

**Source:** TSG SA1  
**Title:** CR to TS 22.135 V 3.0.0 on Registration, Interrogation and Restriction of Packet Domain  
**Document for:** Approval  
**Agenda Item:** 5.1.4

Status	Spec	CR	Rev	Phase	Subject	CAT	Vers	New Vers	TSG Meeting	TSG Doc.No.	Pres
	22.135	003		R99	Registration, Interrogation and Restriction of Packet Domain	C	3.0.0	3.1.0	S1#06	S1-99963	No



delivering data packets.

$N_{cs}$ : maximum number of simultaneous CS calls.

~~$N_{ps}$ : maximum number of simultaneous PS sessions.~~

## 5 Functional requirements

### 5.1 Provision and withdrawal

#### 5.1.1 Provision

The provision of multicall is provided by prior arrangement with home environment. If the multicall service is provisioned the limits for  $N_{cs}$  and  $N_{ps}$  shall be set as subscription options.

#### 5.1.2 Withdrawal

The multicall service subscription will be withdrawn on subscribers request or at administrative reasons.

### ~~5.2 Registration~~

~~User shall be able to modify the maximum number of CS calls and number of PS sessions within the limitations set at provision of the service.~~

### ~~5.3 Interrogation~~

~~User shall be able to interrogate the maximum number of CS calls and number of PS sessions set by user.~~

~~User shall be able to interrogate the maximum number of CS calls and number of PS sessions supported by serving network.~~

### 5.24 Limiting the number of multicalls

Regarding CS Domain, it should be possible for the number of active calls or sessions supported simultaneously to be restricted and selected by network operator, by the capabilities of the used terminal, by user subscription and/or user setting. ~~The maximum number of CS calls and PS sessions should be set respectively.~~ It shall be possible to have one or more CS calls simultaneously with one or more parallel PS sessions.

Standard shall be able to support up to 7 simultaneous CS Calls ( $N_{cs}$ ).

~~Standard shall be able to support up to 7 PS Sessions ( $N_{ps}$ ).~~

Terminals and networks may support any number of CS calls and PS Sessions within ~~these~~ this limits.

It shall be possible to limit the maximum number of simultaneous bearers for CS calls to one, at this case GSM rel'98 functionality shall be shall provided.

The value of the maximum number of active speech calls is 1. Network shall not allow more than bearers allocated for speech.

### 5.36 Handover

The handover event can trigger changes to individual calls in any multicall scenario.

Priority setting of CS Calls and PS Sessions shall influence the handover process. It shall be possible to handover all calls and sessions. If the target cell is not able to accommodate all calls/sessions, then the calls/sessions that are handed over shall be selected in following order and the calls/sessions that cannot be handed over will be released.

The selection criteria shall be based on the following order:

- i. The call of teleservice emergency call
- ii. If the user has set the priority, the call or session of highest priority marking. If there is more than one call or session of highest priority marking, then the call of teleservice telephony shall be chosen in preference to those of equal highest priority. If there are multiple calls where priority is the same, how to treat the calls depends on the operator.
- iii. The call of teleservice telephony
- iv. The call of any other type

If no single call can be selected according to the above criteria, handover shall be rejected.

Note: Requirements shall be considered in an intra and inter system (e.g. UMTS to GSM) handover situations. In case of intra UMTS handover it shall be possible handover all calls when resources permit. In case of UMTS to GSM handover only one call can be handed over. A change in the availability of suitable radio resources may also occur for other reasons in addition to handover.

For further handover requirements please refer to TS 22.129.

NOTE This section may be later transferred to TS 22.129.

## 5.47 Busy Definition

The NDUB (Network Determined User Busy) occurs, when a call is about to be offered and the maximum number of total CS calls has been reached. The maximum number of CS calls depends on the setting of the  $N_{cs}$ .

NOTE: This implies that CFB according to NDUB will only be invoked if the maximum number of CS calls is reached.

For User Determined User Busy (UDUB) condition see GSM 02.01 Annex C.

## 5.58 Exceptional procedures or unsuccessful outcome

~~If the subscriber requests to set the limits of  $N_{cs}$  and/or  $N_{ps}$  to higher values as allowed according to the provision (subscription option), this request shall be rejected and the subscriber shall be informed on the unsuccessful outcome of the request.~~

Roaming into networks not supporting multicall shall be possible and at this case GSM rel'98 functionality shall apply . In case there is a difference between the maximum numbers ( $N_{cs}$ ,  $N_{ps}$ ) , supported by the serving network, by the capabilities of the used terminal and/or by the user setting (according to the user subscription options), the smallest value should be applied as the maximum number.

## 7 Cross Phase Compatibility for R99

This section details the cross phase compatibility requirements relating to the service requirements in this document.

Note: when a change is introduced which affects the 3GPP specifications, it is said to be 'backward compatible' if existing equipment can continue to operate and perform correctly with equipment that conforms to the new implementation.

### 7.1 Compatibility With Existing Standards

Where the service and operational requirements in this document relate to a core network functionality, compatibility is required.

Multicall mechanisms is not applicable for GSM BSS.

### 7.2 Compatibility With Future Releases

It is envisaged that 3GPP standards will evolve beyond R99, for example with the addition of new service requirements. The standards which define the technical implementation of R99 should be developed in such a way that it is practical to add the requirements in this section in a backward compatible manner.

Following chapters include requirements that are foreseen for future release.

#### 7.2.1 Multicall configuration

When having one active CS call and one held call on the same bearer. It shall be possible to create a new CS bearer and to move one of the calls to the new bearer, resulting both calls being active within the limits set by the operator/user and within the capability of the terminal. See figure 2: Split of bearer.

When having two calls (multicall) on the separate bearers. It shall be possible to join both calls to one of the two bearers, put the one of the calls to hold and to release unused CS bearer. It shall be possible to select which call to put on hold. See figure 2: Combination of bearers. (*Note: there is no clear end-user service requirement for this feature at time being.*)

NOTE: Due to that only speech calls can be put on hold, so one of the two active Cs calls has to be a speech call

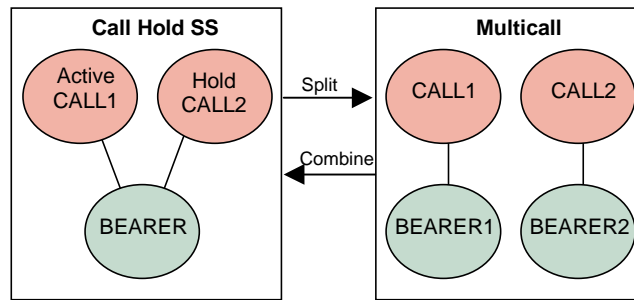


Figure2: Illustration for split of bearer and combination of bearers.

## 7.2.2 Several simultaneous speech calls / bearers

Key requirements for multicall is to allow several simultaneous CS call. The most important usage scenario is to allow several CS data bearers to be bind at application level resulting to higher than 64kbits/s data rates. Other important feature is just general flexibility allowing e.g. simultaneous speech and data call. It's been also required to have several simultaneous active speech calls.

It's been proposed that the multicall feature could be introduced in a phased manner, meaning that in the first phase, i.e. UMTS phase 1, release 99 only one active speech call would be supported. However, Call control should not prohibit a complete set of multiple speech bearer services in future releases and UTRAN shall be designed in a flexible way to support multiple speech bearers. In Release 99, GSM SS Call Wait, Multiparty and Call Hold are used to offer simultaneous speech calls to user.

## 7.2.3 CCBS

At release 1999 CCBS no enhancements for CCBS is required.

In the future releases the definition of IDLE state of subscriber A and destination B should be modified in away that the IDLE state is reach even if there are active CS calls but the maximum limit of CS calls is not reached.

## 7.2.4 Registration

User shall be able to modify the maximum number of CS calls within the limitations set at provision of the service.

If the subscriber requests to set the limits of  $N_{cs}$  to higher values as allowed according to the provision (subscription option), this request shall be rejected and the subscriber shall be informed on the unsuccessful outcome of the request.

## 7.2.5 Interrogation

User shall be able to interrogate the maximum number of CS calls set by user.

User shall be able to interrogate the maximum number of CS calls supported by serving network.