

**3GPP TSG\_CN**  
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**3GPP TSG-CN3 / ETSI SMG3 WPD**  
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## **1. Terms of Reference**

The TSG-N has decided to structure the work into five Working Groups:

- WG1: MM/CC/SM.
- WG2: CAMEL
- WG3: Interworking with external networks
- WG4: MAP/[GTP/BICC/SS](#)
- WG5: OSA

Generally, WG3 is responsible for the specification of bearer capabilities for circuit and packet switched (data) services, and the necessary interworking functions towards both, the UE (user equipment) in the PLMN and the TE (terminal equipment) in the external network. This work is related to the 3<sup>rd</sup> Generation of PLMNs in the scope of 3GPP as well as to the maintenance and development of the concerning GSM specifications (2<sup>nd</sup> Generation)

Specifically, this work includes the following responsibilities:

- CS domain (towards the UE)
  - layer 1 transport protocols (mainly rate adaptation in GSM or requirements on layer 1 in 3G)
  - layer 2 transport protocols (mainly RLP)
  - signalling issues (i.e., negotiation and mapping of bearer capabilities and QoS information in the sense of specifying parameters, parameter values and combinations of them, needed to specify services and to enable the 3G-MSC/IWF to select appropriate services towards the fixed network)
- CS domain (towards the fixed network)
  - mapping of signalling information
  - mapping of user data, status & control information
  - mapping and negotiation of QoS
  - evolution of bearers at the interworking point with other types of networks
- CS domain (within the PLMN)
  - user plane protocols between MGWs (Nb)
  - control of the user plane protocols (Nb), together with TSG-N WG4

- [defining of parameters and parameter values for the control of Media Gateways \(Mc\), together with TSG-N WG4](#)
- PS domain
  - Gi interface
  - R reference point (TE – MT) related to the PDP context de/activation (scope of 27.060)
  - network interface data to be transported by the GTP
  - packet data protocols (PDPs) (e.g. IP, PPP)
  - services that use PDPs (; e.g. Mobile IP, DHCP)
  - study and proposal of QoS negotiation and reservation mechanisms
  - definition of external and 3G internal QoS mechanisms
  - mapping of QoS parameters
  - Services (e.g. multimedia) interworking with other protocols
  - Study of security interworking with external networks (a big topic with corporate customers)
- IM domain
  - Interworking between different Multimedia-protocols
  - contribute to the Interface between CSCF and UE (Gm) related to interworking to external networks
  - contribute to the Interface between CSCF and Internet (Mm) related to interworking to external networks
- Data Services
  - end-to-end interworking for packet and circuit switched data services
  - CS facsimile (service provision)
  - Multimedia (transport and interworking aspects as well as inband signalling)
  - Text telephony (transport and interworking aspects (V.18))

Interworking with the following external networks or domains has to be considered:

- PSTN
- ISDN
- IP networks
- IM Domain

Interworking between the UTRAN core network and other core networks of the IMT-2000 family is out of the scope of WG3.

## 2. Dependencies with other groups

### 2.1 TSG internal dependencies

TSG-N WG3 sees dependencies with the following groups:

- TSG-N WG1: Whereas WG1 is responsible for the radio interface layer 3 procedures and protocols, WG3 see their responsibility in defining parameters and combinations of parameter values needed to specify services and to enable the IWF to select an appropriate service towards the fixed network.
- TSG-N WG4: Whereas WG4 is responsible for specifying core network internal MM/CC/SM procedures and operations, WG3 have the responsibility for defining information elements that require to be transferred by means of the needed procedures.

- TSG-R WG3: This WG provides transmissions means via the Iu reference point, TSG-N WG3 see their responsibility in providing layer 1 (rate adaptation) and layer 2 protocols for data transmission between the UE and the core network.
- TSG-SA WG2: This WG provides an overall architecture of the UMTS system. TSG-N WG3 is responsible for providing details on interworking with external networks based on the concepts provided by TSG-S WG2. TSG-S WG2 give guidance in questions related to the architecture.
- TSG-SA WG1: This WG provides requirements on services. Solutions provided by TSG-N WG3 have to fulfil these requirements. TSG-S WG1 give guidance in questions related to the service requirements.
- TSG-T WG2: This WG is responsible for the specification of terminal services and applications. The close co-operation is needed when protocols between UE and the Core Network are specified. Applications designed by TSG-T WG2 may have impact on network architecture or interworking with external networks.

## 2.2 External dependencies

External dependencies exist with ITU-T and IETF. TSG-N WG3 will not directly liaise with these organisations. A liaison shall only take place via the individual members.

## 3. Specifications

WG3 is responsible for the following GSM and 3G technical specifications and reports:

### 3.1 Packet switched

- TS 09.61 Interworking between the PLMN and PDNs
- TS 29.061 Interworking between the PLMN and PDNs
- TS 07.60 MS Supporting GPRS
- TS 27.060 MS Supporting GPRS

### 3.2 Circuit switched

- TS 03.10 GSM PLMN Interconnection Types
- TR 23.910 GSM Data Services in UMTS
- ~~TR 03.43 Support of Videotex~~
- ~~TR 03.44 Support of Teletex in a GSM PLMN~~
- TS 03.45 Transparent Fax
- TS 03.46 NonTransparent Fax
- TS 23.146 Real Time NonTransparent Fax in UMTS
- TS 03.54 Shared Interworking Function
- TS 23.054 Shared Interworking Function
- TS 03.70 Routing of calls to/from Public Data Networks
- TS 04.21 Rate Adaptation on the MS-BSS Interface
- TS 04.22 Radio Link Protocol
- TS 24.022 Radio Link Protocol
- TS 07.01 General Terminal Adaptation Functions
- TS 27.001 General Terminal Adaptation Functions
- TS 07.02 Asynchronous Terminal Adaptation Functions
- TS 27.002 Asynchronous Terminal Adaptation Functions
- TS 07.03 Synchronous Terminal Adaptation Functions
- TS 27.003 Synchronous Terminal Adaptation Functions
- TS 08.20 Rate Adaptation on the BSS-MSC Interface
- TS 09.04 Interworking between the PLMN and CSPDN
- TS 09.05 Interworking between the PLMN and PSPDN (PAD Access)
- TS 09.06 Interworking between the PLMN and ISDN/PSPDN (Packet Access)
- TS 09.07 Interworking between the PLMN and ISDN/PSTN

TS 29.007 Interworking between the PLMN and ISDN/PSTN