface circuit status control as specified in ETS 300 651 [22], clause C.4 shall be supported in the FP and optionally supported in PP if the CCITT Recommendation V.24 [41] interface is supported in PP/TAF.

NOTE 4: The service type A refers to the U-Plane requirements of ETS 300 435 [11] i.e. single slot functionality is the minimum requirement of the DECT lower layers. ETS 300 755 [24], which is based on ETS 300 651 [22] requires the support of LAPU on the top of the A type service.

This ETS does not require the support of the GAP based voice services i.e. the PP may be a data only terminal with the GSM access capabilities and a GSM subscription as defined in ETS 300 370 [10].

### 5.6.2 Basic interworking rules

The basic interworking rules defined in subclause 5.4.2 of ETS 300 370 [10] shall apply with following definitions:

- an FP belonging to ARI class D shall support this ETS;
- the profile as defined in this ETS may be used in association only with FPs with ARI class D;
- a PP belonging to ARI class D shall support this ETS in addition to ETS 300 755 [24], annex C.

### 5.6.3 Interpretation of broadcast attributes

This subclause refers to annex F of ETS 300 175-5 [5] (Broadcast attributes coding). The coding of ETS 300 756 [25], subclause 5.4.4 shall apply with the following addition:

Extended fixed part capabilities:

**a42 F data profile:** shall be set to value "1".

NOTE: This ETS does not require the support of the voice service.

#### 5.6.4 Interpretation of terminal capability

If the <<TERMINAL CAPABILITY>> information element is used the following coding shall be used to indicate the support of this ETS.

##### Profile Indicator\_2 Coding (Octet 4a) of TERMINAL CAPABILITY information element:

Bits	7 6 5 4 3 2 1	Meaning
	x 1 x x x x x	DECT/GSM interworking - GSM facsimile service

Values of the other fields in <<Terminal Capability>> information element shall depend on the terminal implementation and support of other profiles.

## 6 Interworking mappings, FP attached to the GSM PLMN

### 6.1 General

The procedures of clauses C.8 and C.9 of ETS 300 755 [24], annex C shall apply for the ITU-T Recommendation T.30 [38] functionality. In respect to CC and MM signalling, the ETS 300 756 [25] procedures shall apply. The following procedures as specified are exceptions, additions or clarifications to ETS 300 755 [24], annex C procedures and ETS 300 756 [25] That is, if there is a conflict in between the procedures of ETS 300 755 [24], annex C or ETS 300 756 [25] and procedures in this ETS, the procedures of this ETS shall apply.

### 6.2 FP C-Plane IWU procedures

#### 6.2.1 Call handling IWU procedures

##### 6.2.1.1 General

In this subclause procedures for both non-transparent ETS 300 539 [16] (GSM 03.46) and transparent based ETS 300 538 [15] (GSM 03.45) are defined. If it is not specifically mentioned the procedures shall apply for both.

The <<IWU-ATTRIBUTES>> element coding as specified in ETS 300 756 [25] annex A shall be used.

The CC procedures outlined in subclause 6.1.1 in ETS 300 756 [25] shall apply with the following additions.

A general example of the facsimile group 3 procedures for transparent A-interface solution has been illustrated in annex A.

##### 6.2.1.2 Outgoing automatic facsimile group 3 call (PP to FP)

###### 6.2.1.2.1 Call setup procedure (including T.30 phase A)

This subclause applies to the group 3 facsimile end to end call establishment signalling between DECT PP, GSM PLMN and the outside network terminal. The call setup consist of DECT and GSM call setup procedures and the group 3 facsimile, ITU-T recommendation T.30 [38], phase A.

The call setup including the service negotiation procedure of ETS 300 756 [25] shall apply. The coding of the information elements used in the call setup procedure are specified in clause 7 of this ETS. The mappings between GSM layer 3 and DECT NWK layer messages, information elements and fields in the FP IWU as defined in ETS 300 756 [25] shall apply.

Upon receipt of CONNECT message from the MSC/IWF and issuing of the MNCC\_CONNECT-req primitive to PP the synchronization process shall take place between the MSC/IWF and FP/IWU as specified in ETS 300 538 [15] (GSM 03.45) or the synchronization process and RLP link establishment as specified in ETS 300 539 [16] (GSM 03.46). In addition the LAPU link establishment between the PP and FP shall commence.

Upon receipt of M-MMS-SEND-REQ-Ind the FP/IWU shall not take any specific action before the synchronization process and/or RLP link establishment has been finalized.

Upon completion of the synchronization process (ETS 300 538 [15] (GSM 03.45)) and RLP link establishment (ETS 300 539 [16] (GSM 03.46)) between the FP/IWU and the MSC the FP/IWU shall issue a LAPU SAPI 3 frame indicating the status change of the 107 circuit to ON condition.

Upon detection of the circuit 106 and 109 on status in the MSC/IWF CCITT Recommendation V.110 [43] data flow the FP/IWU shall issue a M-MMS\_SEND-RPY-req primitive as specified in ETS 300 755 [24], annex C subclause C.8.2.2. In addition the FP/IWU shall issue LAPU SAPI 3 frame indicating the status change of the 109 circuit to ON condition.

No Calling tones (CNGs) shall be generated in the FP/IWU.

#### **6.2.1.2.2 Call release (including ITU-T Recommendation T.30, phase E)**

The ITU-T Recommendation T.30 [38] phase E procedures shall be supported as specified in ETS 300 755 [24], annex C subclause C.8.7.2. and ETS 300 756 [25].

#### **6.2.1.2.3 Other call handling procedures**

The procedure of ETS 300 756 [25] shall apply.

#### **6.2.1.3 Incoming automatic facsimile group 3 call (FP to PP)**

##### **6.2.1.3.1 Call setup procedure (including ITU-T Recommendation T.30, phase A)**

This subclause applies to the group 3 facsimile end to end call establishment signalling between DECT PP, GSM PLMN and the outside network terminal. The call setup consist of DECT, GSM call setup procedures and ITU-T Recommendation T.30 [38] phase A.

The call setup including the service negotiation procedure of ETS 300 756 [25] shall apply. The coding of the information elements used in the call setup procedure are specified in clause 7 of this ETS. The mappings between GSM and DECT messages, information elements and fields in the FP IWU as defined in ETS 300 756 [25] shall apply. The synchronization process shall commence between the MSC/IWF and FP/IWU as specified in ETS 300 538 [15] (GSM 03.45) or synchronization and RLP establishment as specified in ETS 300 539 [16] (GSM 03.46) after the connection has been established as specified in ETS 300 756 [25]. At this stage the FP/IWU shall issue a M-MMS\_SEND-REQ-req primitive as specified in ETS 300 755 [24], annex C, subclause C.9.2.1.

On completion of the synchronization process (ETS 300 538 [15] (GSM 03.45)) and RLP link establishment (ETS 300 539 [16] (GSM 03.46)) between the FP/IWU and the MSC and the receipt of M-MMS-SEND-RPY-ind primitive the FP/IWU shall issue a LAPU SAPI 3 frame indicating the status change of the 107 circuit to ON condition.

Upon detection of the circuit 106 and 109 on status from the MSC/IWF CCITT Recommendation V.110 [43] data flow the FP/IWU shall issue LAPU SAPI 3 frame indicating the status change of the 109 circuit to ON condition.

##### **6.2.1.3.2 Call release (including ITU-T Recommendation T.30, phase E)**

The ITU-T Recommendation T.30 [38] phase E procedures shall be supported as specified in ETS 300 755 [24], subclause C.9.7.1. and ETS 300 756 [25].

##### **6.2.1.3.3 Other call handling procedures**

The procedure of ETS 300 756 [25] shall apply.

#### **6.2.2 Mobility management IWU procedures**

The MM procedures of ETS 300 370 [10] shall apply.

### **6.2.3 Channel mode modify procedures**

The channel mode modify procedures as specified in ETS 300 538 [15] (GSM 03.45) may be supported in the A-interface connection due to compatibility to the GSM network. However, it shall not have any effect on the DECT air interface functionality. If the procedures require any ITU-T Recommendation T.30 [38] signalling the signalling shall be transparently conveyed.

### **6.2.4 CC and mobility management message mappings**

#### **6.2.4.1 GSM to DECT**

All message mappings shall be done according to ETS 300 756 [25].

#### **6.2.4.2 DECT to GSM**

All message mappings shall be done according to ETS 300 756 [25].

### **6.3 FP U-Plane ITU-T Recommendation T.30 and MMSP IWU procedures**

#### **6.3.1 General**

The ITU-T Recommendation T.30 [38] data flow mapping as outlined in ETS 300 755 [24], annex C shall apply. The protocol structure of the transparent and non-transparent cases is illustrated in figures 3 and 4, respectively.

NOTE: The selection of the non-transparent or transparent is independent of the interworking requirements therefore both cases have been illustrated.

#### **6.3.2 GSM automatic facsimile group 3 transparent and MMSP interworking**

##### **6.3.2.1 FP interworking function requirements**

The interworking function shall consist of the following entities:

- CCITT Recommendation V.110 [43], Rate adaptation 2 (RA2) as specified in ETS 300 562 [18] (GSM 04.21);
- CCITT Recommendation V.110 [43], Rate adaptation 1 (RA1) as specified in ETS 300 562 [18] (GSM 04.21);
- the digital section of the fax adaptor function as specified in ETS 300 538 [15] (GSM 03.45);
- ITU-T Recommendation T.30 [38]/MMSP mapping entity.

##### **6.3.2.2 The fax adaptor and ITU-T Recommendation T.30/MMSP mapping entity functionality**

The digital section Fax Adaptor (FA) shall function in all terms as specified in ETS 300 538 [15] (GSM 03.45).

NOTE: This implies that the FA is monitoring the ITU-T Recommendation T.30 [38] protocol flow and when necessary modifying it according to GSM requirements.

The digital section of the Fax Adaptor function shall forward the ITU-T Recommendation T.30 [38] protocol elements received from the GSM network to the FP ITU-T Recommendation T.30 [38]/MMSP mapping entity which shall in turn map the ITU-T Recommendation T.30 [38] protocol elements into the data service profile F MMSP protocol elements as specified in ETS 300 755 [24], annex C.

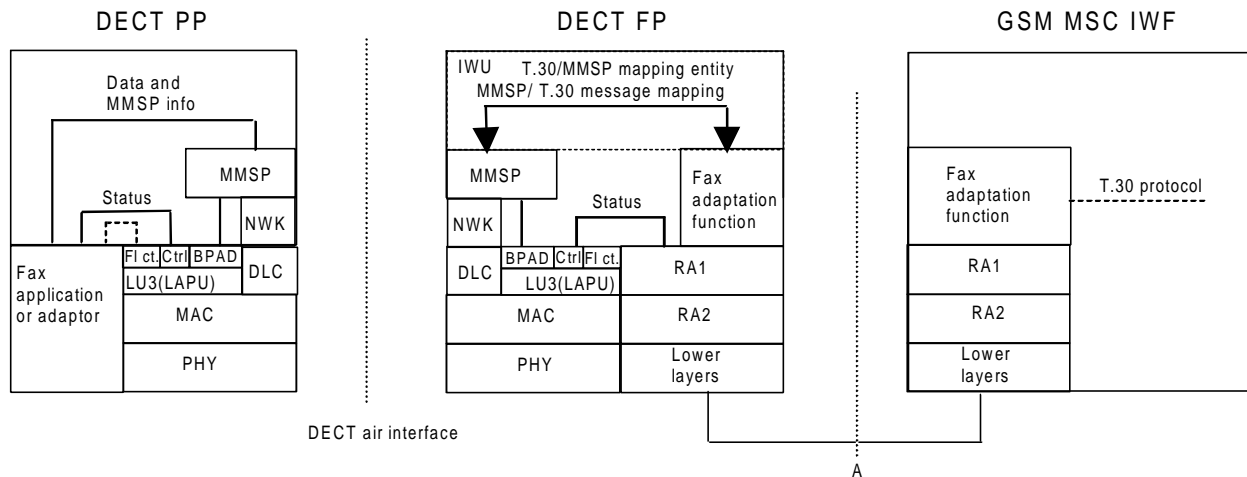


Figure 3: The ITU-T Recommendation T.30 and MMSP interworking in U-Plane transparent case

### 6.3.2.3 Flow control

The flow control of the CCITT Recommendation V.110 [43] data flow in the CCITT Recommendation V.24 [41] interface circuits may be mapped to the LAPU protocol flow control mechanism as listed below.

Upon detection of the CCITT Recommendation V.110 [43] X bit (106 condition) change from ON to OFF the FP/IWU shall issue DLU-LU3\_DTR.req with stop flag to the LAPU.

Upon detection of the CCITT Recommendation V.110 [43] X bit (106 condition) change from OFF to ON the FP/IWU shall issue DLU-LU3\_DTR.req with go flag to the LAPU.

Upon receipt of the DLU-LU3\_DTR.ind with stop flag from the LAPU the FP/IWU shall change CCITT Recommendation V.110 [43] X bit (106 condition) from on to off.

Upon receipt of the DLU-LU3\_DTR.ind with go flag from the LAPU the FP/IWU shall change CCITT Recommendation V.110 [43] X bit (106 condition) from off to on.

This is an optional implementation issue and the timing of the flow control depends on the buffer sizes on both sides.

### 6.3.2.4 Interchange circuit mappings

The CCITT Recommendation V.24 [41] circuits are conveyed using the LAPU SAPI 3 frame as specified in subclause 10.4 of ETS 300 651 [22]. The transitions in the CCITT Recommendation V.24 [41] interchange circuit 107 and 109 status shall be mapped in the FP/IWU between the CCITT Recommendation V.110 [43] data flow and LAPU SAPI 3 frames as listed below.

Upon detection of the CCITT Recommendation V.110 [43] SA bit (107 condition) change from ON to OFF the FP/IWU shall issue SAPI 3 frame with "DSR line off" condition.

Upon detection of the CCITT Recommendation V.110 [43] SA bit (107 condition) change from OFF to ON the FP/IWU shall issue SAPI 3 frame with "DSR line on" condition.

Upon detection of the CCITT Recommendation V.110 [43] SB bit (109 condition) change from ON to OFF the FP/IWU shall issue SAPI 3 frame with "DCD line off" condition.

Upon detection of the CCITT Recommendation V.110 [43] SB bit (109 condition) change from OFF to ON the FP/IWU shall issue SAPI 3 frame with "DCD line on" condition.

The CCITT Recommendation V.110 [43] SA and SB bits shall be clamped to ON condition when the synchronization process is over as specified in subclauses 6.2.1.2.1 and 6.2.1.3.1 of this ETS.

### 6.3.3 GSM automatic facsimile group 3 non-transparent and MMSP interworking

#### 6.3.3.1 FP interworking function requirements

The interworking function shall consist of the following entities:

- CCITT Recommendation V.110 [43] Rate Adaptation 2 (RA2) as specified in ETS 300 562 [18] (GSM 04.21);
- GSM CCITT Recommendation V.110 [43] Rate Adaptation 1 (RA1) for non-transparent services as specified in ETS 300 562 [18] (GSM 04.21);
- RLP as specified in ETS 300 563 [19] (GSM 04.22) and L2BOP function as specified in ETS 300 584 [20] (GSM 07.03);
- digital section of the fax adaptor including the fax adaptor protocol as specified in ETS 300 539 [16] (GSM 03.46);
- ITU-T Recommendation T.30 [38]/MMSP mapping entity.

#### 6.3.3.2 The FA and ITU-T Recommendation T.30/MMSP mapping entity functionality

The digital section FA shall function in all terms as specified in ETS 300 539 [16] (GSM 03.46).

NOTE: This implies that the FA is monitoring the ITU-T Recommendation T.30 [38] protocol flow and when necessary modifying it according to GSM requirements.

The Fax Adaptor shall forward the ITU-T Recommendation T.30 [38] protocol elements received from the FA protocol to the FP ITU-T Recommendation T.30 [38]/MMSP mapping entity which shall in turn map the ITU-T Recommendation T.30 [38] protocol elements into the data service profile F MMSP protocol elements as specified in ETS 300 755 [24], annex C.

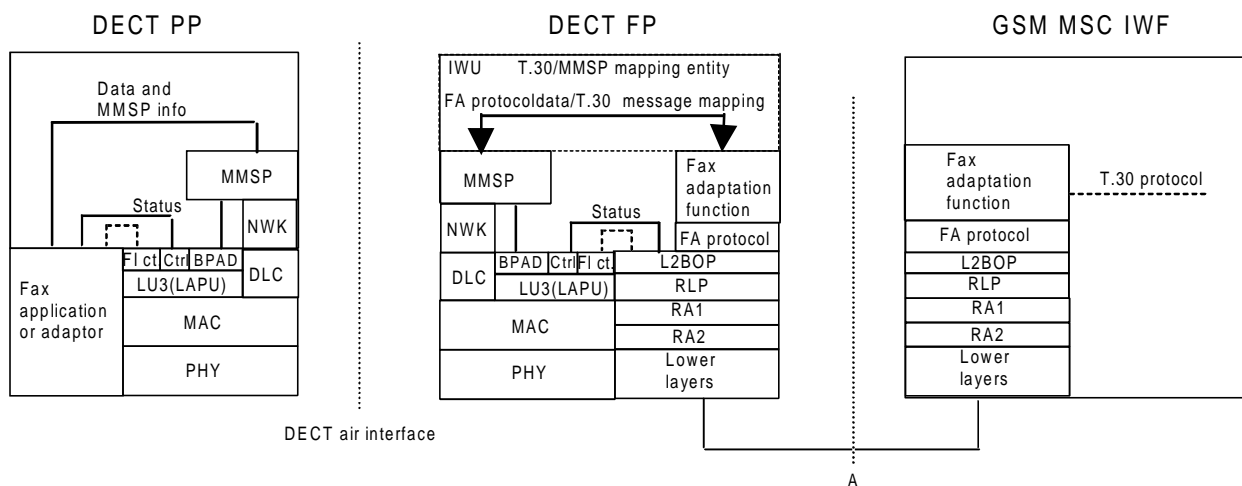


Figure 4: The ITU-T Recommendation T.30 and MMSP interworking in U-Plane, non-transparent case

#### 6.3.3.3 Flow control

The flow control procedures of ETS 300 756 [25] shall apply.

#### 6.3.3.4 Interchange circuit mappings

The interchange circuit mappings of ETS 300 756 [25] shall apply.

#### 6.3.4 Supported ITU-T Recommendation T.30 procedures

Those ITU-T Recommendation T.30 [38] procedures shall be required that are needed by the selected features as specified in subclause 5.2 of this ETS.

### **6.3.5 Outgoing call ITU-T Recommendation T.30 procedures (PP to FP)**

#### **6.3.5.1 Phase A**

The ITU-T Recommendation T.30 [38] phase A procedures have been defined in subclause 6.2.1.2.1 of this ETS.

#### **6.3.5.2 Phase B**

The ITU-T Recommendation T.30 [38] phase B procedures shall be supported as specified in ETS 300 755 [24], annex C subclauses C.8.3.2 and C.8.4.2.

#### **6.3.5.3 Phase C**

The ITU-T Recommendation T.30 [38] phase C procedures shall be supported as specified in ETS 300 755 [24], annex C subclause C.8.5.2.

#### **6.3.5.4 Phase D**

The ITU-T Recommendation T.30 [38] phase D procedures shall be supported as specified in ETS 300 755 [24], annex C subclause C.8.6.2.

#### **6.3.5.5 Phase E**

The ITU-T Recommendation T.30 [38] phase E procedures have been defined in subclause 6.2.1.2.2 of this ETS.

### **6.3.6 Incoming call ITU-T Recommendation T.30 procedures (FP to PP)**

#### **6.3.6.1 Phase A**

The ITU-T Recommendation T.30 [38] phase A procedures have been defined in subclause 6.2.1.3.1 of this ETS.

#### **6.3.6.2 Phase B**

The ITU-T Recommendation T.30 [38] phase B procedures shall be supported as specified in ETS 300 755 [24], annex C subclauses C.9.3.1 and C.9.4.1.

#### **6.3.6.3 Phase C**

The ITU-T Recommendation T.30 [38] phase C procedures shall be supported as specified in ETS 300 755 [24], annex C subclause C.9.5.1.

#### **6.3.6.4 Phase D**

The ITU-T Recommendation T.30 [38] phase D procedures shall be supported as specified in ETS 300 755 [24], annex C subclause C.9.6.1.

#### **6.3.6.5 Phase E**

The ITU-T Recommendation T.30 [38] phase E procedures have been defined in subclause 6.2.1.3.2 of this ETS.

### **6.4 PP C-Plane IWU procedures**

The requirements of ETS 300 756 [25] shall apply in respect to GSM mobility management and CC procedures.

The requirements of ETS 300 755 [24], annex C shall apply in respect to ITU-T Recommendation T.30 [38] procedures.



For the SIM interworking the procedures of ETS 300 370 [10] shall apply.

Optionally the CCITT Recommendation V.25bis [42] autocalling/autoanswering features may be supported as specified in ETS 300 651 [22], clause C.4.

## 6.5 PP U-Plane IWU procedures

The conversion of the MMSP protocol into the ITU-T Recommendation T.30 [38] in FA after the PP is outside the scope of this ETS. If the interface in the PP/IWU is according to CCITT Recommendations V.24 [41] and V.25bis [42] then in PP IWU (TAF) procedures of ETS 300 756 [25], clause C.4 TAF shall apply.

NOTE: The usage of the CCITT Recommendations V.24 [41] interface in PP facilitates the usage of class 1 (ITU-T Recommendation T.31 [39]) or class 2 (ITU-T Recommendation T.32 [40]) digital facsimile interfaces. However, this requires the interworking between the MMSP and class 1 or class 2 protocols which is not covered by this ETS. The interworking can be derived from ITU-T Recommendation T.30 [38] and MMSP mapping descriptions in data service profile F (ETS 300 755 [24], annex C).

The requirements of ETS 300 755 [24], annex C shall apply in respect to ITU-T Recommendation T.30 [38] PP procedures.

## 7 Interworking connection types

### 7.1 Connection type definitions

#### 7.1.1 General

If not stated otherwise the requirements of ETS 300 756 [25] shall apply in respect to the element coding.

### 7.2 Connection type definitions

#### 7.2.1 <<Basic service>> coding

**Table 2: <<Basic service>> default coding**

Octet	Information element field	Field value	Note
2	<Call Class> <Basic Service>	'0100'B '0110'B	"Normal Call Setup" "Other"

**7.2.2 <<lwu-attributes>> default coding**

The profile defined <<IWU ATTRIBUTES>> coding shall be used. The structure is as described in ETS 300 756 [25], annex A. The Profile subtype field shall be coded as follows.

**Profile subtype (octet 2):**

Bits	4	3	2	1	Meaning
	0	0	0	1	Automatic facsimile group 3, Profile F
All other values reserved.					

**Table 3: <<iwu attributes>> default coding**

Octet	Information element field	Field value	Note
3	<Coding standard> <Profile>	'01'B '01100'B	"Profile defined coding" "GSM Facsimile Service group 3"
4	Negotiation indicator Profile Subtype	'010'B '0001'B	"Peer attribute negotiation" "Automatic facsimile group 3, Profile F"

Remaining part of the <<lwu-attributes>> element shall be coded as specified in the GSM specifications.

**7.2.3 <<Call attributes>> default coding**

This element shall be coded as specified in ETS 300 756 [25], clause 7.

**7.2.4 <<Connection attributes>> default coding**

This element shall be coded as specified in ETS 300 756 [25], clause 7.

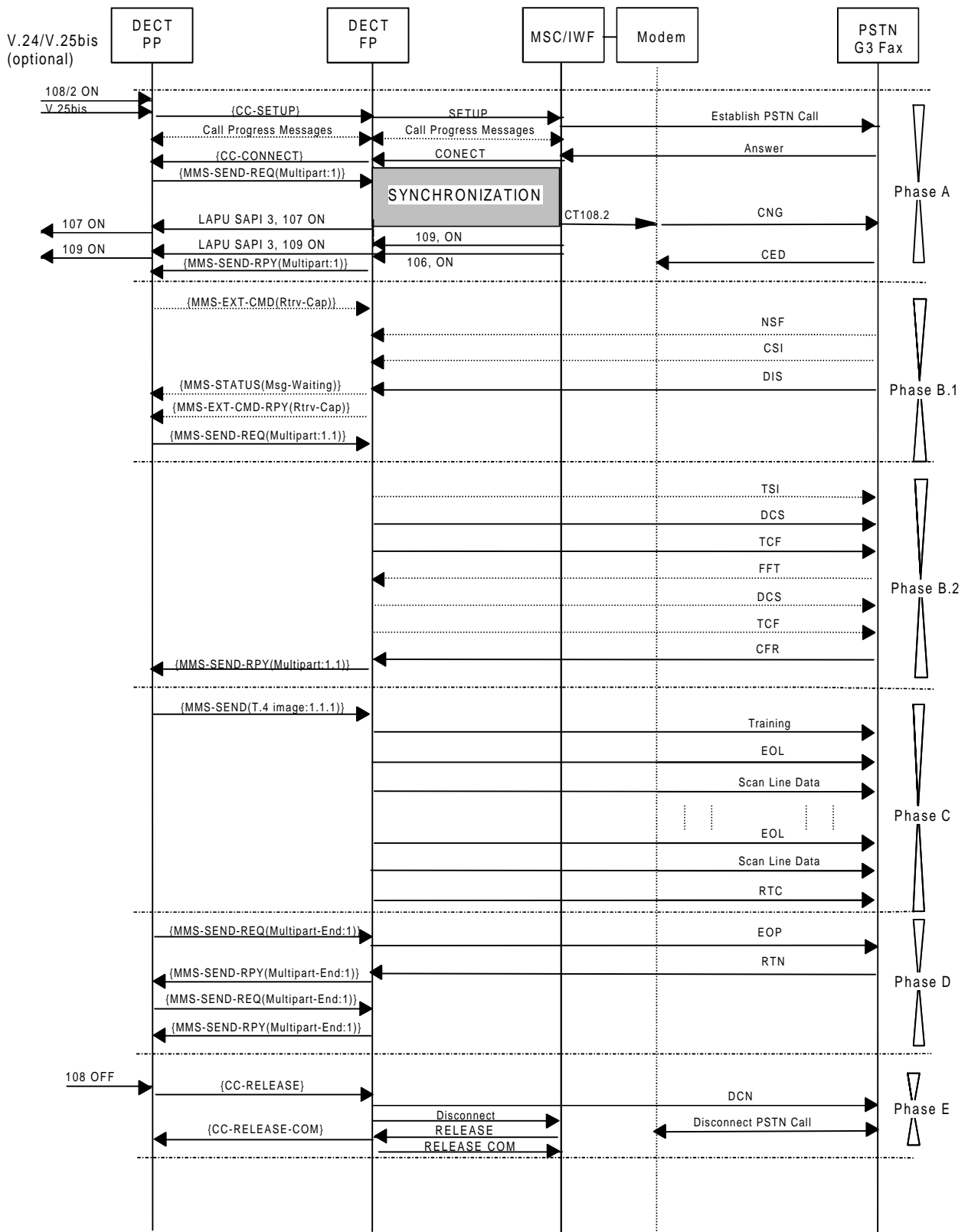
**7.2.5 <<MMS Gen Hdr>> coding**

This element shall be coded as specified in ETS 300 755 [24], annex C.

**7.2.6 <<MMS Obj Hdr>> coding**

This element shall be coded as specified in ETS 300 755 [24], annex C.

**Annex A (informative): Procedure examples of transparent A-interface solutions**



**Figure A.1: PP originated call - auto calling**

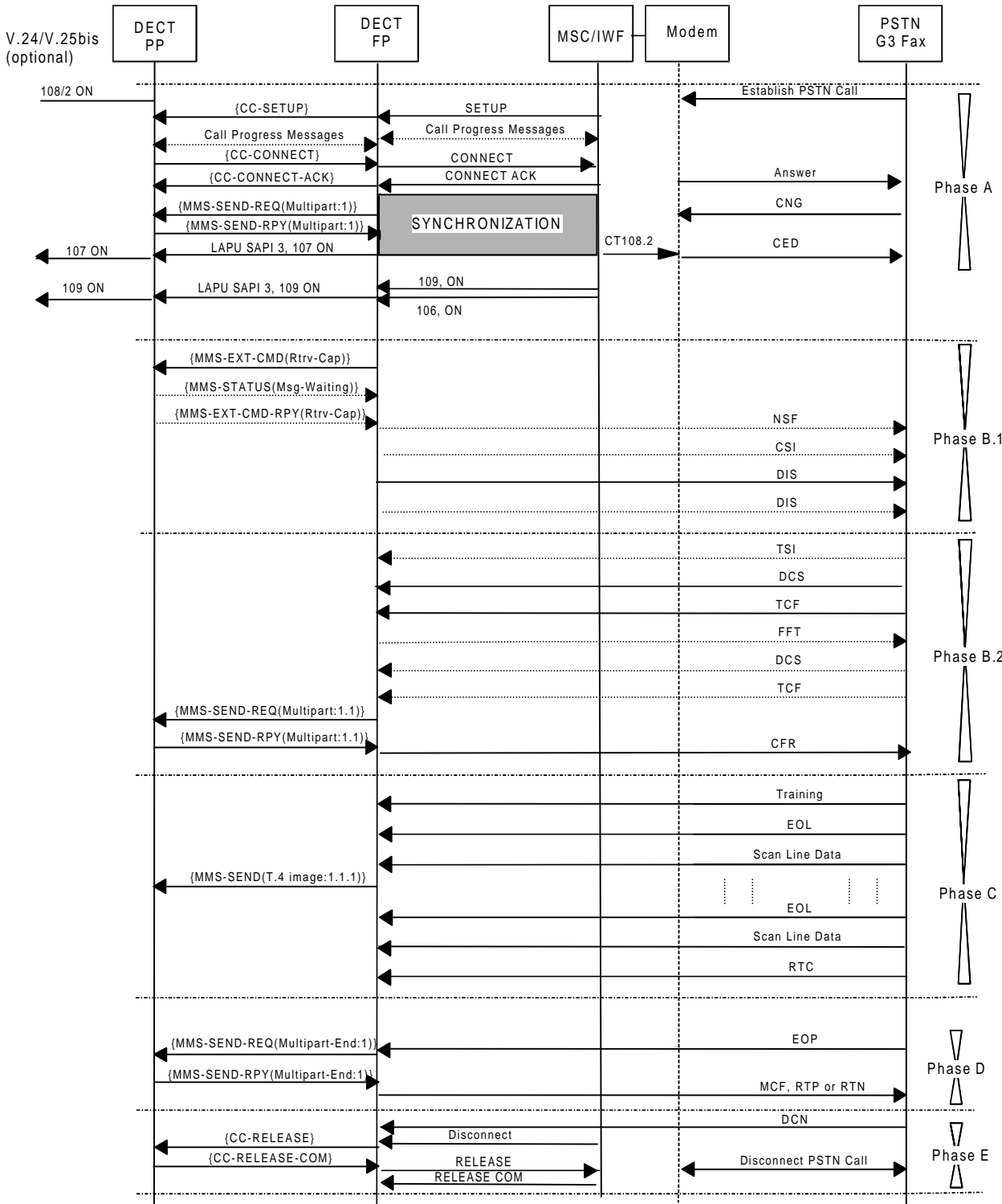


Figure A.2: PP terminated call - auto calling

**Annex B (informative): Alternate speech and facsimile group 3 teleservice**

The support of the GSM teleservice 61, alternate speech and facsimile group 3, may be added to future versions of this ETS when the DECT standard for service change, DEN/DECT-020087 [34] has been finalized.

## History

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