**3GPP TSG-SA5 Meeting #133e *S5-205168***

**e-meeting 12th - 21st October 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **32.274** | **CR** | **0079** | **rev** | **1** | **Current version:** | **16.1.0** |  |
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| *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)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:***  | Correction of flows for IEC, ECUR and PEC |
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| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | TEI16, 5GS\_Ph1-SMSCH |  | ***Date:*** | 2020-10-02 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-16 |
|  | *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 canbe 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-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
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| ***Reason for change:*** | The flows are mixes originating and terminating SMS in the same flow which makes it difficult to see the order of the events. |
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| ***Summary of change:*** | Adding some extra information on originating and terminating SMS. |
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| ***Consequences if not approved:*** | Inconsistency in regards how to interpret the triggers may lead to interoperability issues. |
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| ***Clauses affected:*** | 5.4.2.2, 5.4.2.3, 5.4.2.4, 5.4.2.x (new after 5.4.2.4), 5.4.2.5, 5.4.2.6 |
|  |  |
|  | **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 revision of S5-205168. |

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| **First change** |

#### 5.4.2.2 SMS Submission - IEC

Figure 5.4.2.2.1 describes the scenario where a SMS is submitted to the SMSF for IEC mode



Figure 5.4.2.2.1: SMS submission to SMSF for IEC

1. Initial procedures: see applicable flows.

2. The SMSF receives a "SMS Submit" incoming message.

2ch-a. The SMSF sends Charging Data Request[Event] to CHF for the SMS.

2ch-b. The CHF creates a CDR for this SMS.

2ch-c. The CHF acknowledges by sending Charging Data Response[Event] to the SMSF.

3. The SMSF returns "SMS Submit Answer" with appropriate result successful or unsuccessful reception of the SM by the SMSF.

4. Forward SMS per applicable flows.

The table 5.4.2.2.1 describes the correspondence between the message in this scenario, and the message in the different Network scenario for which it is applicable.

Table 5.4.2.2.1: Messages mapping

| Message | Message in Network scenario | Reference  |
| --- | --- | --- |
| 2. SMS submit | 2b. Nsmsf\_SMService\_UplinkSMS (SMS body)  | TS 23.502[202] Figure 4.13.3.3-1: MO SMS over NAS |
| 6b. Nsmsf\_SMService\_UplinkSMS (Delivery report) | TS 23.502[202] Figure 4.13.3.6-1: MT SMS over NAS in CM\_IDLE state via 3GPP access |
| 3. SMS submit answer | 2c. Namf\_Communication\_N1N2MessageTransfer (CP Ack) | TS 23.502[202] Figure 4.13.3.3-1: MO SMS over NAS |
| 6c. Namf\_Communication\_N1N2MessageTransfer (CP Ack) | TS 23.502[202] Figure 4.13.3.6-1: MT SMS over NAS in CM\_IDLE state via 3GPP access |
| 4. Forward SMS | 3. Forward MO | TS 23.502[202] Figure 4.13.3.3-1: MO SMS over NAS |
| 7. Delivery report | TS 23.502[202] Figure 4.13.3.6-1: MT SMS over NAS in CM\_IDLE state via 3GPP access |

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| **Second change** |

#### 5.4.2.3 SMS Delivery - IEC

Figure 5.4.2.3.1 describes the scenario where a SMS is delivered from the SMSF for IEC mode



Figure 5.4.2.3.1 SMS delivery from SMSF for IEC

1. "SMS to deliver" received by SMSF: see applicable flows.

1ch-a. The SMSF sends Charging Data Request[Event] to CHF for the SMS.

1ch-b. The CHF creates a CDR for this SMS.

1ch-c. The CHF acknowledges by sending Charging Data Response[Event] to the SMSF.

2. UE reachability criteria met.

3. The SMSF forwards the "SMS Deliver" message.

4. The SMSF receives "SMS Deliver Answer" message as the delivery success or failure of the SM transfer attempt.

The table 5.4.2.3.1 describes the correspondence between the message in this scenario, and the message in the different Network scenario for which it is applicable.

Table 5.4.2.3.1: Messages mapping

| Message | Message in Network scenario | Reference  |
| --- | --- | --- |
| 1. SMS to deliver | 3. Forward MT SM | TS 23.502[202] Figure 4.13.3.6-1: MT SMS over NAS in CM\_IDLE state via 3GPP access |
| 5. Submit report | TS 23.502[202] Figure 4.13.3.3-1: MO SMS over NAS |
| 3. SMS deliver | 5. Namf\_Communication\_N1N2MessageTransfer (SMS body) | TS 23.502[202] Figure 4.13.3.6-1: MT SMS over NAS in CM\_IDLE state via 3GPP access |
| 6a. Namf\_Communication\_N1N2MessageTransfer (Submit Report) | TS 23.502[202] Figure 4.13.3.3-1: MO SMS over NAS |
| 4. SMS deliver answer | 5d. Nsmsf\_SMService\_UplinkSMS (CP Ack) | TS 23.502[202] Figure 4.13.3.6-1: MT SMS over NAS in CM\_IDLE state via 3GPP access |
| 6d. Nsmsf\_SMService\_UplinkSMS (CP Ack) | TS 23.502[202] Figure 4.13.3.3-1: MO SMS over NAS |

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| **Third change** |

#### 5.4.2.4 SMS Submission - ECUR

Figure 5.4.2.4.1 describes the scenario where a SMS is submitted to the SMSF for ECUR mode.



Figure 5.4.2.4.1: Converged charging SMS Submission using ECUR

1. Initial procedures: see applicable flows.

2. The SMSF receives a "SMS Submit" incoming message originated by a UE.

2ch-a. The SMSF sends Charging Data Request [Initial] to CHF for authorization.

2ch-b. The CHF opens CDR for this SMS submission.

2ch-c. The CHF acknowledges by sending Charging Data Response [Initial] to the SMSF

3. The SMSF returns "SMS Submit Answer" with appropriate result successful or unsuccessful reception of the SM by the SMSF.

4. Forward SMS per applicable flows.

5. "Report SMS " received by SMSF: see applicable flows.

5ch-a. The SMSF sends Charging Data Request [Termination] to the CHF for terminating the charging associated with SMS submission.

5ch-b. The CHF closes the CDR for this SMS submission.

5ch-c. The CHF acknowledges by sending Charging Data Response [Termination] to the SMSF.

6. The SMSF forwards the "SMS Report" message towards the UE.

7. The SMSF receives "SMS Report answer" message as the delivery success or failure of the SM transfer attempt.

8. Termination procedures: see applicable flows

The table 5.4.2.4.1 describes the correspondence between the message in this scenario, and the message in the different Network scenario for which it is applicable.

Table 5.4.2.4.1: Messages mapping

| Message | Message in Network scenario | Reference  |
| --- | --- | --- |
| 2. SMS Submit | 2b. Nsmsf\_SMService\_UplinkSMS (SMS body)  | TS 23.502[202] Figure 4.13.3.3-1: MO SMS over NAS |
| 3. SMS Submit answer | 2c. Namf\_Communication\_N1N2MessageTransfer (CP Ack) | TS 23.502[202] Figure 4.13.3.3-1: MO SMS over NAS |
| 4. Forward SMS | 3. Forward MO | TS 23.502[202] Figure 4.13.3.3-1: MO SMS over NAS |
| 5. Report SMS | 5. Submit report | TS 23.502[202] Figure 4.13.3.3-1: MO SMS over NAS |
| 6. SMS Report | 6a. Namf\_Communication\_N1N2MessageTransfer (Submit Report) | TS 23.502[202] Figure 4.13.3.3-1: MO SMS over NAS |
| 7. SMS Report answer | 6d. Nsmsf\_SMService\_UplinkSMS (CP Ack) | TS 23.502[202] Figure 4.13.3.3-1: MO SMS over NAS |

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| **Fourth change** |

#### 5.4.2.x SMS Delivery - ECUR

Figure 5.4.2.x.1 describes the scenario where a SMS is delivered from the SMSF for ECUR mode.



Figure 5.4.2.x.1: Converged charging SMS Delivery using ECUR

1. Initial procedures: see applicable flows.

2. "SMS to deliver" received by SMSF: see applicable flows.

2ch-a. The SMSF sends Charging Data Request [Initial] to CHF for authorization.

2ch-b. The CHF opens CDR for this SMS delivery.

2ch-c. The CHF acknowledges by sending Charging Data Response [Initial] to the SMSF

3. The SMSF forwards the "SMS Deliver" message towards the UE.

4. The SMSF receives "SMS Deliver Answer" message as the delivery success or failure of the SM transfer attempt.

5. The SMSF receives a "SMS Report" incoming message originated by a UE.

5ch-a. The SMSF sends Charging Data Request [Termination] to the CHF for terminating the charging associated with SMS delivery.

5ch-b. The CHF closes the CDR for this SMS delivery.

5ch-c. The CHF acknowledges by sending Charging Data Response [Termination] to the SMSF.

3. The SMSF returns "SMS Report answer" with appropriate result successful or unsuccessful reception of the SM by the SMSF.

4. Report SMS per applicable flows.

8. Termination procedures: see applicable flows

The table 5.4.2.4a.1 describes the correspondence between the message in this scenario, and the message in the different Network scenario for which it is applicable.

Table 5.4.2.x.1: Messages mapping

| Message | Message in Network scenario | Reference  |
| --- | --- | --- |
| 1. SMS to deliver | 3. Forward MT SM | TS 23.502[202] Figure 4.13.3.6-1: MT SMS over NAS in CM\_IDLE state via 3GPP access |
| 3. SMS Deliver | 5. Namf\_Communication\_N1N2MessageTransfer (SMS body) | TS 23.502[202] Figure 4.13.3.6-1: MT SMS over NAS in CM\_IDLE state via 3GPP access |
| 4. SMS Deliver answer | 5d. Nsmsf\_SMService\_UplinkSMS (CP Ack) | TS 23.502[202] Figure 4.13.3.6-1: MT SMS over NAS in CM\_IDLE state via 3GPP access |
| 5. SMS Report | 6b. Nsmsf\_SMService\_UplinkSMS (Delivery report) | TS 23.502[202] Figure 4.13.3.6-1: MT SMS over NAS in CM\_IDLE state via 3GPP access |
| 6. SMS Report answer | 6c. Namf\_Communication\_N1N2MessageTransfer (CP Ack) | TS 23.502[202] Figure 4.13.3.6-1: MT SMS over NAS in CM\_IDLE state via 3GPP access |
| 7. Report SMS | 7. Delivery report | TS 23.502[202] Figure 4.13.3.6-1: MT SMS over NAS in CM\_IDLE state via 3GPP access |

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| **Fifth change** |

#### 5.4.2.5 SMS Submission - PEC

Figure 5.4.2.5.1 describes the scenario where a SMS is submitted to the SMSF for PEC mode



Figure 5.4.2.5.1: SMS submission to SMSF - PEC

1. Initial procedures: see applicable flows in table 5.4.2.2.1.

2. The SMSF receives a "SMS Submit" incoming message.

3. The SMSF returns "SMS Submit Answer" with appropriate result successful or unsuccessful reception of the SM by the SMSF.

3ch-a. The SMSF sends Charging Data Request [Event] to CHF for the SMS.

3ch-b. The CHF creates a CDR for this SMS.

3ch-c. The CHF acknowledges by sending Charging Data Response [Event] to the SMSF.

4. Forward SMS per applicable flows table 5.4.2.2.1.

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| **Sixth change** |

#### 5.4.2.6 SMS Delivery - PEC

Figure 5.4.2.6.1 describes the scenario where a SMS is delivered from the SMSF for PEC mode



Figure 5.4.2.6.1 SMS delivery from SMSF - PEC

1. "SMS to deliver" received by SMSF: see applicable flows in table 5.4.2.3.1.

2. UE reachability criteria met.

3. The SMSF forwards the "SMS Deliver".

4. The SMSF receives "SMS Deliver Answer" message as the delivery success or failure of the SM transfer attempt.

4ch-a. The SMSF sends Charging Data Request [Event] to CHF for the SMS.

4ch-b. The CHF creates a CDR for this SMS.

4ch-c. The CHF acknowledges by sending Charging Data Response [Event] to the SMSF.

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| **End of changes** |