**3GPP TSG-CT WG1 Meeting #134-eC1-22XXXX**

**E-Meeting, 17th – 25th February 2022**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.011** | **CR** | **0070** | **rev** | **1** | **Current version:** | **17.0.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | SMS FSM graphes corrections | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | MediaTek Inc. | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GProtoc17 | | | | |  | ***Date:*** | | | 2022-02-21 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | FSMs and titles coorections are needed, for examples   * For "MT-SMC-5G entity on MS-side for 5GS State transition diagram", the MOxxx states should be corrected to MTxxx states, and there should not be a loop on the state “1 MT\_Wait For RP ACK” * Correct titles of some figures | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | FSMs and titles coorections | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | FSMs and titles remain in-correct | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | B.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**\*\*\*\*\*\*\***

\* \* \* First Change \* \* \* \*

# B.1 Introduction

This annex contains an SDL‑description of the Connection Management Sublayer in terms of the Short Message Service Support. The CM‑ sublayer provides services to Short Message Relay Layer.

The SDLs contain a mixture of peer to peer messages and conceptual primitives between the layers SM‑RL, CM, MM and LLC, as viewed by the SMC entities. SDL‑1/2/3 show the CS SMC entity on MS‑side for Mobile Originated (MO) short message transfer, SDL‑4/5/6 show the CS SMC entity on MS‑side for Mobile Terminated (MT) short message transfer, SDL‑7/8/9 show the CS SMC entity on the network side for Mobile Originated (MO) short message transfer, and SDL‑10/11/12 show the CS SMC entity on the network side for Mobile Terminated (MT) short message transfer.

SDL‑13/14/15 show the GPRS SMC entity on MS‑side for Mobile Originated (MO) short message transfer, SDL‑16/17/18 show the GPRS SMC entity on MS‑side for Mobile Terminated (MT) short message transfer, SDL‑19/20/21 show the GPRS SMC entity on the network side for Mobile Originated (MO) short message transfer, and SDL‑22/23/24 show the GPRS SMC entity on the network side for Mobile Terminated (MT) short message transfer.

SDL‑25/26/27 show the EPS SMC entity on network side for Mobile Originated (MO) short message transfer, SDL‑28/29/30 show the EPS SMC entity on network side for Mobile Terminated (MT) short message transfer, SDL‑31/32/33 show the EPS SMC entity on the MS-side for Mobile Originated (MO) short message transfer, and SDL‑34/35/36 show the EPS SMC entity on the MS-side for Mobile Terminated (MT) short message transfer.

SDL‑37/38/39 show the 5GS SMC entity on network side for Mobile Originated (MO) short message transfer, SDL‑40/41/42 show the 5GS SMC entity on network side for Mobile Terminated (MT) short message transfer, SDL‑43/44/45 show the 5GS SMC entity on the MS-side for Mobile Originated (MO) short message transfer, and SDL‑46/47/48 show the 5GS SMC entity on the MS-side for Mobile Terminated (MT) short message transfer.

The lower layers (below MM, GMM, EMM and LLC) are transparent to an SMC entity.



MO-SMC-CP-entity on MS-side  
SDL‑1



NOTE: The release is delayed until the next state

MO-SMC-CP-entity on MS-side  
SDL‑2



MO-SMC-CP-entity on MS-side  
SDL‑3



MO-SMC-CP-entity on MS-side  
State transition diagram



MT-SMC-CP-entity on MS-side  
Initiating message transfer  
SDL‑4



NOTE: The release is delayed until the next state

MT-SMC-CP-entity on MS-side  
MM-connection established  
SDL‑5



MT-SMC-CP-entity on MS-side  
MM-connection released  
SDL‑6



MT-SMC-CP-entity on MS-side  
State transition diagram



MO-SMC-CP-entity on Network-side  
SDL‑7



NOTE: The release is delayed until the next state

MO-SMC-CP-entity on Network-side  
SDL‑8



NOTE: This message is a retransmission from the MS

MO-SMC-CP-entity on Network-side  
SDL‑9



MO-SMC-CP-entity on Network-side  
State transition diagram



MT-SMC-CP-entity on Network-side  
SDL‑10



NOTE: The release is delayed until the next state

MT-SMC-CP-entity on Network-side  
MM-connection established  
SDL‑11



MT-SMC-CP-entity on Network-side  
Message transfer active  
SDL‑12



MT-SMC-CP-entity on Network-side  
State transition diagram



MO-SMC-GP entity on MS-side for GPRS  
SDL-13



MO-SMC-GP entity on MS-side for GPRS  
SDL-14



MO-SMC-GP entity on MS-side for GPRS  
SDL-15



MO-SMC-GP entity on MS-side for GPRS  
State transition diagram



MT-SMC-GP entity on MS-side for GPRS  
SDL-16



MT-SMC-GP entity on MS-side for GPRS  
SDL-17



Note: The MNSMS-REL-Req is delayed until the next state

MT-SMC-GP entity on MS-side for GPRS  
SDL-18



MT-SMC-GP entity on MS-side for GPRS  
State transition diagram



MO-SMC-GP entity on Network side for GPRS  
SDL-19



MO-SMC-GP entity on Network side for GPRS  
SDL-20



Note: The MNSMS-REL-Req is delayed until next state

MO-SMC-GP entity on Network side for GPRS  
SDL-21



MO-SMC-GP entity on Network-side for GPRS  
State transition diagram



MT-SMC-GP entity on Network-side for GPRS  
SDL-22



MT-SMC-GP entity on Network-side for GPRS  
SDL-23



MT-SMC-GP entity on Network-side for GPRS  
SDL-24



MT-SMC-GP entity on Network-side for GPRS  
State transition diagram



MO-SMC-EP entity on Network side for EPS when packet-switched service is used  
SDL-25



MO-SMC-EP entity on Network side for EPS when packet-switched service is used  
SDL-26



MO-SMC-EP entity on Network side for EPS when packet-switched service is used  
SDL-27



MO-SMC-EP entity on Network-side for EPS when packet-switched service is used  
State transition diagram



MT-SMC-EP entity on Network-side for EPS when packet-switched service is used  
SDL-28



MT-SMC-EP entity on Network-side for EPS when packet-switched service is used  
SDL-29



MT-SMC-EP entity on Network-side for EPS when packet-switched service is used  
SDL-30



MT-SMC-EP entity on Network-side for EPS when packet-switched service is used  
State transition diagram



MO-SMC-EP entity on MS-side for EPS when the UE is not using EPS services with control plane CIoT EPS optimization   
SDL-31



MO-SMC-EP entity on MS-side for EPS when the UE is using EPS services with control plane CIoT EPS optimization  
SDL-31a



MO-SMC-EP entity on MS-side for EPS  
SDL-32



MO-SMC-EP entity on MS-side for EPS  
SDL-33



MO-SMC-EP entity on MS-side for EPS  
State transition diagram



MT-SMC-EP entity on MS-side for EPS  
SDL-34



MT-SMC-EP entity on MS-side for EPS  
SDL-35



MT-SMC-EP entity on MS-side for EPS  
SDL-36



MT-SMC-EP entity on MS-side for EPS  
State transition diagram

sdl31_mo-smc-ep_nwk1

MO-SMC-5G entity on Network side for 5GS when packet-switched service is used  
SDL-37

MO-Wait

For RP ACK

1

MNSMS-

DATA-Req

(RP ACK)

MNSMS-

ABORT-

Req

MNSMS-

REL-Req

5GMMSMS-

ERROR-Ind

CP-ERROR

CP DATA

CP ERROR

MNSMS-

ERROR-Ind

MNSMS-

ERROR-Ind

Set TC1N

MO-Wait

For CP ACK

5GMMSMS-

REL-Req

5GMMSMS-

REL-Req

MO-Idle

MO-SMC-5G entity on Network side for 5GS when packet-switched service is used  
SDL-38

MO

-

Wait

For CP

-

ACK

CP

-

ACK

5GMMSMS

-

ERROR

-

Ind

MNSMS

-

REL

-

Req

1

Set retx

=

Zero

CP

-

ERROR

TC

1

N

Expired

5GMMSMS

-

REL

-

Req

MO

-

Idle

Set retx

=

Zero

Reset TC

1

N

MNSMS

-

ERROR

-

Ind

Retx

=

max

?

Yes

retx

=

retx

+

1

No

5GMMSMS

-

REL

-

Req

Reset TC

1

N

MO-SMC-5G entity on Network side for 5GS when packet-switched service is used  
SDL-39

**0**

**MO**

**-**

**IDLE**

**1**

**MO**

**\_**

**Wait**

**For RP ACK**

**2**

**MO**

**-**

**Wait**

**For CP ACK**

MO-SMC-5G entity on Network-side for 5GS when packet-switched service is used  
State transition diagram

sdl34_mt-smc-ep_nwk1

MT-SMC-5G entity on Network-side for 5GS when packet-switched service is used  
SDL-40

MT

-

Wait

For CP

-

ACK

CP

-

ACK

5GMMSMS

-

ERROR

-

Ind

MNSMS

-

ABORT

-

Req

MT

-

Wait For

CP

-

DATA

1

Set retx

=

Zero

CP

-

ERROR

TC

1

N

Expired

5GMMSMS

-

REL

-

Req

MT

-

Idle

Set retx

=

Zero

Reset TC

1

N

MNSMS

-

ERROR

-

Ind

Retx

=

max

?

Yes

retx

=

retx

+

1

No

CP

-

ERROR

Reset TC

1

N

Reset TC

1

N

5GMMSMS

-

REL

-

Req

5GMMSMS

-

REL

-

Req

MT-SMC-5G entity on Network-side for 5GS when packet-switched service is used  
SDL-41

MT

-

Wait

For CP

-

DATA

CP

-

DATA

MNSMS

-

REL

-

Req

5GMMSMS

-

ERROR

-

Ind

CP

-

ERROR

MT

-

Idle

MNSMS

-

ERROR

-

Ind

MNSMS

-

ABORT

-

Req

CP

-

ERROR

MNSMS

-

ERROR

-

Ind

MNSMS

-

DATA

-

Ind

(

RPDU

)

CP

-

ACK

5GMMSMS

-

REL

-

Req

MT-SMC-5G entity on Network-side for 5GS when packet-switched service is used  
SDL-42

STD_mt-smc-ep_nwk

MT-SMC-5G entity on Network-side for 5GS when packet-switched service is used  
State transition diagram

MO

-

Idle

0

5GMMSMS

-

EST

-

Req

(

CP

-

DATA

)

MNSMS

-

EST

-

Req

(

RP DATA

)

MO

-

Wait For

CP

-

ACK

SET TC

1

M

MO-SMC-5G entity on MS-side for 5GS   
SDL-43

MO

-

Wait

For CP

-

ACK

CP

-

ACK

5GMMSMS

-

ERROR

-

Ind

MNSMS

-

ABORT

-

Req

MO

-

Wait For

CP

-

DATA

1

Set retx

=

Zero

CP

-

ERROR

TC

1

M

Expired

5GMMSMS

-

REL

-

Req

MO

-

Idle

Set retx

=

Zero

Reset TC

1

M

MNSMS

-

ERROR

-

Ind

Retx

=

max

?

Yes

retx

=

retx

+

1

No

CP

-

ERROR

Reset TC

1

M

Reset TC

1

M

MO-SMC-5G entity on MS-side for 5GS  
SDL-44

MO

-

Wait

For CP

-

DATA

CP

-

DATA

MNSMS

-

REL

-

Req

5GMMSMS

-

ERROR

-

Ind

CP

-

ERROR

MO

-

Idle

MNSMS

-

ERROR

-

Ind

MNSMS

-

ABORT

-

Req

CP

-

ERROR

MNSMS

-

ERROR

-

Ind

MNSMS

-

DATA

-

Ind

(

RPDU

)

CP

-

ACK

MO-SMC-5G entity on MS-side for 5GS  
SDL-45

**0**

**MO**

**-**

**IDLE**

**1**

**MO**

**-**

**5GMM**

**Connection**

**Pending**

**3**

**MO**

**-**

**Wait**

**For CP DATA**

**2**

**MO**

**\_**

**Wait**

**For CP ACK**

MO-SMC-5G entity on MS-side for 5GS  
State transition diagram

sdl28_mt-smc-ep_MS1

MT-SMC-5G entity on MS-side for 5GS   
SDL-46

MT

-

Wait

For RP ACK

MNSMS

-

DATA

-

Req

(

RP ACK

)

5GMMSMS

-

ERROR

-

Ind

MT

-

Idle

MNSMS

-

ABORT

-

Req

CP

-

ERROR

MNSMS

-

ERROR

-

Ind

CP

-

DATA

MT

-

Wait For

CP

-

ACK

1

SET TC

1

M

MT-SMC-5G entity on MS-side for 5GS  
SDL-47

MT

-

Wait

For CP

-

ACK

CP

-

ACK

5GMMSMS

-

ERROR

-

Ind

MNSMS

-

REL

-

Req

1

Set retx

=

Zero

CP

-

ERROR

TC

1

M

Expired

MT

-

Idle

Set retx

=

Zero

Reset TC

1

M

MNSMS

-

ERROR

-

Ind

Retx

=

max

?

Yes

retx

=

retx

+

1

No

Reset TC

1

M

MT-SMC-5G entity on MS-side for 5GS  
SDL-48

**0**

**MT**

**-**

**IDLE**

**1**

**MT**

**\_**

**Wait**

**For RP ACK**

**2**

**MT**

**-**

**Wait**

**For CP ACK**

MT-SMC-5G entity on MS-side for 5GS  
State transition diagram

\* \* \* End of Changes \* \* \* \*