**Third Generation Partnership Project (3GPP™)**

**Meeting Report  
for  
TSG SA WG3  
meeting: 93**

**Spokane, US, 12/11/2018 to 16/11/2018**

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## 1 Opening of the meeting

The Chair, Anand Prasad, welcomed the delegates in the city of Spokane. This meeting was hosted by North American Friends of 3GPP.

## 2 Approval of Agenda and Meeting Objectives

**S3-183200 Agenda**

*Type: agenda For: (not specified)  
 Source: WG Chairman*

**Decision:** The document was **revised to S3-183253**.

**S3-183253 Agenda**

*Type: agenda For: Approval  
 Source: WG Chairman*

(Replaces S3-183200)

**Decision:** The document was **approved**.

## 3 IPR and Anti-Trust Law Reminder

The attention of the delegates to the meeting of this Technical Specification Group was drawn to the fact that 3GPP Individual Members have the obligation under the IPR Policies of their respective Organizational Partners to inform their respective Organizational Partners of Essential IPRs they become aware of.

The delegates were asked to take note that they were thereby invited:

to investigate whether their organization or any other organization owns IPRs which were, or were likely to become Essential in respect of the work of 3GPP.

to notify their respective Organizational Partners of all potential IPRs, e.g., for ETSI, by means of the IPR Information Statement and the Licensing declaration forms.

The attention of the delegates to the meeting was drawn to the fact that 3GPP activities were subject to all applicable antitrust and competition laws and that compliance with said laws was therefore required by any participant of the meeting, including the Chairman and Vice-Chairmen and were invited to seek any clarification needed with their legal counsel. The leadership would conduct the present meeting with impartiality and in the interests of 3GPP. Delegates were reminded that timely submission of work items in advance of TSG/WG meetings was important to allow for full and fair consideration of such matters.

Delegates were reminded of the fair network use rules established by the PCG:

1. Users shall not use the network to engage in illegal activities. This includes activities such as copyright violation, hacking, espionage or any other activity that may be prohibited by local laws.

2. Users shall not engage in non-work related activities that are consume excessive bandwidth or cause significant degradation of the performance of the network.

## 4 Meeting reports

### 4.1 Approval of the report from previous SA3 meeting(s)

**S3-183201 Report from SA3#92**

*Type: report For: (not specified)  
 Source: MCC*

**Decision:** The document was **approved**.

**S3-183206 Report from SA3#92Ad-Hoc**

*Type: report For: (not specified)  
 Source: MCC*

**Decision:** The document was **approved**.

### 4.2 Report from SA Plenary

**S3-183203 Report from last SA meeting**

*Type: report For: (not specified)  
 Source: WG Chairman*

**Discussion:**

ORANGE queried about the GSMA LS on SoR (Steering of Roaming). Ericsson commented that they had some input prepared to be checked later in the meeting.

**Decision:** The document was **noted**.

### 4.3 Report from SA3-LI

The SA3-LI Chair presented results from their last meeting in Newport Beach.

At SA3-LI#71, SA3LI completed TS 33.127 which is submitted to SA3 for approval.

TS33.128 has reached v002 and is scheduled for completion at SA3-LI#72BIS.

5G conference calls are scheduled to progress TS33.128 (next two 14th and 28th Nov).

Other SA3LI CRs on email list for approval.

TR33.842 is no longer required and SID is to be terminated.

**S3-183634 TS 33 127 v110**

*Type: draft TS For: Agreement  
 33.127 v1.1.0  
 Source: BT plc*

(Replaces s3i180608)

**Abstract:**

33.127 updated to v1.1.0 due to errors in pCRs used to create v1.0.0

**Discussion:**

BT commented that this revision was a correction on a wrongly implemented CR. It was brought to this meeting for approval.

BT commented that this draft was sent for information and approval to the next SA plenary.

**Decision:** The document was **approved**.

**S3-183635 Cover sheet for presentation of TS 33.127 to SA Plenary**

*Type: TS or TR cover For: Agreement  
 33.127 v..  
 Source: SA3 (SA3-LI)*

(Replaces s3i180603)

**Abstract:**

Replacement cover sheet for S3i180603

**Decision:** The document was **approved**.

## 5 Items for early consideration

### 5.1 CRs from SA3#92bis

**S3-183207 Intra-gNB-CU term synchronization**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0377 Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **agreed**.

**S3-183208 Update RNA Update Procedure Security**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0378 Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **agreed**.

**S3-183209 N2 HO: Handling source algorithms for RRC Reestablishment procedure**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0379 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **agreed**.

**S3-183210 Handling of UP security policy in MR-DC**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0380 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon, Qualcomm Incorporated, Ericsson*

**Decision:** The document was **revised to S3-183835**.

**S3-183835 Handling of UP security policy in MR-DC**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0380 rev 1 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon, Qualcomm Incorporated, Ericsson*

(Replaces S3-183210)

**Decision:** The document was **agreed**.

**S3-183211 Delete EN in SBA Requirements**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0381 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **agreed**.

**S3-183212 Clarifications on AccessToken\_Get Response message**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0382 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **agreed**.

**S3-183213 Editorial corrections on Authorization of NF service access**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0383 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **agreed**.

**S3-183214 Add discover procedure as a pre-requisite for obtaining access token**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0384 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **agreed**.

**S3-183215 correction on the mobility from 5G to 4G**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0385 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **agreed**.

**S3-183216 Clarification on handover from EPS to 5GS**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0386 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **merged**.

**S3-183217 Editorial corrections on the 5GS to EPS handover procedure**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0387 Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **agreed**.

**S3-183218 Clarification for Target to Source container**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0388 Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **agreed**.

**S3-183219 Multiple NAS connections: clarification on the action of MAC verification in registration request over non-3gpp access**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0389 Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **agreed**.

**S3-183220 Interworking – correcting keying material in HO request message (EPS to 5GS)**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0390 Cat: F (Rel-15)  
  
 Source: Ericsson*

**Decision:** The document was **revised to S3-183836**.

**S3-183836 Interworking – correcting keying material in HO request message (EPS to 5GS)**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0390 rev 1 Cat: F (Rel-15)  
  
 Source: Ericsson,Huawei*

(Replaces S3-183220)

**Decision:** The document was **agreed**.

**S3-183221 Length of IV salt and sequence counter**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0391 Cat: F (Rel-15)  
  
 Source: Ericsson*

**Decision:** The document was **agreed**.

**S3-183222 Correction to the Security Service for Steering of Roaming**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0392 Cat: F (Rel-15)  
  
 Source: Ericsson*

**Decision:** The document was **agreed**.

**S3-183223 Mobility – Clarification of downlink NAS COUNT in N2 handover**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0393 Cat: F (Rel-15)  
  
 Source: Ericsson*

**Decision:** The document was **agreed**.

**S3-183224 NAS key refresh**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0394 Cat: F (Rel-15)  
  
 Source: Ericsson*

**Decision:** The document was **agreed**.

**S3-183225 Caching access tokens**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0395 Cat: F (Rel-15)  
  
 Source: Ericsson*

**Decision:** The document was **agreed**.

**S3-183226 Addition of multiple instance IDs to OAuth2.0 access token claims**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0396 Cat: F (Rel-15)  
  
 Source: Ericsson*

**Decision:** The document was **agreed**.

**S3-183227 Corrections to references for security related service in clause 14**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0397 Cat: F (Rel-15)  
  
 Source: CATT*

**Decision:** The document was **agreed**.

**S3-183228 Correction to Nudm\_UEAuthentication\_ResultConfirmation service**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0398 Cat: F (Rel-15)  
  
 Source: CATT*

**Decision:** The document was **agreed**.

**S3-183229 Correction to 5G AKA procedure – no need for "SUPI or SUCI" (in step 10)**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0399 Cat: F (Rel-15)  
  
 Source: Orange, Ericsson, Nokia*

**Decision:** The document was **agreed**.

**S3-183233 Adjusting the description of the initial NAS protection method**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0400 Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated, ZTE, China Mobile*

**Decision:** The document was **not pursued**.

**S3-183234 Acknowledging possibility of early calculation of EMSK**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0401 Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated, Huawei, Hsilicon*

**Decision:** The document was **agreed**.

**S3-183235 Precedence of protection policies on the N32 interface**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0402 Cat: F (Rel-15)  
  
 Source: Telekom Deutschland GmbH*

**Decision:** The document was **agreed**.

**S3-183236 Handling of encrypted IEs on the N32 interface**

*Type: CR For: (not specified)  
 33.501 v15.2.0 CR-0403 Cat: F (Rel-15)  
  
 Source: Telekom Deutschland GmbH*

**Decision:** The document was **agreed**.

**S3-183237 Corrections and additions in definitions and related clauses**

*Type: CR For: (not specified)  
 33.501 v15.2.0 CR-0411 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

(Replaces S3-183072)

**Decision:** The document was **agreed**.

**S3-183238 Clarification to AUSF key derivation**

*Type: CR For: (not specified)  
 33.501 v15.2.0 CR-0410 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

(Replaces S3-183097)

**Decision:** The document was **agreed**.

**S3-183239 Clarification to support of authentication methods**

*Type: CR For: (not specified)  
 33.501 v15.2.0 CR-0409 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

(Replaces S3-183077)

**Decision:** The document was **agreed**.

**S3-183240 Adding reference to 33.501 in 33.102**

*Type: CR For: (not specified)  
 33.102 v15.0.0 CR-0276 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

(Replaces S3-182957)

**Decision:** The document was **agreed**.

**S3-183241 Alignment regarding KEY reference to 33.220**

*Type: CR For: (not specified)  
 33.501 v15.2.0 CR-0408 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

(Replaces S3-183098)

**Decision:** The document was **agreed**.

**S3-183242 Misleading text with reference regarding serving network name**

*Type: CR For: (not specified)  
 33.501 v15.2.0 CR-0407 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

(Replaces S3-183099)

**Decision:** The document was **agreed**.

**S3-183243 Clarification on first bits of EMSK**

*Type: CR For: (not specified)  
 33.501 v15.2.0 CR-0406 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

(Replaces S3-182960)

**Decision:** The document was **agreed**.

**S3-183244 Removing mandatory text from note**

*Type: CR For: (not specified)  
 33.501 v15.2.0 CR-0405 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

(Replaces S3-182967)

**Decision:** The document was **agreed**.

**S3-183245 Reference correction**

*Type: CR For: (not specified)  
 33.501 v15.2.0 CR-0404 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

(Replaces S3-182968)

**Decision:** The document was **agreed**.

**S3-183246 Remove EN in 13.2**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0412 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This CR removes the Editor’s Note in 13.2

**Decision:** The document was **agreed**.

**S3-183247 Clarifications to clause 13.2.1**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0413 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This CR contains clarifications to the introductory text in 13.2.x

**Decision:** The document was **agreed**.

**S3-183248 Remove EN in 13.2.2.1**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0414 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Remove EN in 13.2.y.1

**Decision:** The document was **agreed**.

**S3-183249 Correction in step 2 of 13.2.2.2**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0415 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Correction in step 2c of 13.2.2.2

**Decision:** The document was **agreed**.

**S3-183250 Corrections in 13.2.2.4 on N32-f context ID**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0416 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Corrections in 13.2.2.4 on N32-f context ID

**Decision:** The document was **agreed**.

**S3-183251 Clarifications and corrections in clause 13.2.4**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0417 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Clarifications and corrections in clause 13.2.4

**Decision:** The document was **agreed**.

**S3-183254 Multiple NAS Connection: Correcting NAS link identifier**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0418 Cat: F (Rel-15)  
  
 Source: Nokia*

**Abstract:**

Correcting NAS Link id in Non-3GPP access clause

**Decision:** The document was **agreed**.

**S3-183255 CR to 33210 r15 adding references for the TLS Protocol Profiles clause**

*Type: CR For: (not specified)  
 33.210 v15.1.0 CR-0055 Cat: F (Rel-15)  
  
 Source: Juniper Networks, Ericsson*

**Decision:** The document was **agreed**.

**S3-183256 CR to 33210 r16 adding Other 3GPP Profiles clause and references**

*Type: CR For: (not specified)  
 33.210 v15.1.0 CR-0056 Cat: B (Rel-16)  
  
 Source: Juniper Networks, Ericsson*

**Decision:** The document was **agreed**.

**S3-183257 CR to 33310 r16 removing annex e**

*Type: CR For: (not specified)  
 33.310 v16.0.0 CR-0098 Cat: C (Rel-16)  
  
 Source: Juniper Networks, Ericsson*

**Decision:** The document was **agreed**.

### 5.2 Others

## 6 Reports and Liaisons from other Groups

### 6.1 3GPP Working Groups

**S3-183276 LS to 3GPP TSG-SA WG6 on Use of ITS Dedicated Spectrum within V2X UE**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: ETSI TC ITS*

**Discussion:**

No action for SA3.

**Decision:** The document was **noted**.

**S3-183653 3GPP SA3 statement**

*Type: other For: Information  
 Source: SA3 WG vice chair (NTT-Docomo)*

**Decision:** The document was **endorsed**.

**S3-183706 LS on IAB security**

*Type: LS in For: Discussion  
 Original outgoing LS: -, to -, cc -  
 Source: R2-1818748*

**Discussion:**

It was pointed out that this could have security implications that would need further study in SA3, hence the answers would be very short.

Huawei commented that the answer was not trivial and more time was needed. Nokia was in line with this. Huawei pointed out that this was Rel-16 and there was no hurry.

AT&T preferred to reply to RAN2 in the short deadline given by them.

The Chair proposed to answer with a disclaimer given that SA3 was not aware of the full picture, just a preliminary reply. This was what Ericsson had in mind. Qualcomm agreed with this reply.

Huawei: we don’t have a deadline in the LS. This can be seen for the next meeting. Nokia supported this.

It was agreed to propose a draft that could be discussed.

BT: the intention of RAN2 was to have a response for this week.

The Chair confirmed that he was personally contacted to have a reply for the meeting week. Qualcomm commented that RAN2 needed SA3's response to conclude their study and even a preliminary response would be useful for them.

Juniper: they should design a protocol that doesn’t depend on our choosing.

**Decision:** The document was **replied to in S3-183711**.

**S3-183711 Reply to: LS on IAB security**

*Type: LS out For: approval  
 to RAN2, cc RAN3  
 Source: Ericsson*

**Decision:** The document was **approved**.

### 6.2 IETF

### 6.3 ETSI SAGE

### 6.4 GSMA

Alf (Docomo) commented that GSMA that they are discussing a new CVD paper and whether 3GPP should be involved as well. The Chair commented that there were in fact multiple CVDs being discussed in parallel. The SA3 leadership could prepare a paper with some initial thoughts that could be sent as a contribution to the SA3 meeting.

Qualcomm supported having an official response from 3GPP SA3.

### 6.5 OMA

### 6.6 TCG

### 6.7 oneM2M

### 6.8 TC-CYBER

Alex (BT) to add content for this section.

-Middlebox.

- ETLS.

### 6.9 ETSI NFV

Alex (BT) commented that the security group was growing since the awareness had increased. Nothing specific to report.

### 6.10 Other Groups

**S3-183277 LS on Joint ETSI - OSA Workshop: Open Implementations & Standardization**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: ETSI*

**Discussion:**

Alex (BT) commented that this clashed with SA plenary.

It was commented that SA3 could make a contribution about SA3 security.

**Decision:** The document was **noted**.

**S3-183286 LS on SG17 work item X.5Gsec-q: Security guidelines for applying quantum-safe algorithms in 5G systems**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: ITU-T SG17*

**Decision:** The document was **replied to in S3-183654**.

**S3-183482 LS\_to\_LS on SG17 work item X 5Gsec-q**

*Type: LS out For: (not specified)  
 to ITU-T SG17  
 Source: China Mobile*

**Decision:** The document was **noted**.

**S3-183793 Reply-LS on work item "X.5Gsec-q"**

*Type: LS in For: discussion  
 Original outgoing LS: -, to -, cc -  
 Source: ETSI TC Cyber WG QSC*

**Decision:** The document was **noted**.

**S3-183794 Liaison Statement to ITU-T SG17: Response to proposal for ITU-T SG17 question on quantum-safe communication**

*Type: LS in For: discussion  
 Original outgoing LS: -, to -, cc -  
 Source: ETSI TC Cyber WG QSC*

**Decision:** The document was **noted**.

## 7 Work Areas

### 7.1 Security aspects of 5G System - Phase 1 (5GS\_Ph1-SEC) (Rel-15)

#### 7.1.1 Key hierarchy

**S3-183554 Correction to Key hierarchy diagram**

*Type: CR For: (not specified)  
 33.501 v15.2.0 CR-0470 Cat: F (Rel-15)  
  
 Source: Samsung*

**Decision:** The document was **revised to S3-183678**.

**S3-183678 Correction to Key hierarchy diagram**

*Type: CR For: -  
 33.501 v15.2.0 CR-0470 rev 1 Cat: F (Rel-15)  
  
 Source: Samsung*

(Replaces S3-183554)

**Discussion:**

Revised to make the figure bigger.

**Decision:** The document was **agreed**.

#### 7.1.2 Key derivation

**S3-183504 Alignment on KEY**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0463 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **agreed**.

**S3-183556 Corrections to KSEAF derivation in Key distribution and derivation**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0471 Cat: F (Rel-15)  
  
 Source: Samsung*

**Decision:** The document was **agreed**.

#### 7.1.3 Mobility

**S3-183345 Clarification on how AMF confirm UE SUPI**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0432 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Discussion:**

Ericsson: some incorrect statements in the note.

Nokia: this is not needed.

Huawei: without this, external people to SA3 will not understand the procedure.

Docomo supported the fact that this was not needed.

**Decision:** The document was **not pursued**.

#### 7.1.4 AS security

**S3-183318 AS subscription temporary identifier privacy**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0425 Cat: F (Rel-15)  
  
 Source: ZTE Corporation*

**Discussion:**

Nokia: 5.3.X should be in a RAN spec.

Ericsson: this new clause is not needed.

It was agreed to remove the new clause from the CR and reword the statement on the gNB in the second change (since it wasn’t clear to which gNB it was referring).

**Decision:** The document was **revised to S3-183663**.

**S3-183663 AS subscription temporary identifier privacy**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0425 rev 1 Cat: F (Rel-15)  
  
 Source: ZTE Corporation*

(Replaces S3-183318)

**Decision:** The document was **agreed**.

**S3-183408 Discussion on Support AS Security Algorithms Negotiation during INACTIVE transition and RRC Reestablishment in R15**

*Type: discussion For: Discussion  
 33.501 v..  
 Source: Huawei, Hisilicon*

**Discussion:**

Vodafone: the conclusion of the study is to do nothing for four years (potentially the next generation after 5G).

NCSC: observations 1 and 2 should actually be included in the study.

**Decision:** The document was **noted**.

**S3-183342 Update RRC reestablishment security procedure based on RAN2 agreement**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0430 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Discussion:**

Ericsson, Qualcomm: it is too late to introduce this feature now.

**Decision:** The document was **revised to S3-183664**.

**S3-183664 Update RRC reestablishment security procedure based on RAN2 agreement**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0430 rev 1 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

(Replaces S3-183342)

**Decision:** The document was **agreed**.

**S3-183621 Clarification on RRC Inactive procedure support by ng-eNB**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0481 Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **revised to S3-183665**.

**S3-183665 Clarification on RRC Inactive procedure support by ng-eNB**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0481 rev 1 Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

(Replaces S3-183621)

**Decision:** The document was **agreed**.

**S3-183407 CR-to-TS33501-RRC Reestablishment security handling when N2 Handover happens**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0444 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Discussion:**

Qualcomm: it impacts ASN.1 and it's too late for this.

Ericsson: too late for this, it's more about optimization than a security issue.

Docomo commented that this could go to Rel-16.

The Chair commented that this should be brought back in Rel-16. This was agreed.

**Decision:** The document was **not pursued**.

**S3-183322 Proposal about improvement of the UP security policy**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0426 Cat: F (Rel-15)  
  
 Source: China Mobile*

**Discussion:**

Ericsson didn’t agree with the wording.

Docomo was OK with having a default behaviour described here, by rewording the changes.

This was taken offline.

**Decision:** The document was **revised to S3-183666**.

**S3-183666 Proposal about improvement of the UP security policy**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0426 rev 1 Cat: F (Rel-15)  
  
 Source: China Mobile*

(Replaces S3-183322)

**Decision:** The document was **agreed**.

**S3-183586 Support of UP security policy in ng-eNB**

*Type: draftCR For: Approval  
 33.501 v15.2.0  
 Source: Ericsson*

**Discussion:**

Content goes into the CR in 586 unchanged.

**Decision:** The document was **approved**.

**S3-183667 Support of UP security policy in ng-eNB**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0492 Cat: F (Rel-15)  
  
 Source: Ericsson*

**Decision:** The document was **agreed**.

**S3-183344 Adding UP security policy in SN Addition/modification Request message**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0431 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **revised to S3-183740**.

**S3-183740 Adding UP security policy in SN Addition/modification Request message**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0431 rev 1 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

(Replaces S3-183344)

**Decision:** The document was **agreed**.

**S3-183361 UP IP handling for split PDU session in MR-DC scenarios**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0434 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Discussion:**

Ericsson: UP security policy should be the same and this CRs allows to have different UP security policies.

Intel: No difference between eNodeB and gNoeb termination points.

Nokia: expanding this feature in Rel-15 does not make sense.

Huawei: we are not proposing having different UP security policies in the same PDU session. It is the same for the PDU session.

Ericsson: all bearers terminated in the same node should have the same security policy; the problem lies in the split.

**Decision:** The document was **not pursued**.

**S3-183362 Adding NR-DC to the scenarios of MR-DC**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0435 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Discussion:**

Ericsson didn’t agree with the changes.

**Decision:** The document was **revised to S3-183668**.

**S3-183668 Adding NR-DC to the scenarios of MR-DC**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0435 rev 1 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon,Qualcomm,Ericsson*

(Replaces S3-183362)

**Decision:** The document was **merged**.

**S3-183606 Draft CR to S3-183210 (Handling of UP security policy in MR-DC)**

*Type: draftCR For: Agreement  
 33.501 v15.2.0  
 Source: Ericsson*

**Abstract:**

We are proposing that use of user plane integrity protection for SN is allowed in case of NGEN-DC.

**Discussion:**

Qualcom disagreed. Not in line with what SA3 has agreed before.

Huawei supported this CR.

Nokia commented that this would introduce unnecessary complexity. QUALCOMM agreed, this could be potentially a problem. Ericsson replied that RAN could be consulted on the supposed complexity of this.

**Decision:** The document was **merged**.

**S3-183669 Draft CR to S3-183210 (Handling of UP security policy in MR-DC)**

*Type: draftCR For: Agreement  
 33.501 v15.2.0  
 Source: Ericsson*

**Decision:** The document was **withdrawn**.

**S3-183622 NR-NR Dual Connectivity**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0482 Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Discussion:**

Ericsson commented that the used baseline was incorrect since the content in 6.10.4 was different from what appeared here. Huawei agreed.

**Decision:** The document was **merged**.

**S3-183437 Reply LS on security requirements for Integrity protection for DRBs in MR-DC**

*Type: LS out For: (not specified)  
 to RAN2  
 Source: Huawei, Hisilicon*

**Decision:** The document was **revised to S3-183660**.

**S3-183660 Reply LS on security requirements for Integrity protection for DRBs in MR-DC**

*Type: LS out For: -  
 to RAN2  
 Source: Huawei, Hisilicon*

(Replaces S3-183437)

**Decision:** The document was **approved**.

**S3-183317 Editorial modification on gNB requirement**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0424 Cat: F (Rel-15)  
  
 Source: ZTE Corporation*

**Decision:** The document was **agreed**.

**S3-183602 Discussion on the applicability of gNB requirements to ng-eNB**

*Type: discussion For: Discussion  
 33.501 v..  
 Source: Ericsson*

**Decision:** The document was **noted**.

**S3-183644 NG-RAN – clause 6.9.2.2**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0474 rev 1 Cat: F (Rel-15)  
  
 Source: Ericsson*

(Replaces S3-183603)

**Discussion:**

It was commented that it should be "NG-RAN node" instead of "NG-RAN".

Nokia didn't agree with the new term KNG-RAN. This was confusing.

Ericsson replied that this was defined in the SA3 spec already.

**Decision:** The document was **revised to S3-183670**.

**S3-183670 NG-RAN – clause 6.9.2.2**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0474 rev 2 Cat: F (Rel-15)  
  
 Source: Ericsson*

(Replaces S3-183644)

**Decision:** The document was **agreed**.

**S3-183645 NG-RAN – clause 6.9.2.3.3**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0475 rev 1 Cat: F (Rel-15)  
  
 Source: Ericsson*

(Replaces S3-183604)

**Decision:** The document was **revised to S3-183671**.

**S3-183671 NG-RAN – clause 6.9.2.3.3**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0475 rev 2 Cat: F (Rel-15)  
  
 Source: Ericsson*

(Replaces S3-183645)

**Decision:** The document was **agreed**.

**S3-183646 NG-RAN – clause 6.9.2.3.4**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0476 rev 1 Cat: F (Rel-15)  
  
 Source: Ericsson*

(Replaces S3-183605)

**Decision:** The document was **revised to S3-183672**.

**S3-183672 NG-RAN – clause 6.9.2.3.4**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0476 rev 2 Cat: F (Rel-15)  
  
 Source: Ericsson*

(Replaces S3-183646)

**Decision:** The document was **agreed**.

**S3-183603 NG-RAN – clause 6.9.2.2**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0474 Cat: F (Rel-15)  
  
 Source: Ericsson*

**Decision:** The document was **revised to S3-183644**.

**S3-183604 NG-RAN – clause 6.9.2.3.3**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0475 Cat: F (Rel-15)  
  
 Source: Ericsson*

**Decision:** The document was **revised to S3-183645**.

**S3-183605 NG-RAN – clause 6.9.2.3.4**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0476 Cat: F (Rel-15)  
  
 Source: Ericsson*

**Decision:** The document was **revised to S3-183646**.

**S3-183587 E-UTRA connected to 5GC**

*Type: draftCR For: Approval  
 33.501 v15.2.0  
 Source: Ericsson*

**Decision:** The document was **withdrawn**.

#### 7.1.5 NAS security

**S3-183313 Modification of initial NAS message protection**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0420 Cat: F (Rel-15)  
  
 Source: ZTE Corporation*

**Decision:** The document was **merged**.

**S3-183314 Modification on NAS SMC procedure**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0421 Cat: F (Rel-15)  
  
 Source: ZTE Corporation*

**Decision:** The document was **merged**.

**S3-183315 Handling of initial NAS message other than RR when failure occur**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0422 Cat: F (Rel-15)  
  
 Source: ZTE Corporation*

**Discussion:**

Ericsson: not clear if this is needed.

**Decision:** The document was **not pursued**.

**S3-183588 Handling of initial NAS protection failures**

*Type: draftCR For: Approval  
 33.501 v15.2.0  
 Source: Ericsson*

**Decision:** The document was **noted**.

**S3-183589 Way forward on how to address mobility cases for the initial NAS protection mechanism**

*Type: discussion For: Endorsement  
 33.501 v..  
 Source: Ericsson*

**Discussion:**

Ericsson pointed out that relying on the CT1 solution is not very optimised.

**Decision:** The document was **noted**.

**S3-183590 Handling of mobility scenarios involving an AMF key change for the initial NAS protection mechanism**

*Type: draftCR For: Approval  
 33.501 v15.2.0  
 Source: Ericsson*

**Decision:** The document was **noted**.

**S3-183591 Handling of mobility scenarios involving an AMF key change for the initial NAS protection mechanism**

*Type: draftCR For: Approval  
 33.501 v15.2.0  
 Source: Ericsson*

**Decision:** The document was **noted**.

**S3-183609 Discussion on the CT1 LS on initial NAS security**

*Type: discussion For: Endorsement  
 Source: Qualcomm Incorporated*

**Decision:** The document was **noted**.

**S3-183610 Adjusting the description of the initial NAS protection method**

*Type: draftCR For: Agreement  
 33.501 v15.2.0  
 Source: Qualcomm Incorporated*

**Discussion:**

Contents will be merged into 673 since this is a draftCR.

**Decision:** The document was **noted**.

**S3-183673 Aligning the description of the initial NAS security procedures based on the CT1 agreements**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0488 Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **agreed**.

**S3-183611 LS on initial NAS message protection**

*Type: LS out For: Approval  
 to CT1, cc SA2  
 Source: Qualcomm Incorporated*

**Discussion:**

Vodafone: who makes the decision on what goes on clear and what doesn’t?

Qualcomm replied that it will be up to SA3.

**Decision:** The document was **revised to S3-183741**.

**S3-183741 LS on initial NAS message protection**

*Type: LS out For: Approval  
 to CT1, cc SA2  
 Source: Qualcomm Incorporated*

(Replaces S3-183611)

**Decision:** The document was **approved**.

**S3-183374 Initial NAS Discussion on privacy solutions**

*Type: discussion For: Endorsement  
 Source: Intel Corporation (UK) Ltd*

**Decision:** The document was **noted**.

**S3-183642 Comments on S3-183374**

*Type: discussion For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Discussion:**

Ericsson: we should point out the implications for our preferences.

Trust on the VPLMN was widely discussed in the group. Docomo didn’t see this as a big issue.

Verizon preferred the solution in 565.

Vodafone didn’t want visited networks breaking the level of security that the Home Network had decided.

Ericsson wanted to highlight the security aspects in order to reveal the slices that are privacy sensitive. We cannot say that both solutions have the same level of security since one exposes more information than the other.

Alex (BT): we need to accept that the VPLMN will have some control on this.

It was agreed to write down the results of the discussions on the LS in 659.

**Decision:** The document was **noted**.

**S3-183316 Editorial modification on initial NAS message protection**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0423 Cat: F (Rel-15)  
  
 Source: ZTE Corporation*

**Decision:** The document was **merged**.

**S3-183612 Discussion on the SA2 LS on initial NAS security**

*Type: discussion For: Endorsement  
 Source: Qualcomm Incorporated*

**Decision:** The document was **noted**.

**S3-183613 LS on initial NAS message protection**

*Type: LS out For: Approval  
 to SA2, cc CT1  
 Source: Qualcomm Incorporated*

**Decision:** The document was **noted**.

**S3-183614 Network control of sending S-NSSAIs in the RRC signalling**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0477 Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **not pursued**.

**S3-183550 Discussion on the Reply LSs on initial NAS security agreements**

*Type: discussion For: Endorsement  
 33.501 v..  
 Source: Samsung*

**Decision:** The document was **noted**.

**S3-183641 Comments on S3-183550 NSSAI inclusion in NAS**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai bell*

**Discussion:**

Samsung: the attack is difficult but still feasible.

NCSC didn’t see this attack as feasible.

**Decision:** The document was **noted**.

**S3-183325 Discussion on i/c LS S2-1811543 NSSAI in RRC message**

*Type: discussion For: Endorsement  
 Source: Nokia, AT&T, Verizon Wireless, Inter Digital*

**Abstract:**

Discussion paper on the incoming LS S2-1811543 inclusion of NSSAI in RRC message

**Decision:** The document was **noted**.

**S3-183326 draft-LS out reply to i/c LS on NSSAI in RRC message**

*Type: other For: Approval  
 Source: Nokia*

**Abstract:**

draft reply LS to S2-1811543.

**Decision:** The document was **noted**.

**S3-183584 Multiple NAS connections and algorithm change**

*Type: draftCR For: Approval  
 33.501 v15.2.0  
 Source: Ericsson*

**Discussion:**

Qualcomm: Very restrictive behaviour in the UE and it is also introducing a new requirement on the UE that will make it unnecessarily complex.

**Decision:** The document was **noted**.

**S3-183585 Multiple NAS connections: mobility with horizontal KAMF derivation**

*Type: draftCR For: Approval  
 33.501 v15.2.0  
 Source: Ericsson*

**Decision:** The document was **noted**.

**S3-183615 Discussion on CT1 on Scenarios with multiple registrations to the same AMF**

*Type: discussion For: Endorsement  
 Source: Qualcomm Incorporated*

**Decision:** The document was **noted**.

**S3-183616 Addressing possible security context mismatch on non-3GPP access when multiply registered on one PLMN**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0478 Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **not pursued**.

**S3-183601 Handling of NAS COUNTs**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0473 Cat: F (Rel-15)  
  
 Source: Ericsson*

**Decision:** The document was **revised to S3-183674**.

**S3-183674 Handling of NAS COUNTs**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0473 rev 1 Cat: F (Rel-15)  
  
 Source: Ericsson*

(Replaces S3-183601)

**Decision:** The document was **agreed**.

**S3-183328 Clarify SUPI format in KAMF computation**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0428 Cat: F (Rel-15)  
  
 Source: Nokia*

**Discussion:**

Ericsson: this is stage 3 information; is it in our scope?

Nokia confirmed this.

Qualcomm had some issues with this so it had to be taken offline. They also commented that some alignment might be needed with CT4.

**Decision:** The document was **revised to S3-183675**.

**S3-183675 Clarify SUPI format in KAMF computation**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0428 rev 1 Cat: F (Rel-15)  
  
 Source: Nokia*

(Replaces S3-183328)

**Decision:** The document was **agreed**.

**S3-183360 Clarification: AMF confirming UE SUPI in case NAS SMC failed**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0433 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Discussion:**

Nokia wanted to have some clarifications and a reference to the requirement needed to be added.

**Decision:** The document was **revised to S3-183676**.

**S3-183676 Clarification: AMF confirming UE SUPI in case NAS SMC failed**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0433 rev 1 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon,Nokia*

(Replaces S3-183360)

**Decision:** The document was **agreed**.

**S3-183624 Security mechanism for UE Parameters Update via UDM Control Plane Procedure**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0484 Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Discussion:**

Vodafone: strong objection to having this in Rel-15. Vodafone asked to have minuted: Updating routing id over the air is a very poor procedure. Their objection was sustained.

Qualcomm: this is a SA2 related CR and it's a Plenary discussion.

IDEMIA: is this essential for Rel-15?

Ericsson: it's the security solution for a SA2 CR.

ORANGE: this is cat-B, not F.

The Chair asked the companies to start focusing on Rel-16 instead of keep bringing input for Rel-15.

**Decision:** The document was **revised to S3-183742**.

**S3-183742 Security mechanism for UE Parameters Update via UDM Control Plane Procedure**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0484 rev 1 Cat: B (Rel-15)  
  
 Source: Qualcomm Incorporated, Huawei*

(Replaces S3-183624)

**Discussion:**

Vodafone withdrew their sustained objection after a note was added in 6.Y.1. They asked to be minuted that they were not satisfied with having this CR for Rel-15 and that they may raise this concern in the next SA Plenary.

**Decision:** The document was **agreed**.

**S3-183636 Comments on S3-183624**

*Type: other For: Agreement  
 33.501 v..  
 Source: NEC Corporation*

**Abstract:**

The contribution S3-183624 proposes to reuse the Steering of Roaming solution for UE Parameters Update. In this contribution it is discussed that additional security methods are necessary in order to make the solution robust. A discussion document and an

**Discussion:**

Vodafone: we deal with this in the previous meeting, no point in going through this again. Provisioning is out of scope of 3GPP.

**Decision:** The document was **noted**.

**S3-183472 Discussion on UE Parameters Update via UDM Control Plane Procedure**

*Type: discussion For: Endorsement  
 33.501 v..  
 Source: Huawei, Hisilicon*

**Decision:** The document was **noted**.

**S3-183474 Solution for UE Parameters Update via UDM Control Plane Procedure**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0453 Cat: B (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Discussion:**

Vodafone: This is not aligned with a decision taken in SA2 since they haven't agreed in anything based on the LS that we sent during the last meeting. There are also a lot of points here that are out of scope of 3GPP.

ORANGE: SA2 hasn’t answered our LS so we shouldn't waste on figuring out a solution.

Docomo was more interested in the integrity protection of the ME back channel going to the Home Network.

NEC: we cannot ignore that SA2 will go forward in two weeks when they have their meeting.

Vodafone insisted that SA3 could not proceed without a response from SA2.

Nokia: SA2 has discussed this and agreed on solutions and they are available for us, although we haven’t received a response.

**Decision:** The document was **merged**.

**S3-183329 Editorial correction in Clause 6.9.3.2**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0429 Cat: F (Rel-15)  
  
 Source: Nokia*

**Abstract:**

Editorials, subclause title merged with text

**Discussion:**

It was commented that removing the "H" from the parameter name was not possible since this was used by CT4 and mentioned in other parts of the SA3 spec.

**Decision:** The document was **revised to S3-183677**.

**S3-183677 Editorial correction in Clause 6.9.3.2**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0429 rev 1 Cat: F (Rel-15)  
  
 Source: Nokia*

(Replaces S3-183329)

**Decision:** The document was **agreed**.

**S3-183402 Editorial corrections on NAS SMC procedure**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0443 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **agreed**.

#### 7.1.6 Security context

#### 7.1.7 Visibility and Configurability

#### 7.1.8 Primary authentication

**S3-183501 Clarification to the transfer of authentication success result to the UDM**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0460 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **agreed**.

**S3-183503 Correction of formatting error**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0462 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Discussion:**

Docomo commented that there was a reason for having the formatting; it was done to point out that the paragraph was independent.

**Decision:** The document was **not pursued**.

**S3-183594 Update of EAP-AKA’ reference to make it compatible with 5G**

*Type: draftCR For: Agreement  
 33.501 v15.2.0  
 Source: Ericsson*

**Discussion:**

MCC had issues with referencing documents that don’t exist ("future updates" or versions that will supersede the current one). Ericsson commented that the current version does not work with 5G.

NCSC also had issues with this.

Huawei proposed to add an editor's note stating that the draft could not referenced until it was formally approved in IETF.

Agreed content goes to 679.

**Decision:** The document was **noted**.

**S3-183679 Update of EAP-AKA’ reference to make it compatible with 5G**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0493 Cat: F (Rel-15)  
  
 Source: Ericsson*

**Decision:** The document was **agreed**.

**S3-183595 Update of EAP-AKA’ RFC 5448 in progress**

*Type: discussion For: Discussion  
 33.501 v..  
 Source: Ericsson*

**Decision:** The document was **noted**.

#### 7.1.9 Secondary authentication

**S3-183467 CR on Secondary Re-authentication**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0451 Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **revised to S3-183661**.

**S3-183661 CR on Secondary Re-authentication**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0451 rev 1 Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

(Replaces S3-183467)

**Discussion:**

Rewording proposed by Nokia.

**Decision:** The document was **agreed**.

#### 7.1.10 Interworking

**S3-183400 correction on handover procedure from 5G to 4G**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0441 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **agreed**.

**S3-183476 Clarification on interworking**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0454 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Discussion:**

Qualcomm didn’t agree with some of the changes. This was revised to that effect.

**Decision:** The document was **revised to S3-183680**.

**S3-183680 Clarification on interworking**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0454 rev 1 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

(Replaces S3-183476)

**Decision:** The document was **agreed**.

**S3-183618 Corrections on the number of bits of downlink NAS COUNT value to be delivered in the 5GS to EPS handover procedure**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0479 Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **agreed**.

**S3-183619 Clarification on storing the selected EPS NAS algorithms**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0480 Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **agreed**.

**S3-183620 KgNB derivation in EPS to 5GS handover**

*Type: draftCR For: Approval  
 33.501 v15.2.0  
 Source: Qualcomm Incorporated*

**Discussion:**

Ericsson: not sure that we need these changes. There was no issue with the KgNb.

This had to be taken offline.

**Decision:** The document was **noted**.

**S3-183797 KgNB derivation in EPS to 5GS handover**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0495 Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **agreed**.

**S3-183623 KgNB derivation in N2 handover**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0483 Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **agreed**.

**S3-183643 Discussion on the changes proposed in S3-183620 and S3-183623**

*Type: discussion For: (not specified)  
 Source: Qualcomm Incorporated*

**Decision:** The document was **noted**.

#### 7.1.11 non-3GPP access

#### 7.1.12 NDS

**S3-183230 Adding references for the TLS Protocol Profiles clause**

*Type: CR For: (not specified)  
 33.210 v15.1.0 CR-0053 Cat: F (Rel-15)  
  
 Source: Juniper Networks, Ericsson*

**Decision:** The document was **withdrawn**.

**S3-183231 Update NDS/IP scope with application layer crypto profiles**

*Type: CR For: (not specified)  
 33.210 v15.1.0 CR-0054 Cat: B (Rel-16)  
  
 Source: Juniper Networks, Ericsson*

**Decision:** The document was **withdrawn**.

**S3-183232 Move TLS crypto profiles to TS 33.210**

*Type: CR For: (not specified)  
 33.310 v16.0.0 CR-0097 Cat: C (Rel-16)  
  
 Source: Juniper Networks, Ericsson*

**Decision:** The document was **withdrawn**.

**S3-183381 Corrections to 9. Security procedures for non-service based interfaces**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0439 Cat: F (Rel-15)  
  
 Source: LG Electronics*

**Decision:** The document was **agreed**.

#### 7.1.13 Service based architecture

##### 7.1.13.1 Interconnect (SEPP related)

**S3-183647 NF-SEPP TLS handling**

*Type: draftCR For: Approval  
 33.501 v15.2.0  
 Source: Ericsson Hungary Ltd*

(Replaces S3-183566)

**Abstract:**

Revision of S3-183566 about NF-SEPP TLS handling.

Changed from CR to draft CR on top of S3-183211 (was S3-182903).

**Decision:** The document was **noted**.

**S3-183441 Telescopic FQDN creation within the SEPP**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0447 Cat: F (Rel-15)  
  
 Source: Telekom Deutschland GmbH, Nokia*

**Decision:** The document was **not pursued**.

**S3-183546 Issue with using wildcard certificates in SEPP**

*Type: discussion For: Agreement  
 33.501 v..  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Issue with wildcard certificates in SEPP

**Decision:** The document was **noted**.

**S3-183633 Resolution of Editor’s note on wildcard certificates in S3-183441**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0486 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell, Telekom Deutschland GmbH*

**Abstract:**

Resolving EN in 13.1 related to wildcard certificates

**Decision:** The document was **not pursued**.

**S3-183638 Scenarios that require generation of telescopic FQDN in SEPP**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0487 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Scenarios that need telescopic FQDN generation in SEPP

**Decision:** The document was **not pursued**.

**S3-183548 Telescopic FQDN for callback URIs**

*Type: discussion For: Agreement  
 33.501 v..  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Telescopic FQDN for callback URIs

**Decision:** The document was **noted**.

**S3-183468 Discussion on verification of PLMN ID in N32 message**

*Type: discussion For: Endorsement  
 33.501 v..  
 Source: Huawei, Hisilicon*

**Discussion:**

Vodafone didn’t agree with concern one. SA3 provides the tools to GSMA to implement the roaming agreements. The split of work between SA3 and GSMA is correct. They didn’t agree on concern 3 either.

Ericsson commented that the most important point was that SEPP should check whether the PLMNid was fake.

Vodafone didn’t object to this, but they wanted tools to prevent roaming agreements giving away information, come up with some specific rules to avoid this.

DT commented that the SEPP could enforce some checks and the details could be figured out offline.

Ericsson, NEC: let us not put all the rules in our documents as this would be a great amount of work. We provide the tools but not the rules. Juniper supported this as well.

NTT-Docomo: PLMNid should be available and the rules are implementation specific.

An offline session was needed in order to come out with a joint agreement in a CR.

**Decision:** The document was **noted**.

**S3-183639 Verification of PLMN ID in N32 message**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0452 rev 1 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

(Replaces S3-183469)

**Decision:** The document was **not pursued**.

**S3-183443 Verification of the PLMN-ID by the receiving SEPP**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0449 Cat: F (Rel-15)  
  
 Source: Telekom Deutschland GmbH, Nokia*

**Decision:** The document was **not pursued**.

**S3-183442 Corrections to N32 Protection Policies**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0448 Cat: F (Rel-15)  
  
 Source: Telekom Deutschland GmbH, Nokia*

**Decision:** The document was **revised to S3-183684**.

**S3-183684 Corrections to N32 Protection Policies**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0448 rev 1 Cat: F (Rel-15)  
  
 Source: Telekom Deutschland GmbH, Nokia*

(Replaces S3-183442)

**Decision:** The document was **agreed**.

**S3-183522 N32: remove redundant references to encrypted IEs**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0465 Cat: F (Rel-15)  
  
 Source: Ericsson*

**Decision:** The document was **revised to S3-183685**.

**S3-183685 N32: remove redundant references to encrypted IEs**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0465 rev 1 Cat: F (Rel-15)  
  
 Source: Ericsson*

(Replaces S3-183522)

**Decision:** The document was **agreed**.

**S3-183480 CR to TS 33.501 regarding N32-f key hierarchy**

*Type: CR For: (not specified)  
 33.501 v15.2.0 CR-0457 Cat: F (Rel-15)  
  
 Source: China Mobile*

**Decision:** The document was **agreed**.

**S3-183547 Security between SEPP and IPX**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0468 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell, Telekom Deutschland GmbH*

**Abstract:**

Security between SEPP and IPX

**Discussion:**

NEC: Say "should use" instead of "SA3 strongly recommends".

**Decision:** The document was **revised to S3-183686**.

**S3-183686 Security between SEPP and IPX**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0468 rev 1 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell, Telekom Deutschland GmbH*

(Replaces S3-183547)

**Decision:** The document was **agreed**.

**S3-183549 Two parallel N32-c connections between SEPPs**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0469 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Two parallel N32-c connections between SEPPs

**Decision:** The document was **revised to S3-183687**.

**S3-183687 Two parallel N32-c connections between SEPPs**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0469 rev 1 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

(Replaces S3-183549)

**Decision:** The document was **agreed**.

**S3-183469 Verification of PLMN ID in N32 message**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0452 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **revised to S3-183639**.

**S3-183648 Draft CR Corrections to N32 Protection Policies**

*Type: draftCR For: Approval  
 33.501 v15.2.0  
 Source: Telekom Deutschland*

**Decision:** The document was **noted**.

**S3-183649 Draft CR Adopting more normative language in clause 13**

*Type: draftCR For: discussion  
 33.501 v15.2.0  
 Source: Telekom Deutschland*

**Discussion:**

Ericsson: you are going too far beyond the descriptive language in some points. Some other companies had also comments on other instances of the text so this was taken offline.

Agreements are taken in S3-183688.

**Decision:** The document was **noted**.

**S3-183655 Two parallel N32-c connections between SEPPs**

*Type: draftCR For: discussion  
 33.501 v15.2.0  
 Source: Nokia*

**Discussion:**

Agreed content goes into S3-183687.

**Decision:** The document was **noted**.

**S3-183656 Security between SEPP and IPX**

*Type: draftCR For: discussion  
 33.501 v15.2.0  
 Source: Nokia*

**Discussion:**

Agreed content goes into 686.

**Decision:** The document was **noted**.

**S3-183657 Editorial corrections in 13.2**

*Type: draftCR For: discussion  
 33.501 v15.2.0  
 Source: Nokia*

**Discussion:**

Agreed content is included in S3-183689.

**Decision:** The document was **noted**.

**S3-183681 Inter PLMN routing**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision:** The document was **withdrawn**.

**S3-183682 Inter PLMN routing**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0489 Cat: F (Rel-15)  
  
 Source: Nokia*

**Decision:** The document was **agreed**.

**S3-183683 Verification of PLMNid by the receiving SEPP**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0490 Cat: F (Rel-15)  
  
 Source: Deutsche Telekom*

**Decision:** The document was **agreed**.

**S3-183789 LS on verification of PLMN-ID in the SEPP**

*Type: LS out For: Approval  
 to CT3,CT4  
 Source: Deutsche Telekom*

**Decision:** The document was **approved**.

##### 7.1.13.2 Other

**S3-183478 Update on access token in roaming scenario**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0455 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **revised to S3-183743**.

**S3-183743 Update on access token in roaming scenario**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0455 rev 1 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

(Replaces S3-183478)

**Decision:** The document was **agreed**.

**S3-183479 Remove the shared secret based token protection mechanism from the token related procedure**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0456 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Discussion:**

China Mobile objected to this contribution.

Nokia was in favour of not changing it either, maybe leave it as an implementation issue.

**Decision:** The document was **not pursued**.

**S3-183523 pSEPP-pNF authentication**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0466 Cat: F (Rel-15)  
  
 Source: Ericsson*

**Decision:** The document was **agreed**.

**S3-183444 Adopting more normative language in clause 13**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0450 Cat: F (Rel-15)  
  
 Source: Telekom Deutschland GmbH, Nokia*

**Decision:** The document was **revised to S3-183688**.

**S3-183688 Adopting more normative language in clause 13**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0450 rev 1 Cat: F (Rel-15)  
  
 Source: Telekom Deutschland GmbH, Nokia*

(Replaces S3-183444)

**Decision:** The document was **agreed**.

**S3-183422 Editorial corrections on Application layer security on the N32 interface**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0445 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Discussion:**

Nokia: it overlaps with some other contributions.

**Decision:** The document was **merged**.

**S3-183499 Shift of text from SEPP intro to subclause**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0458 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Discussion:**

Ericsson: the new clause should be an introduction of 13.2 and not the whole clause 13.

**Decision:** The document was **revised to S3-183690**.

**S3-183690 Shift of text from SEPP intro to subclause**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0458 rev 1 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

(Replaces S3-183499)

**Decision:** The document was **agreed**.

**S3-183540 Editorial corrections in 13.2**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0467 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Editorial corrections in 13.2

**Decision:** The document was **revised to S3-183689**.

**S3-183689 Editorial corrections in 13.2**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0467 rev 1 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell,Huawei*

(Replaces S3-183540)

**Decision:** The document was **agreed**.

**S3-183566 NF-SEPP TLS handling**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0472 Cat: F (Rel-15)  
  
 Source: Ericsson India Private Limited*

**Decision:** The document was **revised to S3-183647**.

**S3-183382 IP protection for SN terminated bearers**

*Type: CR For: (not specified)  
 33.501 v15.2.0 CR-0440 Cat: F (Rel-15)  
  
 Source: Intel Corporation (UK) Ltd*

**Discussion:**

Used baseline was wrong.

**Decision:** The document was **not pursued**.

**S3-183708 Minutes of SBA Offline Discussion**

*Type: report For: discussion  
 Source: Deutsche Telekom*

**Decision:** The document was **withdrawn**.

#### 7.1.14 Privacy

**S3-183628 Clarifications to SUPI and SUCI**

*Type: draftCR For: Approval  
 33.501 v15.2.0  
 Source: Qualcomm Incorporated*

**Discussion:**

IDEMIA commented that SUPI type was needed since there were two types.

Qualcomm: SUPI type is not needed since in here it is always the IMSI.

Some offline discussion on whether the SUPI type was needed or not.

This was noted and the agreed content made into a CR.

**Decision:** The document was **noted**.

**S3-183525 Maximum output size of SUPI concealment schemes**

*Type: discussion For: Endorsement  
 Source: Ericsson*

**Decision:** The document was **noted**.

**S3-183524 Maximum output size of SUPI concealment scheme**

*Type: draftCR For: Approval  
 33.501 v15.2.0  
 Source: Ericsson*

**Discussion:**

There were some concerns on mandating the 3000 octets so this had to be taken offline.

Vodafone: I don’t want issues when a legacy USIM is in a new UE.

Agreed content goes to 692.

**Decision:** The document was **noted**.

**S3-183692 Maximum output size of SUPI concealment scheme**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0491 Cat: F (Rel-15)  
  
 Source: Ericsson*

**Decision:** The document was **agreed**.

**S3-183500 Clarification to protection scheme identifier**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0459 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **revised to S3-183693**.

**S3-183693 Clarification to protection scheme identifier**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0459 rev 1 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

(Replaces S3-183500)

**Decision:** The document was **agreed**.

**S3-183502 Intro of subclauses to clause 6.12.2**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0461 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Discussion:**

ORANGE commented that the last title should not be about guidance since it was normative.

IDEMIA and Qualcomm didn’t find this useful so it was not pursued.

**Decision:** The document was **not pursued**.

**S3-183505 Alignment on Home Network Public Key**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0464 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Discussion:**

MCC commented that the clauses in the changes should follow the order in the specification (6.2.2 at the end was wrong).

**Decision:** The document was **revised to S3-183694**.

**S3-183694 Alignment on Home Network Public Key**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0464 rev 1 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

(Replaces S3-183505)

**Decision:** The document was **agreed**.

**S3-183625 Clarifications to SUPI and SUCI**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0485 Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **withdrawn**.

**S3-183790 Clarifications to SUPI and SUCI**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0494 Cat: F (Rel-15)  
  
 Source: Qualcomm,Nokia*

**Discussion:**

Nokia commented some points of confusion coming from their CT4 colleagues.

**Decision:** The document was **agreed**.

#### 7.1.15 Incoming and outgoing Lses

**S3-183264 Reply LS on maximum output size of SUPI concealment schemes**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: C1-186992*

**Decision:** The document was **replied to in S3-183658**.

**S3-183265 LS on Scenarios with multiple registrations to the same AMF**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: C1-186993*

**Discussion:**

This information has been taken into account in other documents.

**Decision:** The document was **noted**.

**S3-183266 Reply LS on inclusion of selected PLMN into the complete message**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: C1-186994*

**Decision:** The document was **noted**.

**S3-183267 Reply LS on initial NAS security agreements**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: R2-1816022*

**Decision:** The document was **noted**.

**S3-183268 LS on initial NAS message protection**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: C1-186995*

**Decision:** The document was **replied to in S3-183741**.

**S3-183272 LS on N32 error signalling**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: C4-187145*

**Decision:** The document was **noted**.

**S3-183273 Reply LS on Maximum output size of SUPI concealment schemes**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: C4-187633*

**Decision:** The document was **replied to in S3-183658**.

**S3-183281 LS on security requirements for Integrity protection for DRBs in MR-DC**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: R2-1816054*

**Decision:** The document was **replied to in S3-183660**.

**S3-183283 Reply LS on Secondary Re-Authentication**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: S2-1811431*

**Decision:** The document was **noted**.

**S3-183284 Reply LS on Clarifications on SUPI definition and NAI format**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: S2-1811525*

**Decision:** The document was **replied to in S3-183662**.

**S3-183662 Reply to: Reply LS on Clarifications on SUPI definition and NAI format**

*Type: LS out For: approval  
 to SA2,CT4, cc CT1,CT6  
 Source: Qualcomm*

**Decision:** The document was **approved**.

**S3-183287 Reply LS on initial NAS security agreements**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: S2-1811568*

**Decision:** The document was **replied to in S3-183659**.

**S3-183659 Reply to:LS on initial NAS security agreements**

*Type: LS out For: approval  
 to SA2,CT1, cc RAN2,RAN3,SA  
 Source: Intel*

**Decision:** The document was **approved**.

**S3-183295 Draft Reply LS to ITU-T SG17 on X.5Gsec-q study**

*Type: LS out For: Approval  
 to ITU-T SG17, cc ETSI TC Cyber  
 Source: NCSC*

**Discussion:**

Vodafone preferred this LS to the option presented by China Mobile.

The Chair commented that it was agreed in the previous SA3 meeting that a response LS was needed to tell ITU-T that there was an overlap and this needed to be avoided.

**Decision:** The document was **revised to S3-183654**.

**S3-183654 Reply LS to ITU-T SG17 on X.5Gsec-q study**

*Type: LS out For: Approval  
 to ITU-T SG17, cc ETSI TC Cyber  
 Source: NCSC*

(Replaces S3-183295)

**Decision:** The document was **approved**.

Attachments to this outgoing LS: S3-183758

**S3-183363 Reply LS on security requirements for Integrity protection for DRBs in MR-DC**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0436 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **withdrawn**.

**S3-183375 draft reply LS on security requirements for RRC connection release**

*Type: LS out For: (not specified)  
 to RAN2  
 Source: Intel Corporation (UK) Ltd*

**Discussion:**

BT: does this apply to emergency calls? They are an exception.

Ericsson: we don’t need the LS since we agree with their LS and there is no action.

**Decision:** The document was **noted**.

**S3-183466 Discussion on LS from SA2 on 2nd Authentication**

*Type: discussion For: Endorsement  
 33.813 v..  
 Source: Huawei, HiSilicon*

**Decision:** The document was **noted**.

**S3-183658 Response LS on maximum output size of SUPI concealment schemes**

*Type: LS out For: Approval  
 to CT1,CT4, cc SA2,RAN2  
 Source: Ericsson*

**Decision:** The document was **approved**.

Attachments to this outgoing LS: S3-183692

**S3-183830 Assigning additional FC values to TS 33.501**

*Type: CR For: Agreement  
 33.220 v15.3.0 CR-0197 Cat: F (Rel-15)  
  
 Source: Qualcomm*

**Decision:** The document was **agreed**.

#### 7.1.16 Others

**S3-183298 Corrections to definition of 5G NAS security context**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0419 Cat: F (Rel-15)  
  
 Source: CMCC*

**Decision:** The document was **revised to S3-183303, S3-183304**.

**S3-183302 Discussion on one potential way to improve the efficiency of IP**

*Type: discussion For: Discussion  
 Source: Apple Computer Trading Co. Ltd*

**Abstract:**

Discussion on one potential way to improve the efficiency of IP

**Decision:** The document was **revised to S3-183632**.

**S3-183303 Unify the name of RAN network in 33.501**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0419 rev 1 Cat: F (Rel-15)  
  
 Source: CMCC*

(Replaces S3-183298)

**Decision:** The document was **revised to S3-183324**.

**S3-183304 Replace 5G-RAN with NG-RAN in 33.501**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0419 rev 2 Cat: F (Rel-15)  
  
 Source: China Mobile*

(Replaces S3-183298)

**Decision:** The document was **withdrawn**.

**S3-183323 Corrections to definition of 5G AS security context for 3GPP access**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0427 Cat: F (Rel-15)  
  
 Source: China Mobile*

**Decision:** The document was **revised to S3-183695**.

**S3-183695 Corrections to definition of 5G AS security context for 3GPP access**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0427 rev 1 Cat: F (Rel-15)  
  
 Source: China Mobile*

(Replaces S3-183323)

**Decision:** The document was **agreed**.

**S3-183324 Replace 5G-RAN with NG-RAN in TS 33.501**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0419 rev 3 Cat: F (Rel-15)  
  
 Source: China Mobile*

(Replaces S3-183303)

**Discussion:**

Nokia didn't agree with this.

Ericsson: there is no 5G RAN term. We should change this.

**Decision:** The document was **agreed**.

**S3-183379 Corrections to 5.2 Requirements on the UE**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0437 Cat: F (Rel-15)  
  
 Source: LG Electronics*

**Decision:** The document was **agreed**.

**S3-183380 Corrections to 5.3 Requirements on the gNB**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0438 Cat: F (Rel-15)  
  
 Source: LG Electronics*

**Decision:** The document was **agreed**.

**S3-183401 Editorial corrections on the UP integrity mechanisms**

*Type: CR For: Approval  
 33.501 v15.2.0 CR-0442 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **agreed**.

**S3-183438 CR to TS33.501-Registration related text correction**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0446 Cat: F (Rel-15)  
  
 Source: CATT*

**Discussion:**

This had to be checked offline as petitioned by Ericsson.

**Decision:** The document was **revised to S3-183738**.

**S3-183738 CR to TS33.501-Registration related text correction**

*Type: CR For: Agreement  
 33.501 v15.2.0 CR-0446 rev 1 Cat: F (Rel-15)  
  
 Source: CATT*

(Replaces S3-183438)

**Decision:** The document was **agreed**.

**S3-183632 Discussion on one potential way to improve the efficiency of IP**

*Type: discussion For: Discussion  
 Source: Apple Computer Trading Co. Ltd*

(Replaces S3-183302)

**Abstract:**

Discussion on one potential way to improve the efficiency of IP

**Discussion:**

Lenovo: this should be studied in one of the current SIDs, better not to agree on these conclusions right now.

Qualcomm: there are issues with the randomised IV.

Vodafone agreed that this was a good input for some of the Studies brought into this meeting.

**Decision:** The document was **noted**.

### 7.2 Security Assurance Specification for 5G (SCAS\_5G) (Rel-16)

#### 7.2.1 NR Node B (gNB) (TS 33.511)

**S3-183430 UPdate test cases in 33.511**

*Type: pCR For: Approval  
 33.511 v0.2.0  
 Source: Huawei, Hisilicon*

**Discussion:**

Discussed together with the paper from Ericsson in 608.

**Decision:** The document was **revised to S3-183696**.

**S3-183696 UPdate test cases in 33.511**

*Type: pCR For: Approval  
 33.511 v0.2.0  
 Source: Huawei, Hisilicon*

(Replaces S3-183430)

**Decision:** The document was **approved**.

**S3-183429 Adding Execution Steps to in 4.2.2.1.1, 4.2.2.1.2, and 4.2.2.1.7**

*Type: pCR For: Approval  
 33.511 v0.2.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **revised to S3-183698**.

**S3-183698 Adding Execution Steps to in 4.2.2.1.1, 4.2.2.1.2, and 4.2.2.1.7**

*Type: pCR For: Approval  
 33.511 v0.2.0  
 Source: Huawei, Hisilicon*

(Replaces S3-183429)

**Decision:** The document was **approved**.

**S3-183406 Add the evidences of the test cases**

*Type: pCR For: Approval  
 33.511 v0.2.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **noted**.

**S3-183405 Mapping requirements and test cases from 33.216 to 33.511**

*Type: pCR For: Approval  
 33.511 v0.2.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **revised to S3-183699**.

**S3-183699 Mapping requirements and test cases from 33.216 to 33.511**

*Type: pCR For: Approval  
 33.511 v0.2.0  
 Source: Huawei, Hisilicon*

(Replaces S3-183405)

**Decision:** The document was **approved**.

**S3-183431 New requirements and testcases on UP security policy related**

*Type: pCR For: Approval  
 33.511 v0.2.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **noted**.

**S3-183697 Draft TS 33.511**

*Type: draft TS For: Approval  
 33.511 v0.3.0  
 Source: Huawei*

**Decision:** The document was **approved**.

#### 7.2.2 Access and Mobility Management Function (TS 33.512)

**S3-183555 RES\* verification failure test case**

*Type: pCR For: Approval  
 33.512 v0.3.0  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This contribution proposes to add a security assurance requirement and the corresponding test case to TS 33.512 to assure correct handling by the AMF in case of RES\* verification failure during authentication and key agreement procedure.

**Decision:** The document was **approved**.

**S3-183446 Adding unique names to test cases**

*Type: pCR For: Approval  
 33.512 v0.3.0  
 Source: Telekom Deutschland GmbH*

**Decision:** The document was **approved**.

**S3-183700 draft TS 33.512**

*Type: draft TS For: Approval  
 33.512 v0.4.0  
 Source: Deutsche Telekom*

**Decision:** The document was **approved**.

#### 7.2.3 User Plane Function (UPF) (TS 33.513)

#### 7.2.4 Unified Data Management (UDM) (TS 33.514)

**S3-183637 PCR to TR33.514 SUCI test case correction**

*Type: pCR For: Approval  
 33.514 v0.2.0  
 Source: CATT*

**Decision:** The document was **revised to S3-183701**.

**S3-183701 PCR to TR33.514 SUCI test case correction**

*Type: pCR For: Approval  
 33.514 v0.2.0  
 Source: CATT*

(Replaces S3-183637)

**Decision:** The document was **approved**.

**S3-183702 Draft TS 33.514**

*Type: draft TS For: Approval  
 33.514 v0.3.0  
 Source: NEC*

**Decision:** The document was **approved**.

#### 7.2.5 Session Management Function (SMF) (TS 33.515)

#### 7.2.6 Authentication Server Function (AUSF) (TS 33.516)

**S3-183607 draft TS 33.516 (AUSF SCAS)**

*Type: draft TS For: Approval  
 33.516 v0.1.0  
 Source: Ericsson India Private Limited*

**Decision:** The document was **approved**.

#### 7.2.7 Security Edge Protection Proxy (SEPP) (TS 33.517)

**S3-183387 Skeleton of SCAS SEPP TS 33.517**

*Type: pCR For: Approval  
 33.517 v0.0.0  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This paper proposes the skeleton of Security Assurance Specification for Security Edge Protection Proxy (SEPP) network product class (TS 33.517)

**Decision:** The document was **approved**.

**S3-183388 Scope of SCAS SEPP TS 33.517**

*Type: pCR For: Approval  
 33.517 v0.0.0  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This paper proposes the scope of SCAS SEPP.

**Decision:** The document was **approved**.

**S3-183389 Reference of SCAS SEPP TS 33.517**

*Type: pCR For: Approval  
 33.517 v0.0.0  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This paper proposes the initial set of references for SCAS SEPP.

**Decision:** The document was **noted**.

**S3-183703 Draft TS 33.517**

*Type: draft TS For: Approval  
 33.517 v0.1.0  
 Source: Nokia*

**Decision:** The document was **approved**.

#### 7.2.8 Network Resource Function (NRF) (TS 33.518)

**S3-183390 Skeleton of SCAS NRF TS 33.518**

*Type: pCR For: Approval  
 33.518 v0.0.0  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This paper proposes the skeleton of Security Assurance Specification for Network Resource Function (NRF) network product class (TS 33.518).

**Decision:** The document was **approved**.

**S3-183391 Scope of SCAS NRF TS 33.518**

*Type: pCR For: Approval  
 33.518 v0.0.0  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This paper proposes the scope of SCAS NRF.

**Decision:** The document was **approved**.

**S3-183392 Reference of SCAS NRF TS 33.518**

*Type: pCR For: Approval  
 33.518 v0.0.0  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This paper proposes the initial set of references for SCAS NRF.

**Decision:** The document was **noted**.

**S3-183704 Draft TS 33.518**

*Type: draft TS For: Approval  
 33.518 v0.1.0  
 Source: Nokia*

**Decision:** The document was **approved**.

#### 7.2.9 Network Exposure Function (NEF) (TS 33.519)

**S3-183319 Scope of TS 33.519**

*Type: pCR For: Approval  
 33.519 v0.1.0  
 Source: ZTE Corporation*

**Decision:** The document was **approved**.

**S3-183320 References of TS 33.519**

*Type: pCR For: Approval  
 33.519 v0.1.0  
 Source: ZTE Corporation*

**Decision:** The document was **approved**.

**S3-183321 Authentication on application functions**

*Type: pCR For: Approval  
 33.519 v0.1.0  
 Source: ZTE Corporation*

**Decision:** The document was **revised to S3-183707**.

**S3-183707 Authentication on application functions**

*Type: pCR For: Approval  
 33.519 v0.1.0  
 Source: ZTE Corporation*

(Replaces S3-183321)

**Decision:** The document was **approved**.

**S3-183705 Draft TS 33.519**

*Type: draft TS For: Approval  
 33.519 v0.2.0  
 Source: ZTE*

**Decision:** The document was **approved**.

### 7.3 eMCSec R16 security (MCXSec) (Rel-16)

### 7.4 Other work areas

#### 7.4.1 SAE/LTE Security

**S3-183343 eNB allowing Unauthenticated UEs in LSM**

*Type: CR For: Approval  
 33.401 v15.5.0 CR-0667 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Discussion:**

Nokia: it adds a new requirement for existing eNodeBs. The solution could be a simple configuration issue. The CR is not necessary.

Ericsson: just refer to TS 36.413.

NTT-Docomo didn’t understand the need for this.

This was taken offline.

**Decision:** The document was **not pursued**.

**S3-183373 Correction on LTE suspend/resume procedure for EDT capable UE**

*Type: CR For: (not specified)  
 33.401 v15.5.0 CR-0668 Cat: F (Rel-15)  
  
 Source: Intel Corporation (UK) Ltd*

**Discussion:**

Vodafone was puzzled: we have done integrity protection for LTE without a WID, but for 5G we needed a Work Item.

Nokia offered some rewording so the document was revised for this.

**Decision:** The document was **revised to S3-183650**.

**S3-183650 Correction on LTE suspend/resume procedure for EDT capable UE**

*Type: CR For: -  
 33.401 v15.5.0 CR-0668 rev 1 Cat: F (Rel-15)  
  
 Source: Intel Corporation (UK) Ltd*

(Replaces S3-183373)

**Decision:** The document was **agreed**.

**S3-183593 LTE EDT – integrity protection of uplink EDT data**

*Type: CR For: Agreement  
 33.401 v15.5.0 CR-0671 Cat: B (Rel-15)  
  
 Source: Ericsson*

**Abstract:**

(resubmission with reduced changes and rationale)

We are proposing that HASH of UL EDT data is included as input to calculation of sRMAC-I, and that the length of sRMAC-I is increased to 32-bits.

**Discussion:**

Ericsson commented that RAN groups had to be queried whether this change was possible. They wanted to provide integrity protection for the uplink data and keep it 32 bits. An LS would have to be sent during the meeting week.

It was pointed out that this CR was for Rel-15. Note from MCC: it is too late to bring cat-B CRs for Rel-15 so this has to be checked.

**Decision:** The document was **merged**.

#### 7.4.2 IP Multimedia Subsystem (IMS) Security

#### 7.4.3 Network Domain Security (NDS)

**S3-183258 CR to 33310 r15 corrections of references and annex**

*Type: CR For: (not specified)  
 33.310 v15.1.0 CR-0099 Cat: F (Rel-15)  
  
 Source: Juniper Networks, Ericsson*

**Decision:** The document was **agreed**.

**S3-183259 CR to 33310 r16 corrections of references**

*Type: CR For: (not specified)  
 33.310 v16.0.0 CR-0100 Cat: A (Rel-16)  
  
 Source: Juniper Networks, Ericsson*

**Decision:** The document was **agreed**.

#### 7.4.4 UTRAN Network Access Security

#### 7.4.5 GERAN Network Access Security

#### 7.4.6 Generic Authentication Architecture (GAA)

#### 7.4.7 Security Aspects of Home(e)NodeB (H(e)NB)

#### 7.4.8 Mission Critical (MCPTT, MCSec, eMCSec, MONASTERY\_SEC)

**S3-183278 Observations on standards and technical constraints from 2nd MCPTT Plugtests**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: ETSI CTI*

**Decision:** The document was **noted**.

**S3-183263 LS on Observations from 2nd MCPTT Plugtests**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: C1-186964*

**Decision:** The document was **noted**.

**S3-183305 Add symmetric key distribution mechanisms to TS 33.180**

*Type: discussion For: Approval  
 33.180 v..  
 Source: Airbus DS SLC*

**Abstract:**

Having chosen to base the key distributions mechanisms on MIKEY could offer some flexibility, but TS 33.180 requires that only a specific type of MIKEY-SAKKE messages is used. We propose that future versions of TS 33.180 (e.g. Rel-16) describe and allow o

**Discussion:**

Ericsson: for what Release do you want this?

Airbus: this release if possible.

Some companies were against this in release 16 (Vodafone, NCSC).

**Decision:** The document was **noted**.

**S3-183419 Security solution for temporary group – broadcast group call procedure**

*Type: CR For: Approval  
 33.180 v15.3.0 CR-0095 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Discussion:**

Motorola: not technically possible to do this.

The Chair commented that this was a new solution being brought into Release 15, far from cat F.

**Decision:** The document was **not pursued**.

#### 7.4.9 Security Assurance Specifications (SCAS-SA3, SCAS\_PGW, SCAS\_eNB)

**S3-183383 5G inclusion in TS 33.117**

*Type: CR For: Approval  
 33.117 v15.1.0 CR-0008 Cat: B (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell, Telekom Deutschland GmbH*

**Abstract:**

The paper proposes to add 5G security architecture as a source of security assurance requirements and related test cases, in addition to EPS security architecture

**Discussion:**

MCC commented that this should be Rel-16 work and the WID code should be SCAS\_5G.

**Decision:** The document was **agreed**.

**S3-183384 Incorporating general SBA aspects in TS 33.117**

*Type: CR For: Approval  
 33.117 v15.1.0 CR-0009 Cat: B (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell, Telekom Deutschland GmbH*

**Abstract:**

The paper proposes to add new sub-clauses for incorporating general SBA/SBI aspects in TS 33.117.

**Discussion:**

The Chair commented that this was a specification under change control and that adding empty clauses was not the right way of doing it.

It was agreed to have a living document in the form of a draft CR where content could be added every meeting. Once the whole change is agreed, the last version of the draft CR will become a CR and all changes implemented directly into TS 33.117.

**Decision:** The document was **not pursued**.

**S3-183385 Test Case of transport layer protection for SBI**

*Type: CR For: Approval  
 33.117 v15.1.0 CR-0010 Cat: B (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell, Telekom Deutschland GmbH*

**Abstract:**

The paper proposes to add the requirement and the corresponding test case for transport layer protection for generic network functions implementing service-based interfaces.

**Discussion:**

Content will go into the draft CR.

**Decision:** The document was **not pursued**.

**S3-183386 Editorial corrections in TS 33.117**

*Type: CR For: Approval  
 33.117 v15.1.0 CR-0011 Cat: D (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

The paper proposes to make some editorial corrections in TS 33.117.

**Discussion:**

MCC commented that the editorial changes should go into the Rel-16 version of the specification.

**Decision:** The document was **agreed**.

**S3-183428 Add EDCE5 related requirements and testcases to 33.216**

*Type: CR For: Approval  
 33.216 v15.0.0 CR-0002 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **revised to S3-183710**.

**S3-183710 Add EDCE5 related requirements and testcases to 33.216**

*Type: CR For: Approval  
 33.216 v15.0.0 CR-0002 rev 1 Cat: B (Rel-16)  
  
 Source: Huawei, Hisilicon*

(Replaces S3-183428)

**Decision:** The document was **agreed**.

**S3-183432 Update requirements in 4.2.3.2.2 in 33.117**

*Type: CR For: Approval  
 33.117 v15.1.0 CR-0012 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **agreed**.

**S3-183452 New test case: No code execution or inclusion of external resources by JSON parsers**

*Type: CR For: Approval  
 33.117 v15.1.0 CR-0013 Cat: B (Rel-15)  
  
 Source: Telekom Deutschland GmbH*

**Discussion:**

Content is agreed and it will go into the draftCR in 709.

**Decision:** The document was **not pursued**.

**S3-183498 Formatting issue**

*Type: CR For: Agreement  
 33.117 v15.1.0 CR-0014 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **agreed**.

**S3-183515 Adding missing references in TS 33.117**

*Type: CR For: Approval  
 33.117 v15.1.0 CR-0015 Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This paper proposes to add the missing references in the reference list of TS 33.117.

**Decision:** The document was **agreed**.

**S3-183608 SCAS discussion**

*Type: pCR For: Discussion  
 33.511 v0.2.0  
 Source: Ericsson India Private Limited*

**Decision:** The document was **noted**.

**S3-183626 General SCAS API requirements**

*Type: CR For: Approval  
 33.117 v15.1.0 CR-0016 Cat: B (Rel-16)  
  
 Source: Ericsson India Private Limited*

**Discussion:**

Nokia wondered if this was a security input.

Huawei considered that these kind of test cases were not usually discussed in SA3.

This will go into the draft CR in 709.

**Decision:** The document was **not pursued**.

**S3-183709 Draft CR Incorporating general SBA aspects in TS 33.117**

*Type: draftCR For: Approval  
 33.117 v15.1.0  
 Source: Nokia*

**Decision:** The document was **approved**.

#### 7.4.10 Security Aspects of Narrowband IOT (CIoT)

**S3-183409 Discussion on UP Integrity protection for small data in Early Data Transfer**

*Type: discussion For: Endorsement  
 33.401 v..  
 Source: Huawei, Hisilicon*

**Decision:** The document was **noted**.

**S3-183410 LS to RAN23 on UP Integrity Protection for Small Data in Early Data Transfer**

*Type: LS out For: Approval  
 to RAN2,*

*RAN3  
 Source: Huawei, Hisilicon*

**Decision:** The document was **revised to S3-183652**.

**S3-183652**

**S3‑183652 LS to RAN23 on UP Integrity Protection for Small Data in Early Data Transfer**

*Type: LS out For: Approval  
 to RAN2,*

*RAN3  
 Source: Huawei, Hisilicon*

(Replaces S3-183410)

**Decision:** The document was **approved**.

Attachments to this outgoing LS: S3-183651

**S3-183411 User Plane Integrity Protection for EDT**

*Type: CR For: Approval  
 33.401 v15.5.0 CR-0669 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **revised to S3-183651**.

**S3-183651 User Plane Integrity Protection for EDT**

*Type: CR For: Approval  
 33.401 v15.5.0 CR-0669 rev 1 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon,Ericsson*

(Replaces S3-183411)

**Decision:** The document was **agreed**.

**S3-183832 Reply LS on UP Integrity Protection for Small Data in Early Data Transfer**

*Type: LS in For: discussion  
 Original outgoing LS: -, to -, cc -  
 Source: R3-187230*

**Decision:** The document was **noted**.

**S3-183833 Reply LS on UP Integrity Protection for Small Data in Early Data Transfer**

*Type: LS in For: discussion  
 Original outgoing LS: -, to -, cc -  
 Source: R2-1818666*

**Decision:** The document was **noted**.

#### 7.4.11 EPC enhancements to support 5G New Radio via Dual Connectivity (EDCE5)

**S3-183279 Reply LS on " LS on Using same counter in EDCE5"**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: R2-1816010*

**Decision:** The document was **noted**.

**S3-183592 EDCE5 – Fixing contradicting and insecure scg/sk counter handling in 33.401 from 36.331**

*Type: CR For: Agreement  
 33.401 v15.5.0 CR-0670 Cat: F (Rel-15)  
  
 Source: Ericsson*

**Abstract:**

(resubmission with updated rationale)

Based on R2-1816010/S3-183279, this CR fixes contradicting mechanism in 33.401 from 36.331 about usage of scg-Counter and sk-Counter, leading to security problem.

**Discussion:**

Nokia: all these changes complicate the implementation.

It was agreed to add a note.

Huawei: this is not needed. RAN2 already understands what the counter is about.

**Decision:** The document was **revised to S3-183712**.

**S3-183712 EDCE5 – Fixing contradicting and insecure scg/sk counter handling in 33.401 from 36.331**

*Type: CR For: Agreement  
 33.401 v15.5.0 CR-0670 rev 1 Cat: F (Rel-15)  
  
 Source: Ericsson*

(Replaces S3-183592)

**Decision:** The document was **not pursued**.

#### 7.4.12 Northbound APIs Security for SCEF - SCS/AS Interworking (NAPS\_Sec) (Rel-15)

#### 7.4.13 Security Aspects of Common API Framework for 3GPP Northbound APIs (CAPIF\_Sec) (Rel-15)

**S3-183270 LS on security method negotiation**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: C3-186335*

**Decision:** The document was **replied to in S3-183795**.

**S3-183557 Association of security context**

*Type: CR For: (not specified)  
 33.122 v15.1.0 CR-0016 Cat: F (Rel-15)  
  
 Source: Samsung*

**Discussion:**

NEC didn't see this as a fix.Ericsson agreed.

This had to be taken offline,

.

**Decision:** The document was **not pursued**.

**S3-183560 [DRAFT] LS on Security method negotiation**

*Type: LS out For: (not specified)  
 to CT3, cc SA6  
 Source: Samsung*

**Decision:** The document was **revised to S3-183795**.

**S3-183795 LS on Security method negotiation**

*Type: LS out For: -  
 to CT3, cc SA6  
 Source: Samsung*

(Replaces S3-183560)

**Decision:** The document was **approved**.

**S3-183271 LS on API invoker onboarding**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: C3-186414*

**Decision:** The document was **noted**.

**S3-183558 Missing subclause headings**

*Type: CR For: (not specified)  
 33.122 v15.1.0 CR-0017 Cat: F (Rel-15)  
  
 Source: Samsung*

**Discussion:**

NEC doubted that adding sub-clauses would cause less confusion. This is a SA6 issue, no action for SA3. They didn't have a strong opposition for not having these sub-clauses though.

**Decision:** The document was **agreed**.

**S3-183559 [DRAFT] LS on API invoker onboarding**

*Type: LS out For: (not specified)  
 to CT3, SA6  
 Source: Samsung*

**Discussion:**

NEC and Ericsson: the original LS was to SA6, not SA3.

**Decision:** The document was **noted**.

**S3-183341 Correction/enhancement in CAPIF TS**

*Type: CR For: Agreement  
 33.122 v15.1.0 CR-0013 Cat: F (Rel-15)  
  
 Source: NEC Corporation*

**Abstract:**

Correction/enhancement of normative texts.

**Discussion:**

Ericsson: change reference to our own TLS profile in 33.310.

Revised also to correct errors on the cover page.

**Decision:** The document was **revised to S3-183713**.

**S3-183713 Correction/enhancement in CAPIF TS**

*Type: CR For: Agreement  
 33.122 v15.1.0 CR-0013 rev 1 Cat: F (Rel-15)  
  
 Source: NEC Corporation*

(Replaces S3-183341)

**Decision:** The document was **agreed**.

**S3-183421 Delete information during API invoker offboarding**

*Type: CR For: Approval  
 33.122 v15.1.0 CR-0014 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **revised to S3-183716**.

**S3-183716 Delete information during API invoker offboarding**

*Type: CR For: Approval  
 33.122 v15.1.0 CR-0014 rev 1 Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

(Replaces S3-183421)

**Decision:** The document was **agreed**.

**S3-183439 Security requirements on the CAPIF-3e/4e/5e reference points**

*Type: CR For: Approval  
 33.122 v15.1.0 CR-0015 Cat: C (Rel-15)  
  
 Source: China Telecommunications*

**Abstract:**

Addition of the security requirements on the CAPIF-3e/4e/5e reference points

**Discussion:**

NEC commented that this was rel-16 work, and this CR was bringing the functionality change in Rel-15 and this was not possible anymore.

The CR cover page even mentions the enhancements in Rel-16.

It was agreed to wait for SA6 to finish their work and then initiate work in SA3,possibly with a WID.

**Decision:** The document was **not pursued**.

#### 7.4.14 PLMN RAT selection (Steering of Roaming) (Rel-15)

**S3-183285 LS Reply on Control Plane Solution for Steering of Roaming in 5GS**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: GSMA*

**Discussion:**

SA will respond to this one.

**Decision:** The document was **noted**.

**S3-183274 LS on Control Plane Solution for Steering of Roaming in 5GS**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: CP-182234*

**Decision:** The document was **noted**.

**S3-183260 Reply LS on Control Plane Solution for Steering of Roaming in 5GS**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: C1-186841*

**Discussion:**

Vodafone wasn’t happy with the security response. Tim also mentioned that the non -security part had also wrong issues (but out of scope for SA3).

T-Mobile didn't see the point of concern. They were happy with the CT1 response.

Qualcomm didn’t see so many problems with this response.

Vodafone: there are two different mechanisms ending in two different points. This is not conveyed in here.

T-Mobile commented that CT1 points out that encryption was available for the operator, optional, and it was highlighted why.

The Chair didn’t want to restart a discussion on SoR; this had been done in SA3 before; so he proposed to have a quick response.

Alex(BT) commented that CT1 had messed up with the LI requirements. The regulatory bits were not correct.

**Decision:** The document was **noted**.

**S3-183553 Draft-Reply LS on Control Plane Solution for Steering of Roaming in 5GS**

*Type: LS out For: Approval  
 to SA, CT1  
 Source: Samsung*

**Discussion:**

Vodafone didn’t agree with this response.

**Decision:** The document was **noted**.

**S3-183715 LS on Control Plane Solution for Steering of Roaming in 5GS**

*Type: LS out For: Approval  
 to SA,CT1, cc CT4,CT6,CT  
 Source: Vodafone*

**Decision:** The document was **approved**.

#### 7.4.15 Battery Efficient Security for very low Throughput Machine Type Communication Devices (BEST\_MTC\_Sec) (Rel-15)

**S3-183269 LS on EAS-C&U support**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: C3-186313*

**Decision:** The document was **postponed**.

**S3-183714 Reply to: LS on EAS-C&U support**

*Type: LS out For: approval  
 to CT3  
 Source: Vodafone*

**Decision:** The document was **withdrawn**.

#### 7.4.16 Other work items

### 7.5 New Work Item proposals

**S3-183367 New WID on security aspects of single radio voice continuity from 5G to 3G**

*Type: WID new For: (not specified)  
 Source: China Unicom, Huawei, HiSilicon, ZTE, CATT, OPPO, CATR*

**Discussion:**

ORANGE: no need to put the different scenarios in the justification, just to refer to SA2.Make a better link to SA2 in both justification and objectives.

Huawei clarified that SA2 had just approved their WID in their last meeting, so the dates were changed to accommodate this.

It was noted that China Unicom was not in the meeting, but Huawei clarified that they would attend in future meetings to take care of this work.

**Decision:** The document was **revised to S3-183739**.

**S3-183739 New WID on security aspects of single radio voice continuity from 5G to 3G**

*Type: WID new For: -  
 Source: China Unicom, Huawei, HiSilicon, ZTE, CATT, OPPO, CATR*

(Replaces S3-183367)

**Decision:** The document was **agreed**.

**S3-183450 New WID - Updates and enhancements to BEST for 5G**

*Type: WID new For: Agreement  
 Source: VODAFONE Group Plc*

**Abstract:**

new WID for CRs to TS 33.163 to align BEST with 5G core and add relevant enhancements to BEST.

**Discussion:**

Qualcomm: we have already AKMA for Rel-16 and it’s related to this. We could include this work here.

Vodafone commented that there was no such relationship.

Ericsson: bring a study instead. It’s a new feature in the 5G system and we would need to do some study work before going normative. ORANGE agreed and also preferred to have it separately from AKMA.

KPN supported having this in 5G directly as normative work.

Vodafone: the study item will generate unnecessary time and effort that will be later duplicated in the WID. They also had concerns that this WID wouldn’t be approved despite the study work.

NEC: just create a WID with a narrow scope, a couple of contributions and we do a one-step approval.

It was proposed to create TEI16 CRs but that wasn't considered as a proper working method by ORANGE and supported by MCC.

It was also pointed out that it was incorrectly shown TR 33.163 instead of TS 33.163.

Qualcomm pointed out that there was overlap with the scope of AKMA.

This had to be taken offline and it was later postponed.

**Decision:** The document was **postponed**.

## 8 Studies

### 8.1 Study on Security Aspects of the 5G Service Based Architecture (FS\_SBA-Sec) (Rel-15)

**S3-183565 New option for 33.855 solution #8**

*Type: pCR For: Approval  
 33.855 v1.2.0  
 Source: Ericsson India Private Limited*

**Decision:** The document was **revised to S3-183723**.

**S3-183723 New option for 33.855 solution #8**

*Type: pCR For: Approval  
 33.855 v1.2.0  
 Source: Ericsson India Private Limited*

(Replaces S3-183565)

**Decision:** The document was **approved**.

**S3-183724 Draft TR 33.855**

*Type: draft TR For: Approval  
 33.855 v1.3.0  
 Source: Deutsche Telekom*

**Decision:** The document was **approved**.

### 8.2 Study on Long Term Key Update Procedures (FS\_LTKUP) (Rel-16)

**S3-183440 New SID on LTKUP Detailed Solutions**

*Type: SID new For: Agreement  
 Source: VODAFONE Group Plc*

**Decision:** The document was **revised to S3-183755**.

**S3-183755 New SID on LTKUP Detailed Solutions**

*Type: SID new For: Agreement  
 Source: VODAFONE Group Plc*

(Replaces S3-183440)

**Decision:** The document was **agreed**.

**S3-183445 pCR to TR 33.834 - Update to LTKUP Conclusions**

*Type: pCR For: Approval  
 33.834 v0.8.0  
 Source: VODAFONE Group Plc*

**Discussion:**

Gemalto wanted to add solution 5 together with solution 4b.MCC asked what was the intention of having a TR 900 series. Vodafone replied that a new SID was being brought to create such TR that would take the chosen solutions and describe them in more detail. The 900 series TR could be referenced externally.

**Decision:** The document was **revised to S3-183752**.

**S3-183752 pCR to TR 33.834 - Update to LTKUP Conclusions**

*Type: pCR For: Approval  
 33.834 v0.8.0  
 Source: VODAFONE Group Plc*

(Replaces S3-183445)

**Decision:** The document was **approved**.

**S3-183753 Draft TR 33.834**

*Type: draft TR For: Approval  
 33.834 v0.9.0  
 Source: Vodafone*

**Decision:** The document was **approved**.

**S3-183754 cover sheet TR 33.834**

*Type: TS or TR cover For: discussion  
 33.834 v..  
 Source: Vodafone*

**Decision:** The document was **approved**.

### 8.3 Study on Supporting 256-bit Algorithms for 5G (FS\_256-Algorithms) (Rel-16)

**S3-183261 Reply LS on the Impacts of increasing the MAC-I and NAS-MAC size**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: R2-1816012*

**Decision:** The document was **noted**.

**S3-183262 Reply LS on LS on the Impacts of increasing the MAC-I and NAS-MAC size**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: C1-186961*

**Decision:** The document was **noted**.

**S3-183252 pCR to TS 33.841 - restructure of section 4 as agreed in conf call**

*Type: pCR For: Agreement  
 33.841 v0.6.0  
 Source: VODAFONE Group Plc*

**Abstract:**

This pCR restructures section 4 so that other reasons (other than Quantum Computing) can be detailed as reasons for 256 bit Algo's.

**Discussion:**

NCSC: too late to introduce all this information, additional drivers for 256 bits.

AT&T: there will be a period of time required for SAGE to do the analysis for the appropriate algorithms supporting 256bits. We are likely entering into Rel-17 with this. Rel-16 would serve as analysis of the algorithms. We are favouring this document.

Vodafone: there are other reasons why we are doing 256 bits.

**Decision:** The document was **noted**.

**S3-183308 Algorithm Agility**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: NIST*

**Discussion:**

NCSC: no need to add information that we haven’t looked at.

NEC: the bullet points look like the objectives of a study. They should be removed.

**Decision:** The document was **noted**.

**S3-183309 pCR Discussing mitigating of risks by using larger keys**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: NIST*

**Discussion:**

NCSC: reluctant to write this down, we disagree with this document. Ericsson supported this.

Gemalto and Huawei agreed with the content of the text.

Vodafone: the conclusion we agreed on last meeting was that we don’t need to do anything for 4 years.

The support/non-support was balanced and this was taken offline.

**Decision:** The document was **noted**.

**S3-183507 pCR to 33.841 (256bit) - Update section 4 with new drivers**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: VODAFONE Group Plc*

**Abstract:**

This document is based in the restructured section 4 in S3-183252 and adds new drivers for 256 Algorithms

**Discussion:**

NCSC: this brings a new driver that would need additional analysis and assessment. Qualcomm disagreed with the document as well.

Vodafone: if companies are comfortable with the 4 year wait, then we don’t need to discuss these documents.

Huawei didn't agree with waiting for 4 years.

Vodafone: if companies agree with not asking SAGE to start the process, then we can withdraw all these documents.

CATT: we need 256 bits for classified communications. We support this.

NCSC: introducing this now means an additional year of work to assess it.

Nokia: our requirements can stand for 4 years.

Vodafone: SAGE estimates a year to come back with the algorithms analysis.

Vodafone proposed to send an LS to ask SAGE what algorithm would be suitable for 256 integrity and cyphering.

NCSC questioned the necessity to do this.

Vodafone: there are market drivers for this.

Support for sending the LS: AT&T, NEC, Airbus, China Mobile, IDEMIA, Gemplus, CATT,CATR, NIST,Vodafone,Huawei,Qualcomm,T-Mobile, ZTE.

Vodafone: happy to withdraw these documents and make the spec more quantum computing directed and not having to justify the time frame with them.

This was agreed and a number of documents were noted.

**Decision:** The document was **noted**.

**S3-183451 pCR to TR 33 841 Threat details to symmetric cryptography**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: CATT*

**Discussion:**

NCSC didn’t agree with the first change, not required.

"To the best of our knowledge" was removed.

Second change should go away too.

This was agreed.

**Decision:** The document was **revised to S3-183757**.

**S3-183757 pCR to TR 33 841 Threat details to symmetric cryptography**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: CATT*

(Replaces S3-183451)

**Decision:** The document was **approved**.

**S3-183310 pCR to Include content discussing forward security**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: NIST*

**Decision:** The document was **revised to S3-183759**.

**S3-183759 pCR to Include content discussing forward security**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: NIST*

(Replaces S3-183310)

**Decision:** The document was **approved**.

**S3-183292 Update to Impacted NextGen Areas - TR 33.841**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: NCSC*

**Abstract:**

Adding content to Impacted NextGen Areas section of TR 33.841

**Discussion:**

BT: not only 5G voice but also media should be included here. NCSC commented that was topic for another study.

Ericsson suggested some editorials.

6.2.5 and 6.1.10 were removed.

**Decision:** The document was **revised to S3-183760**.

**S3-183760 Update to Impacted NextGen Areas - TR 33.841**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: NCSC*

(Replaces S3-183292)

**Decision:** The document was **approved**.

**S3-183481 pCR to TR 33 841 regarding key derivation function**

*Type: pCR For: (not specified)  
 33.841 v0.6.0  
 Source: China Mobile; Vodafone*

**Discussion:**

NCSC: last sentence is not always true. Last two sentences were removed.

**Decision:** The document was **revised to S3-183761**.

**S3-183761 pCR to TR 33 841 regarding key derivation function**

*Type: pCR For: -  
 33.841 v0.6.0  
 Source: China Mobile; Vodafone*

(Replaces S3-183481)

**Decision:** The document was **approved**.

**S3-183629 TR 33.841: complete clause on OTA mechanism**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: Gemalto N.V.*

**Abstract:**

Complete clause on OTA mechanism

**Decision:** The document was **revised to S3-183762**.

**S3-183762 TR 33.841: complete clause on OTA mechanism**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: Gemalto N.V.*

(Replaces S3-183629)

**Decision:** The document was **approved**.

**S3-183447 pCR to TR 33 841 Performance aspects for the new 256-bit algorithms**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: CATT*

**Decision:** The document was **withdrawn**.

**S3-183477 pCR to TR 33 841 Study of individual algorithm details**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: CATT, CAICT, China Mobile, China Telecom, China Unicom, Huawei, HiSilicon, ZTE, OPPO*

**Decision:** The document was **revised to S3-183763**.

**S3-183763 pCR to TR 33 841 Study of individual algorithm details**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: CATT, CAICT, China Mobile, China Telecom, China Unicom, Huawei, HiSilicon, ZTE, OPPO*

(Replaces S3-183477)

**Decision:** The document was **approved**.

**S3-183516 Clause 13.1.1: AES modes**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: Ericsson*

**Decision:** The document was **revised to S3-183764**.

**S3-183764 Clause 13.1.1: AES modes**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: Ericsson*

(Replaces S3-183516)

**Decision:** The document was **approved**.

**S3-183475 pCR to TR 33 841 Potential requirements**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: CAICT, CATT, China Mobile, China Telecom, China Unicom, Huawei, HiSilicon, ZTE, OPPO*

**Discussion:**

Last paragraph of 14.3 is not accurate.

Vodafone: this needs to be clearly a requirements clause.

**Decision:** The document was **merged**.

**S3-183290 Potential Requirements for TR 33.841**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: NCSC*

**Abstract:**

Additions to potential requirements for TR 33.841

**Decision:** The document was **revised to S3-183766**.

**S3-183766 Potential Requirements for TR 33.841**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: NCSC, CAICT, CATT, China Mobile, China Telecom, China Unicom, Huawei, HiSilicon, ZTE, OPPO*

(Replaces S3-183290)

**Decision:** The document was **approved**.

**S3-183473 pCR to TR 33.841 draft conclusion**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: CAICT, CATT, China Mobile, China Telecom, China Unicom, Huawei, HiSilicon, ZTE, OPPO, Qihoo 360*

**Discussion:**

Vodafone: not possible to have this in Rel-16, it will be Rel-17 or Rel-18.

NIST: this doesn’t reflect the content of the document.

**Decision:** The document was **merged**.

**S3-183291 Conclusions for TR 33.841**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: NCSC*

**Abstract:**

Addition of content for conclusion section of TR 33.841

**Discussion:**

Vodafone and NIST preferred this conclusion to the document 473.

It was agreed to revise this including some bits of the CATT document.

**Decision:** The document was **revised to S3-183767**.

**S3-183767 Conclusions for TR 33.841**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: NCSC, CAICT, CATT, China Mobile, China Telecom, China Unicom, Huawei, HiSilicon, ZTE, OPPO, Qihoo 360*

(Replaces S3-183291)

**Decision:** The document was **approved**.

**S3-183293 Editorials for TR 33.841**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: NCSC*

**Decision:** The document was **revised to S3-183768**.

**S3-183768 Editorials for TR 33.841**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: NCSC*

(Replaces S3-183293)

**Decision:** The document was **approved**.

**S3-183294 Modifications and Clarifications for TR 33.841**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: NCSC*

**Discussion:**

Gemalto: don’t remove the text in clause 9.1. It introduces some useful background.

MCC commented that the use of "must" was not allowed in 3GPP specifications. This was reworded.

**Decision:** The document was **revised to S3-183765**.

**S3-183765 Modifications and Clarifications for TR 33.841**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: NCSC*

(Replaces S3-183294)

**Decision:** The document was **approved**.

**S3-183393 pCR to TR 33.841 draft conclusion**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: CATT*

**Decision:** The document was **withdrawn**.

**S3-183448 pCR to TR 33 841 Potential requirements**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: CATT*

**Decision:** The document was **withdrawn**.

**S3-183449 pCR to TR 33 841 Study of individual algorithm details**

*Type: pCR For: Approval  
 33.841 v0.6.0  
 Source: CATT*

**Decision:** The document was **withdrawn**.

**S3-183756 LS to SAGE on 256bit algorithms**

*Type: LS out For: Approval  
 to ETSI SAGE, cc ETSI TC CYBER QSC  
 Source: Vodafone*

**Decision:** The document was **approved**.

Attachments to this outgoing LS: S3-183758

**S3-183758 Draft TR 33.841**

*Type: draft TR For: Approval  
 33.841 v0.7.0  
 Source: Vodafone*

**Decision:** The document was **approved**.

**S3-183769 Cover sheet TR 33.841**

*Type: TS or TR cover For: Approval  
 33.841 v..  
 Source: Vodafone*

**Decision:** The document was **approved**.

### 8.4 Security aspects of single radio voice continuity from 5G to UTRAN (FS\_5G\_UTRAN\_SEC) (Rel-16)

**S3-183395 Proposed change to the solution #1.1 of TR 33.856**

*Type: pCR For: Approval  
 33.856 v1.1.0  
 Source: Huawei, Hisilicon*

**Discussion:**

Qualcomm wanted to add a sentence in step 2 on using a different FC value that cannot be used in another key derivation. The NOTE in 4 needs to be aligned with the previous statement.

**Decision:** The document was **revised to S3-183728**.

**S3-183728 Proposed change to the solution #1.1 of TR 33.856**

*Type: pCR For: Approval  
 33.856 v1.1.0  
 Source: Huawei, Hisilicon*

(Replaces S3-183395)

**Decision:** The document was **approved**.

**S3-183396 clean up the EN of subclause 6.4.3 in TR 33.856**

*Type: pCR For: Approval  
 33.856 v1.1.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **approved**.

**S3-183398 add evaluation to solution #5**

*Type: pCR For: Approval  
 33.856 v1.1.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **approved**.

**S3-183368 Impacts on existing nodes and functionality for the solution "Return from UTRAN to E-UTRAN or NR"**

*Type: pCR For: (not specified)  
 33.856 v1.1.0  
 Source: China Unicom*

**Decision:** The document was **approved**.

**S3-183369 Evaluation for the solution "Return from UTRAN to E-UTRAN or NR"**

*Type: pCR For: (not specified)  
 33.856 v1.1.0  
 Source: China Unicom*

**Discussion:**

Docomo commented that the phrase had to be reworded since there was some confusion with the description of the attack.

**Decision:** The document was **revised to S3-183730**.

**S3-183730 Evaluation for the solution "Return from UTRAN to E-UTRAN or NR"**

*Type: pCR For: -  
 33.856 v1.1.0  
 Source: China Unicom*

(Replaces S3-183369)

**Decision:** The document was **approved**.

**S3-183370 Conclusion for the solution "Return from UTRAN to E-UTRAN or NR"**

*Type: pCR For: (not specified)  
 33.856 v1.1.0  
 Source: China Unicom*

**Discussion:**

MCC commented that the second sentence on the normative work expected in 33.501 was not relevant to the TR and more related to plans for a future WID, so this was removed.

**Decision:** The document was **revised to S3-183731**.

**S3-183731 Conclusion for the solution "Return from UTRAN to E-UTRAN or NR"**

*Type: pCR For: -  
 33.856 v1.1.0  
 Source: China Unicom*

(Replaces S3-183370)

**Decision:** The document was **approved**.

**S3-183397 clean up the EN of subclause 7 in TR 33.856**

*Type: pCR For: Approval  
 33.856 v1.1.0  
 Source: Huawei, Hisilicon*

**Discussion:**

Revised to remove the entirety of the editor's note.

**Decision:** The document was **revised to S3-183732**.

**S3-183732 clean up the EN of subclause 7 in TR 33.856**

*Type: pCR For: Approval  
 33.856 v1.1.0  
 Source: Huawei, Hisilicon*

(Replaces S3-183397)

**Decision:** The document was **approved**.

**S3-183617 Addressing the editor’s notes in the conclusions clause of TR 33.856**

*Type: pCR For: Approval  
 33.856 v1.1.0  
 Source: Qualcomm Incorporated*

**Decision:** The document was **noted**.

**S3-183399 editorial modification on TR 33.856**

*Type: pCR For: Approval  
 33.856 v1.1.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **approved**.

**S3-183729 Draft TR 33.856**

*Type: draft TR For: Approval  
 33.856 v1.2.0  
 Source: China Unicom*

**Decision:** The document was **approved**.

**S3-183733 Cover sheet TR 33.856**

*Type: TS or TR cover For: Approval  
 33.856 v..  
 Source: Huawei*

**Decision:** The document was **approved**.

### 8.5 Study on authentication and key management for applications based on 3GPP credential in 5G IoT (FS\_AKMA)(Rel-16)

**S3-183394 Protecting SUPI for user privacy**

*Type: pCR For: Approval  
 33.835 v0.1.0  
 Source: ZTE Corporation*

**Discussion:**

ZTE: it doesn’t say anything between the UE and the network.

Huawei: we don’t need this here.

ORANGE: separate both requirements.

Adding privacy protection and the purpose of this in the revision, as proposed by Qualcomm and ORANGE.

**Decision:** The document was **revised to S3-183734**.

**S3-183734 Protecting SUPI for user privacy**

*Type: pCR For: Approval  
 33.835 v0.1.0  
 Source: ZTE Corporation*

(Replaces S3-183394)

**Decision:** The document was **approved**.

**S3-183533 Key Issue on Compliance with Local Rules and Regulations**

*Type: pCR For: Approval  
 33.835 v0.1.0  
 Source: NEC Corporation*

**Abstract:**

This pCR proposes a new key issue for study item on AKMA

**Discussion:**

MCC commented that the sentence of "AKMA should be made regulations aware.." looked like a requirement. It was pointed out that this wasn't the intention and it was agreed to reword it as "needs to be done.." directly into the spec by the rapporteur.

**Decision:** The document was **approved**.

**S3-183544 New Key Issue: Generic battery efficient end-to-end security**

*Type: pCR For: Approval  
 33.835 v0.1.0  
 Source: KPN*

**Abstract:**

New Key Issue on Generic battery efficient end-to-end security

**Discussion:**

Vodafone: battery efficient bit is too narrow. Happy to say "battery efficient" without the i.e.

Ericsson: the operator would provide the keys here? It's strange.

ORANGE: puzzled by some of the terms, like "simple UE". We are not saying anywhere that AKMA shall support GBA as it is implied here.

Huawei: worried about the operator eavesdropping the communications. It was agreed to remove the threat.

Ericsson: the point of AKMA is not to protect the UE from the operator.

Vodafone: consider lawful interception issues here, LI needs to check this.

**Decision:** The document was **revised to S3-183736**.

**S3-183736 New Key Issue: Generic battery efficient end-to-end security**

*Type: pCR For: Approval  
 33.835 v0.1.0  
 Source: KPN*

(Replaces S3-183544)

**Decision:** The document was **approved**.

**S3-183561 New KI: Key Lifetimes**

*Type: pCR For: Approval  
 33.835 v0.1.0  
 Source: Ericsson India Private Limited*

**Discussion:**

Vodafone: what happens when the max lifetime is reached? We need requirements for that too.

Nokia: why are we negotiating the keys again in the security threat? Ericsson replied that it is similar to what happens in GBA. Gemalto confirmed that this case was widely studied in the GBA work.

This had to be taken offline. The max lifetime was the only non-controversial issue.

**Decision:** The document was **revised to S3-183737**.

**S3-183737 New KI: Key Lifetimes**

*Type: pCR For: Approval  
 33.835 v0.1.0  
 Source: Ericsson India Private Limited*

(Replaces S3-183561)

**Decision:** The document was **approved**.

**S3-183563 New KI: API for AKMA keys in UE**

*Type: pCR For: Approval  
 33.835 v0.1.0  
 Source: Ericsson India Private Limited*

**Discussion:**

Vodafone, Qualcomm: we don’t standardize this.

It was decided to add an editor's note in order to clarify Qualcomm's concerns.

**Decision:** The document was **revised to S3-183746**.

**S3-183746 New KI: API for AKMA keys in UE**

*Type: pCR For: Approval  
 33.835 v0.1.0  
 Source: Ericsson India Private Limited*

(Replaces S3-183563)

**Decision:** The document was **approved**.

**S3-183631 Key Issue on secure communication between ME and UICC**

*Type: pCR For: Approval  
 33.835 v0.2.0  
 Source: Alibaba (China) group., Ltd., China Mobile*

(Replaces S3-183306)

**Discussion:**

ORANGE: interface between ME and UICC is in the scope of ETSI SCP, not ours.

There was not much support for this contribution, so it was finally noted.

**Decision:** The document was **noted**.

**S3-183307 AKMA candidate solution for non-3GPP credential download**

*Type: pCR For: Approval  
 33.835 v0.2.0  
 Source: Alibaba (China) group., Ltd., China Mobile*

**Discussion:**

Related to the previous one.

Vodafone: totally out of scope.

**Decision:** The document was **noted**.

**S3-183420 Solution for bootstrapping authentication of AKMA**

*Type: pCR For: Approval  
 33.835 v0.1.0  
 Source: Huawei, Hisilicon*

**Discussion:**

NEC: where do the keys go? What are they bound to? We need a key hierarchy as well.

It was agreed to add an editor's note to address this.

These and other comments were addressed in the revision.

**Decision:** The document was **revised to S3-183747**.

**S3-183747 Solution for bootstrapping authentication of AKMA**

*Type: pCR For: Approval  
 33.835 v0.1.0  
 Source: Huawei, Hisilicon*

(Replaces S3-183420)

**Decision:** The document was **approved**.

**S3-183511 Discussion and pCR of Candidate Solution: Transport independent procedure using existing protocols**

*Type: pCR For: (not specified)  
 33.835 v0.1.0  
 Source: China Mobile; Alibaba (China) Group., Ltd.*

**Discussion:**

Figure changed to grey scale since the colours didn’t mean anything.

It was also agreed to add an Editor's note on architecture as proposed by Nokia.

Split into solutions as well.

**Decision:** The document was **revised to S3-183748**.

**S3-183748 Discussion and pCR of Candidate Solution: Transport independent procedure using existing protocols**

*Type: pCR For: -  
 33.835 v0.1.0  
 Source: China Mobile; Alibaba (China) Group., Ltd.*

(Replaces S3-183511)

**Decision:** The document was **approved**.

**S3-183513 Discussion and pCR of candidate solution: UE implementation schemes in achieving AKMA procedures**

*Type: pCR For: (not specified)  
 33.835 v0.1.0  
 Source: China Mobile; Alibaba (China) Group., Ltd.*

**Discussion:**

Vodafone: colours mean nothing, make the figures editable, also split into different solutions.

KPN: what is CP and AT? Please add their definitions.

**Decision:** The document was **revised to S3-183749**.

**S3-183749 Discussion and pCR of candidate solution: UE implementation schemes in achieving AKMA procedures**

*Type: pCR For: -  
 33.835 v0.1.0  
 Source: China Mobile; Alibaba (China) Group., Ltd.*

(Replaces S3-183513)

**Decision:** The document was **approved**.

**S3-183562 New solution: Access independent architecture solution for AKMA**

*Type: pCR For: Approval  
 33.835 v0.1.0  
 Source: Ericsson India Private Limited*

**Decision:** The document was **revised to S3-183750**.

**S3-183750 New solution: Access independent architecture solution for AKMA**

*Type: pCR For: Approval  
 33.835 v0.1.0  
 Source: Ericsson India Private Limited*

(Replaces S3-183562)

**Decision:** The document was **approved**.

**S3-183564 New solution: Stand-alone architecture solution for AKMA**

*Type: pCR For: Approval  
 33.835 v0.1.0  
 Source: Ericsson India Private Limited*

**Decision:** The document was **revised to S3-183751**.

**S3-183751 New solution: Stand-alone architecture solution for AKMA**

*Type: pCR For: Approval  
 33.835 v0.1.0  
 Source: Ericsson India Private Limited*

(Replaces S3-183564)

**Decision:** The document was **approved**.

**S3-183306 Key Issue on secure communication between UE and application server**

*Type: pCR For: Approval  
 33.835 v0.2.0  
 Source: Alibaba (China) group., Ltd., China Mobile*

**Decision:** The document was **revised to S3-183631**.

**S3-183735 Draft TR 33.835**

*Type: draft TR For: Approval  
 33.835 v0.2.0  
 Source: China Mobile*

**Decision:** The document was **approved**.

### 8.6 Study on evolution of Cellular IoT security for the 5G System (FS\_CIoT\_sec\_5G) (Rel-16)

**S3-183539 Key Issue #4 – Signalling overload due to Malicious Applications on the UE**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: KPN*

**Abstract:**

Update of Key Issue #4 (Signalling overload due to Malicious Applications on the UE) with Potential Security Requirements

**Discussion:**

Ericsson: the need for human intervention is something we usually don’t mention in our specs.

This was removed.

**Decision:** The document was **merged**.

**S3-183460 Improvement for key issue on the signalling overload due to malicious applications on the UE**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Huawei, HiSilicon*

**Discussion:**

Vodafone: no difference here between malicious operation and poor programming?

T-Mobile: misbehaving should not be in the network to start with.

KPN: second requirement should be a temporarily removal, not permanent (too strong).

T-Mobile: isolating instead of removing from the network.

**Decision:** The document was **revised to S3-183772**.

**S3-183772 Improvement for key issue on the signalling overload due to malicious applications on the UE**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Huawei, HiSilicon,KPN*

(Replaces S3-183460)

**Decision:** The document was **approved**.

**S3-183331 Add security requirements to key issue#6**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Nokia*

**Discussion:**

Qualcomm: these are not requirements, they are solutions.

KPN supported these requirements.

Qualcomm: the application is in another level, it is not possible to evaluate it from the network point of view. ORANGE agreed.

**Decision:** The document was **noted**.

**S3-183541 New KI: Protection of interface used by NIDD procedures**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Ericsson LM*

**Decision:** The document was **revised to S3-183773**.

**S3-183773 New KI: Protection of interface used by NIDD procedures**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Ericsson LM*

(Replaces S3-183541)

**Decision:** The document was **approved**.

**S3-183538 New Key Issue: Remote (de)provisioning of credentials**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: KPN*

**Abstract:**

A new key issue is proposed for the handling of Remote provisioning and Remote deprovisioning

**Discussion:**

ORANGE: we decided not to deal with this topic anymore, since SA2 has not concluded on this issue.

**Decision:** The document was **noted**.

**S3-183415 Key Issue on Classification of IoT UE based on Attack Method**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Huawei, Hisilicon*

**Discussion:**

NEC wanted to reword the requirements.

Nokia: remove the last requirement.

Colin (BT): don’t duplicate the work that other SDOs are doing. E.g. TC CYBER, GSMA. ORANGE supported this.

Qualcomm: this is out of scope of 3GPP.

**Decision:** The document was **noted**.

**S3-183332 Adding Key issue for Connectionless service security**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Nokia*

**Discussion:**

Ericsson: some requirements already covered in other key issues, others are too solution specific.

ORANGE: don’t refer to solution 29 especifically.Threats are too specific too.

**Decision:** The document was **revised to S3-183775**.

**S3-183775 Adding Key issue for Connectionless service security**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Nokia*

(Replaces S3-183332)

**Decision:** The document was **approved**.

**S3-183545 New KI: Privacy protection of the NIDD API between UPF/NEF and AF**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Ericsson LM*

**Discussion:**

NEC: reword the security threat.

It had to be taken offline to address some concerns from ORANGE.

Huawei: remove UPF from the title.

**Decision:** The document was **noted**.

**S3-183776 New KI: Privacy protection of the NIDD API between UPF/NEF and AF**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Ericsson LM*

**Decision:** The document was **withdrawn**.

**S3-183338 Solution proposal for FS\_CIoT\_sec\_5G**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: NEC Corporation*

**Abstract:**

This pCR proposes a solution for key issue #1 “Efficient frequent small data transmissions” and key issue #2 "integrity protection of small data" for study item on evolution of Cellular IoT security for the 5G System.

**Discussion:**

Ericsson: there is an overhead in the network side. It is not clear whether this is needed so it should be captured in an editor's note.

Huawei: remove the evaluation and bring one back next meeting.

BT: losing security in favour of performance here. Add condition on security policy here.

**Decision:** The document was **revised to S3-183777**.

**S3-183777 Solution proposal for FS\_CIoT\_sec\_5G**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: NEC Corporation*

(Replaces S3-183338)

**Decision:** The document was **approved**.

**S3-183537 Security solution for MO SMS in initial NAS message - handling AMF re-allocation**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Ericsson LM*

**Abstract:**

Proposes to add a new security solution for MO SMS in initial NAS message handling AMF reallocation

**Decision:** The document was **revised to S3-183778**.

**S3-183778 Security solution for MO SMS in initial NAS message - handling AMF re-allocation**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Ericsson LM*

(Replaces S3-183537)

**Decision:** The document was **approved**.

**S3-183535 Security solution for small data sent with EDT in RRC Resume Request for E-UTRA connected to 5GC**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Ericsson*

**Decision:** The document was **revised to S3-183779**.

**S3-183779 Security solution for small data sent with EDT in RRC Resume Request for E-UTRA connected to 5GC**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Ericsson*

(Replaces S3-183535)

**Decision:** The document was **approved**.

**S3-183536 Security solution for small data included in initial NAS to handle AMF reallocation**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Ericsson LM*

**Abstract:**

Proposes to add a new security solution to TR 33.861 [2] for small data included in initial NAS message to handle AMF reallocation

**Decision:** The document was **revised to S3-183780**.

**S3-183780 Security solution for small data included in initial NAS to handle AMF reallocation**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Ericsson LM*

(Replaces S3-183536)

**Decision:** The document was **approved**.

**S3-183542 New Solution for Key Issue #4: Use of UE Configuration Update**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: KPN*

**Abstract:**

New Solution for Key Issue #4 based on the use of the UE Configuration Update procedure

**Discussion:**

Nokia: vague solution.

Huawei: this detection mechanism is out of scope of 3GPP.

ORANGE: it is written in the evaluation that it is out of scope of 3GPP.

Several editor's notes were agreed to be added in the revision.

**Decision:** The document was **revised to S3-183781**.

**S3-183781 New Solution for Key Issue #4: Use of UE Configuration Update**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: KPN*

(Replaces S3-183542)

**Decision:** The document was **approved**.

**S3-183346 Solution for protecting gNB from RRC re-establishment DDoS attack**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Huawei, Hisilicon*

**Discussion:**

ORANGE: thresholds are in scope of 3GPP? This is implementation specific and should not go through in normative work.

**Decision:** The document was **revised to S3-183782**.

**S3-183782 Solution for protecting gNB from RRC re-establishment DDoS attack**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Huawei, Hisilicon*

(Replaces S3-183346)

**Decision:** The document was **approved**.

**S3-183543 New solution for protection of interface used by NIDD procedures**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Ericsson LM*

**Decision:** The document was **revised to S3-183783**.

**S3-183783 New solution for protection of interface used by NIDD procedures**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Ericsson LM*

(Replaces S3-183543)

**Decision:** The document was **approved**.

**S3-183416 Capture IoT Security Related Requirement in other 3GPP Document**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Huawei, Hisilicon*

**Discussion:**

ORANGE: the specs can change, and this is hard to maintain. Useful for a discussion document, but not for the TR.

**Decision:** The document was **noted**.

**S3-183352 Solution for protecting gNB from RRC re-establishment DDoS attack**

*Type: pCR For: Approval  
 33.861 v0.2.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **withdrawn**.

**S3-183774 Draft TR 33.861**

*Type: draft TR For: Approval  
 33.861 v0.3.0  
 Source: Ericsson*

**Decision:** The document was **approved**.

### 8.7 Study on the security of the Wireless and Wireline Convergence for the 5G system architecture (FS\_5WWC\_SEC) (Rel-16)

**S3-183275 Response to 3GPP SA2 liaison S2-189038 on ‘general status of work’**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: BBF*

**Decision:** The document was **postponed**.

**S3-183280 Reply LS on security requirements for RRC connection release**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: R2-1816053*

**Decision:** The document was **noted**.

**S3-183282 Reply LS on devices behind 5G-RG accessing the 5GC**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: S2-1810989*

**Decision:** The document was **noted**.

**S3-183288 Reply LS on 5WWC status of work and interim agreements**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: S2-1811575*

**Discussion:**

Potential response when replying to 275.

**Decision:** The document was **noted**.

**S3-183517 Update of Key Issue #2: FN-RG authentication and authorization**

*Type: pCR For: Approval  
 33.807 v0.1.0  
 Source: Ericsson*

**Discussion:**

NEC: why do we study the authentication and authorization of FN-RG if this is outside the scope of 3GPP? It's BBF stuff.

Ericsson: BBF will ask us questions about this. We can have something in our TR or we can communicate with them via LS.

Huawei: this is in scope of SA2.

It was agreed to send an LS to SA2 to consult them on this topic. The document was finally noted.

**Decision:** The document was **noted**.

**S3-183518 New solution for Key Issue #2: FN-RG authentication and authorization**

*Type: pCR For: Approval  
 33.807 v0.1.0  
 Source: Ericsson*

**Decision:** The document was **noted**.

**S3-183519 New KI: Authentication of 5G capable UE behind a RG**

*Type: pCR For: Approval  
 33.807 v0.1.0  
 Source: Ericsson*

**Discussion:**

ORANGE didn’t find this necessary. This is not different from an Wi-Fi access point. NEC supported this.

Nokia and Deutsche Telekom preferred to have this key issue added.

ORANGE: what's the added value for having another mechanism for non 3GPP access?

It was agreed to add a note where it was stressed that any other authentication rather than 5GC authentication would need a strong reason.

**Decision:** The document was **revised to S3-183786**.

**S3-183786 New KI: Authentication of 5G capable UE behind a RG**

*Type: pCR For: Approval  
 33.807 v0.1.0  
 Source: Ericsson*

(Replaces S3-183519)

**Decision:** The document was **approved**.

**S3-183521 New Solution: 5GC-capable UEs behind 5G-RG/FN-RG using N3GPP-access solutions**

*Type: pCR For: Approval  
 33.807 v0.1.0  
 Source: Ericsson*

**Discussion:**

Huawei: postponed the evaluation part until SA2 has finished with this.

Ericsson: we cannot wait for SA2, it would be too late.

**Decision:** The document was **revised to S3-183791**.

**S3-183791 New Solution: 5GC-capable UEs behind 5G-RG/FN-RG using N3GPP-access solutions**

*Type: pCR For: Approval  
 33.807 v0.1.0  
 Source: Ericsson*

(Replaces S3-183521)

**Decision:** The document was **approved**.

**S3-183520 New KI: User plane data handling for 5G capable UE behind a RG**

*Type: pCR For: Approval  
 33.807 v0.1.0  
 Source: Ericsson*

**Decision:** The document was **revised to S3-183787**.

**S3-183787 New KI: User plane data handling for 5G capable UE behind a RG**

*Type: pCR For: Approval  
 33.807 v0.1.0  
 Source: Ericsson,NEC*

(Replaces S3-183520)

**Decision:** The document was **approved**.

**S3-183534 Key Issue on Access Independent Security for 5WWC**

*Type: pCR For: Agreement  
 33.807 v0.1.0  
 Source: NEC Corporation*

**Abstract:**

This pCR proposes a new key issue for study item on 5WWC

**Decision:** The document was **revised to S3-183788**.

**S3-183788 Key Issue on Access Independent Security for 5WWC**

*Type: pCR For: Agreement  
 33.807 v0.1.0  
 Source: NEC Corporation*

(Replaces S3-183534)

**Decision:** The document was **approved**.

**S3-183376 Key Issue: Requirement of Trust mechanism of Non 3GPP UEs**

*Type: pCR For: Approval  
 33.807 v0.1.0  
 Source: China Telecom Corporation Ltd.*

**Abstract:**

5GC has to have a mechanism to ensure the trust of non-5GC capable UEs from W-5GAN. Therefore, it is first required that the 5GC has the mechanisms to identify Non 5GC capable UEs.

**Discussion:**

ORANGE: what is a non-5GC capable UE?

Nokia didn’t want to agree with this key issue either.

Ericsson: there is no scenario in SA2 that covers this.

**Decision:** The document was **noted**.

**S3-183423 Secure storage of UICC**

*Type: pCR For: Approval  
 33.807 v0.2.0  
 Source: Huawei, Hisilicon*

**Discussion:**

NEC: there is nothing new here, there are solutions for this.

There was no support for this document.

**Decision:** The document was **noted**.

**S3-183424 secure boot of 5G-RG**

*Type: pCR For: Approval  
 33.807 v0.2.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **noted**.

**S3-183425 Prevent from 5G-RG cheating**

*Type: pCR For: Approval  
 33.807 v0.2.0  
 Source: Huawei, Hisilicon*

**Discussion:**

What's the difference in this context between a 5G-RG and an UE? I could use my phone as a Wi-Fi hotspot. Juniper and Nokia supported Ericsson.

Huawei: this RG is more exposed than your phone.

**Decision:** The document was **noted**.

**S3-183426 solution on 5G-RG authentication**

*Type: pCR For: Approval  
 33.807 v0.2.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **approved**.

**S3-183427 Editorial Change of Solution 1**

*Type: pCR For: Approval  
 33.807 v0.2.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **approved**.

**S3-183784 Draft TR 33.807**

*Type: draft TR For: Approval  
 33.807 v0.2.0  
 Source: Huawei*

**Decision:** The document was **approved**.

**S3-183785 LS on FN-RG authentication and related questions**

*Type: LS out For: Approval  
 to SA2  
 Source: Ericsson*

**Decision:** The document was **approved**.

### 8.8 Study on Security Aspects of PARLOS (FS\_PARLOS\_Sec) (Rel-16)

**S3-183567 Update of PARLOS solution #1**

*Type: pCR For: Approval  
 33.815 v0.1.0  
 Source: Motorola Mobility, Lenovo*

**Abstract:**

This paper provides an update to the solution #1.

**Discussion:**

Ericsson didn’t agree with removing the editor's note and they proposed to reformulate it.

Sprint: these could be unauthenticated devices without an USIM. Things can be handled by an ME without an USIM. The term UE was to be replaced by ME.

Sprint added that false base stations attacks are possible due to the current FCC regulations.

The document was revised to address these comments.

**Decision:** The document was **revised to S3-183725**.

**S3-183725 Update of PARLOS solution #1**

*Type: pCR For: Approval  
 33.815 v0.1.0  
 Source: Motorola Mobility, Lenovo*

(Replaces S3-183567)

**Decision:** The document was **approved**.

**S3-183630 P-CR describing current manual roaming in US**

*Type: pCR For: Agreement  
 33.815 v0.1.0  
 Source: Sprint Corporation*

**Discussion:**

Vodafone: some other countries different from US have this issue as well.

What happens if they try to attach as an VF UK customer and there is no roaming agreement with VF UK? Are you switching to the manual roaming? Sprint replied affirmatively, and Vodafone didn't find it acceptable. This enabling customers to break their agreements.

An editor's note on this issue was added.

MCC commented that mentioning companies like American Roaming Networks could lead to copyright issues that should be avoided. A reference to a study or paper where the data was found would be more useful.

Mirko (MCC) also suggested to add a reference to the SA1 study document.

There were several editorial issues that were taken into account as well in the revision.

**Decision:** The document was **revised to S3-183727**.

**S3-183727 P-CR describing current manual roaming in US**

*Type: pCR For: Agreement  
 33.815 v0.1.0  
 Source: Sprint Corporation*

(Replaces S3-183630)

**Decision:** The document was **approved**.

**S3-183726 Draft TR 33.815**

*Type: draft TR For: Approval  
 33.815 v0.2.0  
 Source: Sprint*

**Decision:** The document was **approved**.

### 8.9 Study on 5G security enhancement against false base stations

**S3-183300 skeleton of TR 33.809-Study on 5G Security Enhancement against False Base Station**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Apple Computer Trading Co. Ltd*

**Abstract:**

skeleton of TR 33.809-Study on 5G Security Enhancement against False Base Station

**Decision:** The document was **approved**.

**S3-183568 Clause #4 for the upcoming TR on FS\_5GFBS**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Ericsson*

**Abstract:**

Since a TR skeleton is expected to be proposed in this meeting, we are proactively proposing content for Clause #4 to have guidelines for the upcoming key-issues and solutions.

**Discussion:**

NTT-Docomo: Some parts should go to the Introduction of the draft report.

**Decision:** The document was **revised to S3-183800**.

**S3-183800 Clause #4 for the upcoming TR on FS\_5GFBS**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Ericsson*

(Replaces S3-183568)

**Decision:** The document was **approved**.

**S3-183296 Discussion of Potential threats caused by false base station**

*Type: discussion For: Agreement  
 33.809 v..  
 Source: Apple Computer Trading Co. Ltd*

**Abstract:**

Discussion on the potential threat caused by false base station

**Decision:** The document was **noted**.

**S3-183297 Key issue of authenticating gNB on broadcast and unicast message**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Apple Computer Trading Co. Ltd*

**Abstract:**

Key issue of authenticating gNB on broadcast and unicast message

**Discussion:**

ORANGE: requirement looks too solution specific.

Ericsson: when you mention PWS you should refer to what SA3 has done on this topic. This overlaps with 580 and 581.

**Decision:** The document was **merged**.

**S3-183330 Key issue false base station detection and isolation**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Nokia*

**Discussion:**

BT: false base stations are already isolated. The requirement was removed.

**Decision:** The document was **revised to S3-183802**.

**S3-183802 Key issue false base station detection and isolation**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Nokia,Ericsson*

(Replaces S3-183330)

**Decision:** The document was **approved**.

**S3-183347 Key Issue on spoofing system information**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **merged**.

**S3-183349 Key Issue on Spoofing UE paging messages**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **noted**.

**S3-183551 Key issue on AS security during RRC Idle mode**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Samsung*

**Decision:** The document was **merged**.

**S3-183570 Enhancing detection - new KI for the upcoming TR on FS\_5GFBS**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Ericsson*

**Abstract:**

Since a TR skeleton is expected to be proposed in this meeting, we are proactively proposing a key-issue for Clause #5 about enhancing the detection of false base stations.

**Decision:** The document was **merged**.

**S3-183580 SI integrity - new KI for the upcoming TR on FS\_5GFB**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Ericsson*

**Abstract:**

Since a TR skeleton is expected to be proposed in this meeting, we are proactively proposing a key-issue on integrity protection of SI.

**Discussion:**

The Chair commented that a catalogue of common possible attacks on the base stations should be avoided in this document. It was enough just to refer to other documents that describe them.

**Decision:** The document was **revised to S3-183801**.

**S3-183801 SI integrity - new KI for the upcoming TR on FS\_5GFB**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Ericsson,Samsung,Apple,Huawei*

(Replaces S3-183580)

**Decision:** The document was **approved**.

**S3-183579 SI replay - new KI for the upcoming TR on FS\_5GFB**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Ericsson*

**Abstract:**

Since a TR skeleton is expected to be proposed in this meeting, we are proactively proposing a key-issue on replay protection of SI.

**Discussion:**

The requirement was removed.

MCC commented that it was not possible to refer to TR 33.899 since the draft had been withdrawn.

**Decision:** The document was **merged**.

**S3-183581 Rogue REJECTS - new KI for the upcoming TR on FS\_5GFB**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Ericsson*

**Abstract:**

Since a TR skeleton is expected to be proposed in this meeting, we are proactively proposing a key-issue on minimizing effects of rogue REJECTs.

**Decision:** The document was **merged**.

**S3-183569 SON security - new KI for the upcoming TR on FS\_5GFBS**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Ericsson*

**Abstract:**

Since a TR skeleton is expected to be proposed in this meeting, we are proactively proposing a key-issue for Clause #5 about minimizing potential effects of SON poisoning attempts.

**Decision:** The document was **revised to S3-183804**.

**S3-183804 SON security - new KI for the upcoming TR on FS\_5GFBS**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Ericsson*

(Replaces S3-183569)

**Decision:** The document was **approved**.

**S3-183470 Key issue on Authentication relay attack**

*Type: pCR For: Approval  
 33.809 v0.0.1  
 Source: Huawei, Hisilicon*

**Decision:** The document was **revised to S3-183805**.

**S3-183805 Key issue on Authentication relay attack**

*Type: pCR For: Approval  
 33.809 v0.0.1  
 Source: Huawei, Hisilicon*

(Replaces S3-183470)

**Decision:** The document was **revised to S3-183839**.

**S3-183839 Key issue on Authentication relay attack**

*Type: pCR For: Approval  
 33.809 v0.0.1  
 Source: Huawei, Hisilicon*

(Replaces S3-183805)

**Decision:** The document was **approved**.

**S3-183299 Key issue of security protection on the unicast message from the UE before security activation**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Apple Computer Trading Co. Ltd*

**Abstract:**

Key issue of security protection on the unicast message from the UE before security activation

**Discussion:**

It was agreed to remove the requirements.

China Mobile commented that this was not a key issue for the fake base station.

**Decision:** The document was **revised to S3-183803**.

**S3-183803 Key issue of security protection on the unicast message from the UE before security activation**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Apple Computer Trading Co. Ltd,Ericsson*

(Replaces S3-183299)

**Decision:** The document was **approved**.

**S3-183571 Enhancing untraceability - new KI for the upcoming TR on FS\_5GFB**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Ericsson*

**Abstract:**

Since a TR skeleton is expected to be proposed in this meeting, we are proactively proposing a key-issue for Clause #5 about enhancing untraceability of subscribers.

**Decision:** The document was **noted**.

**S3-183348 Key Issue on HO failure caused by fake base station**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **merged**.

**S3-183572 Privacy visibility - new KI for the upcoming TR on FS\_5GFB**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Ericsson*

**Abstract:**

Since a TR skeleton is expected to be proposed in this meeting, we are proactively proposing privacy visibility as a new key-issue.

**Discussion:**

BT,Nokia and Apple objected to this. ORANGE supported this, since the user could react with some action if he receives the data that there is a false base station,

**Decision:** The document was **noted**.

**S3-183576 Service visibility - new KI for the upcoming TR on FS\_5GFB**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Ericsson*

**Abstract:**

Since a TR skeleton is expected to be proposed in this meeting, we are proactively discussing that service delivery visibility is very important key-issue.

**Discussion:**

Apple objected to this.

**Decision:** The document was **noted**.

**S3-183582 Radio jamming - placeholder-only KI for the upcoming TR on FS\_5GFB**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Ericsson*

**Abstract:**

Since a TR skeleton is expected to be proposed in this meeting, we are proactively proposing a (placeholder only) key-issue on radio jamming.

**Discussion:**

Deutsche Telekom didn’t see the need to include this key issue.

**Decision:** The document was **revised to S3-183806**.

**S3-183806 Radio jamming - placeholder-only KI for the upcoming TR on FS\_5GFB**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Ericsson*

(Replaces S3-183582)

**Decision:** The document was **approved**.

**S3-183301 Key issue of security overhead and complexity**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Apple Computer Trading Co. Ltd*

**Abstract:**

Key issue of security overhead and complexity

**Discussion:**

ORANGE: this key issue is based on TR 33.899, which was withdrawn, and I don’t agree with this. Deutsche Telekom and Huawei supported this.

**Decision:** The document was **noted**.

**S3-183350 Protecting UE from connecting to fake base station during HO**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Huawei, Hisilicon*

**Discussion:**

ORANGE: too early for this evaluation, remove it.

Ericsson, Qualcomm: too early for the whole document.

**Decision:** The document was **noted**.

**S3-183351 Avoiding unnecessary HO caused by fake base station**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **noted**.

**S3-183552 Solution for AS security during RRC Idle mode**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Samsung*

**Discussion:**

ORANGE: when we bring these solutions from TR 33.899, shouldn’t we use their evaluations as well? We don’t need to re-evaluate.

There was no requirement for this solution, so it was noted.

**Decision:** The document was **noted**.

**S3-183353 Key Issue on spoofing system information**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **withdrawn**.

**S3-183354 Key Issue on HO failure caused by fake base station**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **withdrawn**.

**S3-183355 Key Issue on Spoofing UE paging messages**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **withdrawn**.

**S3-183357 Solution for protecting UE from HO to fake base station**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **withdrawn**.

**S3-183358 Protecting UE from connecting to fake base station during HO**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **withdrawn**.

**S3-183359 Avoiding unnecessary HO caused by fake base station**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **withdrawn**.

**S3-183365 Solution for protecting UE from HO to fake base station**

*Type: pCR For: Approval  
 33.809 v0.0.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **withdrawn**.

**S3-183799 Draft TR 33.809**

*Type: draft TR For: Approval  
 33.809 v0.1.0  
 Source: Apple*

**Decision:** The document was **approved**.

### 8.10 Study of KDF negotiation for 5G System Security

**S3-183414 Scope for TR 33.808 KDF negotiation**

*Type: pCR For: Approval  
 33.808 v0.0.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **approved**.

**S3-183508 Key issue on Need for UE capability based KDF negotiation in 5GS**

*Type: pCR For: Approval  
 33.808 v0.1.0  
 Source: NEC Corporation*

**Abstract:**

This pCR proposes a key issue for study item on KDF negotiation for 5G system security

**Discussion:**

Ericsson and ORANGE objected to the key issue.

ORANGE was not comfortable with having the UE deciding the KDF.

Ericsson: we study a need and this key issue assumes there is a need.

Docomo, ORANGE and Qualcomm supported that the need should be studied first.

Huawei: there are companies who are convinced that this is not needed, so we could just finish with a "this is not needed".

It was agreed to have the following process:

- Justify the need.

- Study the solution.

**Decision:** The document was **noted**.

**S3-183412 Key Issue on KDF negotiation between UE and AMF**

*Type: pCR For: Approval  
 33.808 v0.0.0  
 Source: Huawei, Hisilicon*

**Discussion:**

Docomo: the security threats are not security related.

**Decision:** The document was **revised to S3-183796**.

**S3-183796 Key Issue on KDF negotiation between UE and AMF**

*Type: pCR For: Approval  
 33.808 v0.0.0  
 Source: Huawei, Hisilicon*

(Replaces S3-183412)

**Decision:** The document was **approved**.

**S3-183512 Key Issue on Need for Bidding down protection**

*Type: pCR For: Approval  
 33.808 v0.1.0  
 Source: NEC Corporation*

**Abstract:**

This pCR proposes a new key issue for study item on KDF negotiation for 5G system security

**Decision:** The document was **noted**.

**S3-183413 Key Issue on Avoiding Bidding down attack on KDF negotiation**

*Type: pCR For: Approval  
 33.808 v0.0.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **noted**.

**S3-183510 Key Issue on Need for Flexible KDF negotiation**

*Type: pCR For: Approval  
 33.808 v0.1.0  
 Source: NEC Corporation*

**Abstract:**

This pCR proposes a key issue for study item on KDF negotiation for 5G system security

**Decision:** The document was **noted**.

**S3-183792 Draft TR 33.808**

*Type: draft TR For: Approval  
 33.808 v0.2.0  
 Source: Huawei*

**Decision:** The document was **approved**.

### 8.11 Study on Security aspects of Enhancement of Network Slicing

**S3-183333 Skeleton proposal for TR for Enhanced Network Slicing**

*Type: pCR For: Approval  
 33.813 v0.0.0  
 Source: Nokia*

**Decision:** The document was **approved**.

**S3-183334 eNet Slice TR content for scope**

*Type: pCR For: Approval  
 33.813 v0.0.0  
 Source: Nokia*

**Decision:** The document was **approved**.

**S3-183335 pCR to TR 33.813 content for references**

*Type: pCR For: Approval  
 33.813 v0.0.0  
 Source: Nokia*

**Decision:** The document was **approved**.

**S3-183336 pCR to TR33.813 content for definitions and abbreviations**

*Type: pCR For: Approval  
 33.813 v0.0.0  
 Source: Nokia*

**Decision:** The document was **noted**.

**S3-183337 pCR to TR 33.813 Adding key issue for Slice specific authentication**

*Type: pCR For: Approval  
 33.813 v0.0.0  
 Source: Nokia*

**Discussion:**

BT: you can have a slice without secondary authentication.

Ericsson: key issue details should refer to what SA2 is doing, we cannot ignore them.

**Decision:** The document was **revised to S3-183808**.

**S3-183808 pCR to TR 33.813 Adding key issue for Slice specific authentication**

*Type: pCR For: Approval  
 33.813 v0.0.0  
 Source: Nokia,Huawei*

(Replaces S3-183337)

**Decision:** The document was **approved**.

**S3-183463 New KI on slice authentication**

*Type: pCR For: Approval  
 33.813 v0.0.0  
 Source: Huawei, HiSilicon*

**Decision:** The document was **merged**.

**S3-183531 A key issue: Security and privacy aspects related to Network Slice specific access authentication and authorization**

*Type: pCR For: (not specified)  
 33.813 v0.0.0  
 Source: China Mobile*

**Decision:** The document was **approved**.

**S3-183339 Key issue proposal for security aspects of enhanced support of network slices**

*Type: pCR For: Approval  
 33.813 v0.0.0  
 Source: NEC Corporation*

**Abstract:**

This pCR proposes a key issue for study item on security aspects of enhanced support of network slices (TR 33.813).

**Discussion:**

Huawei: the two requirements address different key issues. Remove the second requirements.

Nokia: what's UE protection? What's being protected?

Eventually the requirements were removed.

Ericsson: how is this done if the UE is always connected to one AMF?

Huawei: there is a study where the UE is connected to multiple AMFs.

ORANGE: slices with different security requirements are being mentioned, what does it mean? What are the different requirements you refer to?

**Decision:** The document was **noted**.

**S3-183464 New KI on slice isolation**

*Type: pCR For: Approval  
 33.813 v0.0.0  
 Source: Huawei, HiSilicon*

**Discussion:**

ORANGE: in TR 33.899 we discussed this extensively, what's new in here?

**Decision:** The document was **noted**.

**S3-183583 New key issue on key separation between Network Slices**

*Type: pCR For: Approval  
 33.813 v0.0.0  
 Source: Ericsson*

**Discussion:**

The requirement was decided to be split.

**Decision:** The document was **revised to S3-183809**.

**S3-183809 New key issue on key separation between Network Slices**

*Type: pCR For: Approval  
 33.813 v0.0.0  
 Source: Ericsson*

(Replaces S3-183583)

**Decision:** The document was **approved**.

**S3-183461 New KI on security features for NSaaS**

*Type: pCR For: Approval  
 33.813 v0.0.0  
 Source: Huawei, HiSilicon*

**Discussion:**

ORANGE: the study is on the SA2 solutions not on SA5.

**Decision:** The document was **revised to S3-183810**.

**S3-183810 New KI on security features for NSaaS**

*Type: pCR For: Approval  
 33.813 v0.0.0  
 Source: Huawei, HiSilicon,China Mobile*

(Replaces S3-183461)

**Decision:** The document was **approved**.

**S3-183530 A key issue on Slice-specific security features in NSaaS**

*Type: pCR For: (not specified)  
 33.813 v0.0.0  
 Source: China Mobile*

**Discussion:**

ORANGE: not in the scope of the study, not SA2 work.

**Decision:** The document was **merged**.

**S3-183462 New KI on monitored security features**

*Type: pCR For: Approval  
 33.813 v0.0.0  
 Source: Huawei, HiSilicon*

**Discussion:**

ORANGE didn't agree with the key issue since a lot of this is happening outside the slice.

**Decision:** The document was **noted**.

**S3-183465 New KI on NSSAI confidentiality**

*Type: pCR For: Approval  
 33.813 v0.0.0  
 Source: Huawei, HiSilicon*

**Discussion:**

Nokia: not part of the objectives or of the SA2 work.

ORANGE: confidential from where to where? Huawei replied that Over The Air.ORANGE said that this is already cover in Rel-15 work.

ORANGE: this depends on the Nokia solution that is being discussed in SA2.

Intel supported this contribution.

**Decision:** The document was **noted**.

**S3-183807 Draft TR 33.813**

*Type: draft TR For: discussion  
 33.813 v0.1.0  
 Source: Nokia*

**Decision:** The document was **approved**.

### 8.12 Study on Security of the enhancement to the 5GC location services

**S3-183433 Draft skeleton for TR 33.814**

*Type: pCR For: Approval  
 33.814 v0.0.0  
 Source: CATT*

**Discussion:**

It was noted that the template used was wrong, reusing one from another spec.

**Decision:** The document was **revised to S3-183811**.

**S3-183811 Draft skeleton for TR 33.814**

*Type: pCR For: Approval  
 33.814 v0.0.0  
 Source: CATT*

(Replaces S3-183433)

**Decision:** The document was **approved**.

**S3-183434 pCR to TR33.814 - Scope**

*Type: pCR For: Approval  
 33.814 v0.0.0  
 Source: CATT*

**Decision:** The document was **revised to S3-183744**.

**S3-183744 pCR to TR33.814 - Scope**

*Type: pCR For: Approval  
 33.814 v0.0.0  
 Source: CATT*

(Replaces S3-183434)

**Decision:** The document was **approved**.

**S3-183371 Scope of FS\_eLCS\_Sec**

*Type: pCR For: (not specified)  
 33.814 v0.0.0  
 Source: China Unicom*

**Decision:** The document was **merged**.

**S3-183372 key issue on protect distribution positioning assistance data**

*Type: pCR For: (not specified)  
 33.814 v0.0.0  
 Source: China Unicom*

**Decision:** The document was **merged**.

**S3-183403 Key issue for encryption protection of location data**

*Type: pCR For: Approval  
 33.814 v0.0.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **revised to S3-183770**.

**S3-183770 Key issue for encryption protection of location data**

*Type: pCR For: Approval  
 33.814 v0.0.0  
 Source: Huawei, Hisilicon*

(Replaces S3-183403)

**Decision:** The document was **noted**.

**S3-183404 Key issue for integrity protection of location and assistance data**

*Type: pCR For: Approval  
 33.814 v0.0.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **revised to S3-183771**.

**S3-183771 Key issue for integrity protection of location and assistance data**

*Type: pCR For: Approval  
 33.814 v0.0.0  
 Source: Huawei, Hisilicon*

(Replaces S3-183404)

**Decision:** The document was **noted**.

**S3-183435 pCR to TR33.814 - Key issue for ciphering key delivery**

*Type: pCR For: Approval  
 33.814 v0.0.0  
 Source: CATT*

**Discussion:**

Nokia: Broadcasting is a LTE procedure, not defined for 5G yet.

**Decision:** The document was **noted**.

**S3-183366 Key issue on security protection of Location service exposure for TR33.814**

*Type: pCR For: (not specified)  
 33.814 v0.0.0  
 Source: CATR, China Unicom, CATT*

**Decision:** The document was **merged**.

**S3-183526 WLAN positioning - new KI for the upcoming TR on FS\_eLCS\_Sec**

*Type: pCR For: Approval  
 33.814 v0.0.0  
 Source: Ericsson*

**Abstract:**

Since a TR skeleton is expected to be proposed in this meeting, we are proactively proposing a key-issue on wlan positioning security and privacy.

**Discussion:**

NextNav: Combine WLAN, TBS, positioning into one.

NEC preferred to have Bluetooth, WLAN separate because of their security aspects.

NextNav commented that there were many positioning methods and was wondering why these three were considered. The Chair commented that input was welcome to change this.

NextNav insisted that they didn’t agree with being as specific as this, focusing on WLAN instead of going generic.

**Decision:** The document was **approved**.

**S3-183813 WLAN positioning - new KI for the upcoming TR on FS\_eLCS\_Sec**

*Type: pCR For: Approval  
 33.814 v0.0.0  
 Source: Ericsson*

**Decision:** The document was **withdrawn**.

**S3-183527 Bluetooth positioning - new KI for the upcoming TR on FS\_eLCS\_Sec**

*Type: pCR For: Approval  
 33.814 v0.0.0  
 Source: Ericsson*

**Abstract:**

Since a TR skeleton is expected to be proposed in this meeting, we are proactively proposing a key-issue on Bluetooth positioning security and privacy.

**Discussion:**

MCC commented that Bluetooth was a trademark, but NextNav commented that in RAN2 a trademark sentence could be added to the cover page of the specification.

**Decision:** The document was **approved**.

**S3-183528 TBS positioning - new KI for the upcoming TR on FS\_eLCS\_Sec**

*Type: pCR For: Approval  
 33.814 v0.0.0  
 Source: Ericsson*

**Abstract:**

Since a TR skeleton is expected to be proposed in this meeting, we are proactively proposing a key-issue on tbs positioning security and privacy.

**Discussion:**

NextNav: make all this generic.ESA agreed.

The Chair commented that WLAN/Bluetooth had a specific network type. For this document, it could be made more generic.

NextNav: what are the specific privacy concerns for these cases? GPS/satellite, Bluetooth,..can be generalised.

Ericsson: privacy issues with the connecting beacons.

NEC: collected data on these cases are about people. GPS collected data is different.

Ericsson: we cannot commit to generalise all this now. It can be done with a future contribution.

NextNav: there are a lot of flavours of TBS. Which one is it referred here?

Ericsson: add an editor's note on the need of studying this to generalise it.

**Decision:** The document was **revised to S3-183814**.

**S3-183814 TBS positioning - new KI for the upcoming TR on FS\_eLCS\_Sec**

*Type: pCR For: Approval  
 33.814 v0.0.0  
 Source: Ericsson*

(Replaces S3-183528)

**Decision:** The document was **approved**.

**S3-183812 Draft TR 33.814**

*Type: draft TR For: discussion  
 33.814 v0.1.0  
 Source: CATT*

**Decision:** The document was **approved**.

### 8.13 Study on security for 5G URLLC

**S3-183453 Scope for TR33.825 on URLLC security**

*Type: pCR For: Approval  
 33.825 v0.1.0  
 Source: Huawei, HiSilicon*

**Decision:** The document was **revised to S3-183815**.

**S3-183815 Scope for TR33.825 on URLLC security**

*Type: pCR For: Approval  
 33.825 v0.1.0  
 Source: Huawei, HiSilicon*

(Replaces S3-183453)

**Discussion:**

The scope was reworded to make it more about the document and not about the study.

**Decision:** The document was **approved**.

**S3-183340 Key issue proposal for security of URLLC for 5GS**

*Type: pCR For: Approval  
 33.825 v0.1.0  
 Source: NEC Corporation*

**Abstract:**

This pCR proposes a key issue for study item on security of URLLC for 5GS (TR 33.825).

**Decision:** The document was **revised to S3-183817**.

**S3-183817 Key issue proposal for security of URLLC for 5GS**

*Type: pCR For: Approval  
 33.825 v0.1.0  
 Source: NEC Corporation*

(Replaces S3-183340)

**Decision:** The document was **approved**.

**S3-183455 Key issue security for redundant transmissions**

*Type: pCR For: Approval  
 33.825 v0.1.0  
 Source: Huawei, HiSilicon*

**Decision:** The document was **revised to S3-183818**.

**S3-183818 Key issue security for redundant transmissions**

*Type: pCR For: Approval  
 33.825 v0.1.0  
 Source: Huawei, HiSilicon,Ericsson,LG*

(Replaces S3-183455)

**Decision:** The document was **approved**.

**S3-183377 URLLC pCR - new key issue on security of redundant transmission in user plane**

*Type: pCR For: Approval  
 33.825 v0.0.0  
 Source: LG Electronics*

**Discussion:**

Huawei: the weaker part is not true.

**Decision:** The document was **merged**.

**S3-183573 KI for security keys for redundant data**

*Type: pCR For: Approval  
 33.825 v0.0.0  
 Source: Ericsson*

**Abstract:**

Proposes to add a new key issue for security keys for redundant data in TR 33.XXX

**Decision:** The document was **merged**.

**S3-183456 Key issue security policy for URLLC service**

*Type: pCR For: Approval  
 33.825 v0.1.0  
 Source: Huawei, HiSilicon*

**Discussion:**

Ericsson:Fourth requirement should go away.

NEC: first requirement is very weak.

NCSC: change the name of the key issue. An editor's note was agreed regarding this.

**Decision:** The document was **revised to S3-183819**.

**S3-183819 Key issue security policy for URLLC service**

*Type: pCR For: Approval  
 33.825 v0.1.0  
 Source: Huawei, HiSilicon*

(Replaces S3-183456)

**Decision:** The document was **approved**.

**S3-183574 KI for UP security policy handling for redundant data**

*Type: pCR For: Approval  
 33.825 v0.0.0  
 Source: Ericsson*

**Abstract:**

Proposes to add a new key issue for UP security policy handling for redundant data in TR 33.XXX

**Decision:** The document was **approved**.

**S3-183454 Key issue authentication adaptions**

*Type: pCR For: Approval  
 33.825 v0.1.0  
 Source: Huawei, HiSilicon*

**Discussion:**

ORANGE; authentication framework that we have is not adapted to URLLC services. The key issue is very weak.

NEC supported this.

**Decision:** The document was **noted**.

**S3-183457 Key issue security aspect of low latency handover procedures**

*Type: pCR For: Approval  
 33.825 v0.1.0  
 Source: Huawei, HiSilicon*

**Decision:** The document was **revised to S3-183820**.

**S3-183820 Key issue security aspect of low latency handover procedures**

*Type: pCR For: Approval  
 33.825 v0.1.0  
 Source: Huawei, HiSilicon*

(Replaces S3-183457)

**Decision:** The document was **approved**.

**S3-183577 KI for retaining AS security key**

*Type: pCR For: Approval  
 33.825 v0.0.0  
 Source: Ericsson*

**Abstract:**

Proposes to add a new key issue for retaining AS security keys in TR 33.XXX

**Discussion:**

Qualcomm: you are assuming that there are no threats. Remove the "not applicable". Same as security requirements.

**Decision:** The document was **revised to S3-183821**.

**S3-183821 KI for retaining AS security key**

*Type: pCR For: Approval  
 33.825 v0.0.0  
 Source: Ericsson*

(Replaces S3-183577)

**Decision:** The document was **approved**.

**S3-183458 Key issue QoS monitoring protection**

*Type: pCR For: Approval  
 33.825 v0.1.0  
 Source: Huawei, HiSilicon*

**Decision:** The document was **approved**.

**S3-183459 Key issue considerations of security algorithms for URLLC**

*Type: pCR For: Approval  
 33.825 v0.1.0  
 Source: Huawei, HiSilicon*

**Decision:** The document was **noted**.

**S3-183575 Security solution for handling UP security policy for redundant data**

*Type: pCR For: Approval  
 33.825 v0.0.0  
 Source: Ericsson*

**Abstract:**

Proposes to add a new solution for UP security policy handling for redundant data in TR 33.XXX

**Decision:** The document was **revised to S3-183822**.

**S3-183822 Security solution for handling UP security policy for redundant data**

*Type: pCR For: Approval  
 33.825 v0.0.0  
 Source: Ericsson*

(Replaces S3-183575)

**Decision:** The document was **approved**.

**S3-183578 Solution for flexibility to retain or to change AS security keys**

*Type: pCR For: Approval  
 33.825 v0.0.0  
 Source: Ericsson*

**Abstract:**

Proposes to add a new solution for retaining AS security keys in TR 33.XXX

**Decision:** The document was **revised to S3-183823**.

**S3-183823 Solution for flexibility to retain or to change AS security keys**

*Type: pCR For: Approval  
 33.825 v0.0.0  
 Source: Ericsson*

(Replaces S3-183578)

**Decision:** The document was **approved**.

**S3-183816 Draft TR 33.825**

*Type: draft TR For: Approval  
 33.825 v0.2.0  
 Source: Huawei*

**Decision:** The document was **approved**.

### 8.14 Study on SECAM and SCAS for 3GPP virtualized network products

**S3-183484 Discussing ToE of security assurance for 3GPP virtualized network products**

*Type: discussion For: (not specified)  
 Source: China Mobile,CATR,ZTE*

**Decision:** The document was **noted**.

**S3-183485 Discussing gaps from applying current SECAM to 3GPP virtualized network products**

*Type: discussion For: (not specified)  
 Source: China Mobile, CATR, ZTE*

**Decision:** The document was **noted**.

**S3-183506 Skeleton of TR 33.818**

*Type: draft TR For: (not specified)  
 33.818 v0.0.0  
 Source: China Mobile, CATR*

**Decision:** The document was **approved**.

**S3-183509 Scope of TR 33.818**

*Type: pCR For: (not specified)  
 33.818 v0.0.0  
 Source: China Mobile, CATR*

**Decision:** The document was **revised to S3-183824**.

**S3-183824 Scope of TR 33.818**

*Type: pCR For: -  
 33.818 v0.0.0  
 Source: China Mobile, CATR*

(Replaces S3-183509)

**Decision:** The document was **approved**.

**S3-183825 Draft TR 33.818**

*Type: draft TR For: Approval  
 33.818 v0.1.0  
 Source: China Mobile*

**Decision:** The document was **approved**.

### 8.15 Study on Security for 5GS Enhanced support of Vertical and LAN Services

**S3-183311 VERTICAL\_LAN\_SEC skeleton**

*Type: draft TR For: (not specified)  
 33.819 v0.0.0  
 Source: Nokia Germany*

**Decision:** The document was **approved**.

**S3-183488 VERTICAL study - Background to and key issues for VERTICAL\_LAN\_SEC study**

*Type: discussion For: Endorsement  
 33.819 v0.0.0  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **noted**.

**S3-183487 VERTICAL study - Scope**

*Type: pCR For: Approval  
 33.819 v0.0.0  
 Source: Nokia, Nokia Shanghai Bell*

**Discussion:**

ORANGE asked to be minuted: we won't double the work from other Study Items.

Ericsson: don’t mention WID codes.

**Decision:** The document was **revised to S3-183827**.

**S3-183827 VERTICAL study - Scope**

*Type: pCR For: Approval  
 33.819 v0.0.0  
 Source: Nokia, Nokia Shanghai Bell*

(Replaces S3-183487)

**Decision:** The document was **approved**.

**S3-183417 Key Issue on Authentication of a UE for Non-public network**

*Type: pCR For: Approval  
 33.819 v0.0.0  
 Source: Huawei, Hisilicon*

**Discussion:**

ORANGE: this confuses the concepts of public and non-public networks.

**Decision:** The document was **revised to S3-183831**.

**S3-183831 Key Issue on Authentication of a UE for Non-public network**

*Type: pCR For: Approval  
 33.819 v0.0.0  
 Source: Huawei, Hisilicon,Nokia*

(Replaces S3-183417)

**Decision:** The document was **noted**.

**S3-183490 VERTICAL study - KI1 on primary authentication using EAP**

*Type: pCR For: Approval  
 33.819 v0.0.0  
 Source: Nokia, Nokia Shanghai Bell*

**Discussion:**

ORANGE: what about 5G-AKA' and so on?

Nokia: the sensor may not have an UICC. ORANGE asked how the credentials would be protected in this case. We have done this authentication framework already.

Gemalto, Vodafone, Telecom Italia, BT supported ORANGE.

Nokia: we are doing what SA1 mandated.

ORANGE: we cover the requirement in TS 33.501.

Sony,NEC supported having this key issue for analysis. Ericsson as well.

There were strong issues for and against having this key issue.

ORANGE: in TS 33.501 it's an informative annex on the EAP framework, to be able to use different methods. I don’t want to have this as normative.

Qualcomm was in favour of the key issue.

**Decision:** The document was **merged**.

**S3-183491 VERTICAL study - KI2 on primary authentication in NPN using Rel-15 authentication methods**

*Type: pCR For: Approval  
 33.819 v0.0.0  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **merged**.

**S3-183492 VERTICAL study - KI3 on authentication framework for NPN**

*Type: pCR For: Approval  
 33.819 v0.0.0  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **merged**.

**S3-183312 New Key Issue: Authentication and Authorization for Interworking, Roaming between NPN and PLMN**

*Type: pCR For: Approval  
 33.819 v0.0.0  
 Source: InterDigital Europe. Ltd.*

**Abstract:**

This contribution proposes a new Key Issue for TR 33.819 to identify specific issues for authentication and authorization when a UE needs to access and obtain services offered from a PLMN via a NPN and vice versa.

**Decision:** The document was **revised to S3-183828**.

**S3-183828 New Key Issue: Authentication and Authorization for Interworking, Roaming between NPN and PLMN**

*Type: pCR For: Approval  
 33.819 v0.0.0  
 Source: InterDigital Europe. Ltd.,Nokia*

(Replaces S3-183312)

**Decision:** The document was **approved**.

**S3-183493 VERTICAL study - KI4 on Security implications for accessing PLMN services via NPN and vice versa**

*Type: pCR For: Approval  
 33.819 v0.0.0  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **merged**.

**S3-183514 Key issue for authentication and authorization of 5GLAN UE in 5GLAN group communication**

*Type: pCR For: Approval  
 33.819 v0.0.0  
 Source: NEC Corporation*

**Abstract:**

This contribution proposes a key issue for authentication and authorization of 5GLAN UE in 5GLAN group communication for the study on security for 5GS enhanced support of vertical and LAN services

**Discussion:**

Ericsson: remove requirements and let's wait for SA2's conclusions.

**Decision:** The document was **revised to S3-183829**.

**S3-183829 Key issue for authentication and authorization of 5GLAN UE in 5GLAN group communication**

*Type: pCR For: Approval  
 33.819 v0.0.0  
 Source: NEC Corporation*

(Replaces S3-183514)

**Decision:** The document was **approved**.

**S3-183529 New key issue for key refreshment in 5GLAN group communication**

*Type: pCR For: Approval  
 33.819 v0.0.0  
 Source: NEC Corporation*

**Abstract:**

This contribution proposes a new key issue for key refreshment in 5GLAN group communication for the study on security for 5GS enhanced support of vertical and LAN services

**Discussion:**

Ericsson: key issues need to be rewritten. Not clear at all what the security aspects are.

**Decision:** The document was **noted**.

**S3-183532 New key issue for securing the communication between 5GLAN UE and GMF**

*Type: pCR For: Approval  
 33.819 v0.0.0  
 Source: NEC Corporation*

**Abstract:**

This contribution proposes a new key issue for securing the communication between 5GLAN UE and GMF for the study on security for 5GS enhanced support of vertical and LAN services

**Decision:** The document was **noted**.

**S3-183418 Key Issue on Protection of interfaces that 5GS interact with TSN**

*Type: pCR For: Approval  
 33.819 v0.0.0  
 Source: Huawei, Hisilicon*

**Decision:** The document was **approved**.

**S3-183494 VERTICAL study - KI5 on verification of the integrity of a message**

*Type: pCR For: Approval  
 33.819 v0.0.0  
 Source: Nokia, Nokia Shanghai Bell*

**Discussion:**

ORANGE: the requirement is unclear. Is it user plane, control plane? Vodafone supported ORANGE.

**Decision:** The document was **noted**.

**S3-183495 VERTICAL study - KI6 on non-repudiation of the sender of a message**

*Type: pCR For: Approval  
 33.819 v0.0.0  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **noted**.

**S3-183489 VERTICAL study - High-level overview of security aspects**

*Type: pCR For: Approval  
 33.819 v0.0.0  
 Source: Nokia, Nokia Shanghai Bell*

**Discussion:**

Vodafone and ORANGE objected to the content. CRs should not be referenced, it's already in the specification.

**Decision:** The document was **noted**.

**S3-183496 VERTICAL study - definitions and abbreviations**

*Type: pCR For: Approval  
 33.819 v0.0.0  
 Source: Nokia, Nokia Shanghai Bell*

**Discussion:**

ORANGE: already used or found somewhere else. Write the definitions once they are used in the document.

Nokia: some of them are used already in approved pCRs for this meeting.

Those definitions that were not used were removed.

**Decision:** The document was **noted**.

**S3-183497 VERTICAL study - reference**

*Type: pCR For: Agreement  
 33.819 v0.0.0  
 Source: Nokia, Nokia Shanghai Bell*

**Discussion:**

ORANGE: don’t refer to a CR.

The Chair commented that references should be written as they are used. Any pCR which uses a reference should include the change in the pCR and not in a separate document.

**Decision:** The document was **noted**.

**S3-183798 Proposal for key issue structure**

*Type: pCR For: Approval  
 33.819 v0.0.0  
 Source: Nokia*

**Discussion:**

Nokia: this is a skeleton structure proposal.

Vodafone: there may be more key issue areas. Nokia replied that these are the ones used by SA2.

Gemalto wasn't sure about this proposal, since there may be key issues outside these areas and it may be hard to figure out where to put certain key issues.

**Decision:** The document was **approved**.

**S3-183826 Draft TR 33.819**

*Type: draft TR For: Approval  
 33.819 v0.1.0  
 Source: Nokia*

**Decision:** The document was **approved**.

### 8.16 Other study areas

**S3-183289 LS on separate HSS and UDM and security credentials storage**

*Type: LS in For: (not specified)  
 Original outgoing LS: -, to -, cc -  
 Source: S2-1811603*

**Decision:** The document was **replied to in S3-183834**.

**S3-183327 Discussion on LS (S3-183289) on separate HSS and UDM credential storage**

*Type: discussion For: Endorsement  
 Source: Nokia*

**Abstract:**

Discussion on LS (S3-183289) on separate HSS and UDM credential storage options 1 and 2.

**Decision:** The document was **noted**.

**S3-183599 discussion on security credential storage**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Decision:** The document was **noted**.

**S3-183600 DRAFT Reply LS on Separate HSS and UDM and security credentials storage**

*Type: LS out For: Approval  
 to SA2  
 Source: Ericsson*

**Decision:** The document was **noted**.

**S3-183640 LS-Reply proposal - Commenting on S3-183599, S3-183600, S3-183327**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

LS-Reply proposal - Commenting on S3-183599, S3-183600, S3-183327

**Decision:** The document was **noted**.

**S3-183834 Reply LS on Separate HSS and UDM and security credentials storage**

*Type: LS out For: Approval  
 to SA2  
 Source: Nokia*

**Decision:** The document was **approved**.

### 8.17 New study item proposals

**S3-183356 IoT Group Authentication**

*Type: SID new For: Approval  
 Source: Huawei, Hisilicon*

**Decision:** The document was **revised to S3-183691**.

**S3-183691 IoT Group Authentication**

*Type: SID new For: Approval  
 Source: Huawei, Hisilicon*

(Replaces S3-183356)

**Discussion:**

Docomo: what is a group and what is group authentication? Do we want to go for discussions like group membership? This would mean a huge amount of work.

ORANGE: why refer to the SA1 TR that has been terminated and whose work has gone into a TS? Reword the justification and objectives.

Vodafone: authentication at what level? This is not clear. Huawei replied that they meant telecom primary authentication. ORANGE had a problem with this.

Alex (BT): I'd like the study how the serving network is using the authentication for a group.

Huawei: the key issue of the network knowing which device is authenticated has been mentioned already.

Huawei: a massive amount of devices trying to authenticate into the network is part of what the study intends to go for.

ORANGE: let's ask SA1 what they expect us to do with an LS.

The LS was agreed.

In the end there was no response from SA1 and this was noted.

**Decision:** The document was **noted**.

**S3-183364 IoT Group Authentication**

*Type: SID new For: Approval  
 Source: Huawei, Hisilicon*

**Decision:** The document was **withdrawn**.

**S3-183378 Discussion about a new SI for 5G V2X security**

*Type: discussion For: Discussion  
 Source: LG Electronics*

**Discussion:**

Qualcomm commented that it made sense having a study item for V2X in Rel-16 in SA3.

Nokia was concerned about opening the doors for new use cases and key issues. LG replied that they would stick to SA2's work.

**Decision:** The document was **noted**.

**S3-183436 New SID on User Plane Integrity Protection**

*Type: SID new For: Agreement  
 Source: VODAFONE Group Plc*

**Abstract:**

This document is a proposal for a new SID to document issues and potential solutions for 4G and 5G (and all combinations) full rate integrity protection

**Discussion:**

DT: pure 5G enhancements are very welcome, we support this.

NEC proposed to reword the objectives to explore other solutions, replacing "at" with "up to the" in a couple of sentences.

Qualcomm supported this study item. AT&T, Apple, ORANGE, NEC, NCSC and several others were added as well.

**Decision:** The document was **revised to S3-183718**.

**S3-183718 New SID on User Plane Integrity Protection**

*Type: SID new For: Agreement  
 Source: VODAFONE Group Plc*

(Replaces S3-183436)

**Decision:** The document was **agreed**.

**S3-183471 Study on mitigation of the charging fraud attack**

*Type: SID new For: Approval  
 Source: Huawei, Hisilicon*

**Discussion:**

Docomo: the problem exists already in LTE. Should we study this for LTE as well?

Huawei didn’t have a problem with this.

Vodafone: overlapping with GSMA work. They have a group of fraud.

Huawei: GSMA will send an LS to SA3 about this issue. They discussed this last week.

Vodafone: let's wait for the LS then, or send them an LS about this study item to trigger their response and opinion.

Ericsson: does this have to be Rel-16? Is it urgent?

It was agreed to attach the Study to the LS to GSMA and note it for this meeting since SA3 needed their response before continuing.

**Decision:** The document was **revised to S3-183719**.

**S3-183719 Study on mitigation of the charging fraud attack**

*Type: SID new For: Approval  
 Source: Huawei, Hisilicon*

(Replaces S3-183471)

**Discussion:**

Revised to include LTE in the scope.

**Decision:** The document was **noted**.

**S3-183483 enhance the security of the authentication procedure**

*Type: discussion For: (not specified)  
 Source: China Mobile*

**Decision:** The document was **noted**.

**S3-183486 Security Impacts of Virtualisation**

*Type: SID new For: Approval  
 Source: BT plc*

**Discussion:**

BT: No overlaps with the hardening requirements in SCAS.

It was also agreed to make it internal and then if required, convert it to external.

Colin (BT) pointed out that there might be overlap with SA5 work. Alex replied that they would be consulted.

**Decision:** The document was **revised to S3-183722**.

**S3-183722 Security Impacts of Virtualisation**

*Type: SID new For: Approval  
 Source: BT plc*

(Replaces S3-183486)

**Decision:** The document was **agreed**.

**S3-183596 Update of EAP-AKA PFS work in progress**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Decision:** The document was **noted**.

**S3-183597 New SID on authentication enhancements in 5GS**

*Type: SID new For: Discussion  
 Source: Ericsson*

**Decision:** The document was **revised to S3-183721**.

**S3-183721 New SID on authentication enhancements in 5GS**

*Type: SID new For: Discussion  
 Source: Ericsson*

(Replaces S3-183597)

**Decision:** The document was **revised to S3-183745**.

**S3-183745 New SID on authentication enhancements in 5GS**

*Type: SID new For: Agreement  
 Source: Ericsson*

(Replaces S3-183721)

**Decision:** The document was **agreed**.

**S3-183598 Work on improving perfect forward secrecy in 5G network access**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Decision:** The document was **withdrawn**.

**S3-183627 New SID on data rate enhancements for user plane integrity protection**

*Type: SID new For: Approval  
 Source: Motorola Mobility, Lenovo*

**Abstract:**

Proposal to study integrity protection solutions that enable higher data rates under consideration of the hardware limitations of the UE.

**Decision:** The document was **merged**.

**S3-183717 LS on authentication of group of IoT devices**

*Type: LS out For: Approval  
 to SA1  
 Source: NTT-Docomo*

**Decision:** The document was **approved**.

**S3-183720 LS to GSMA on mitigation of the charging fraud attack**

*Type: LS out For: Approval  
 to GSMA FASG  
 Source: Huawei*

**Decision:** The document was **approved**.

Attachments to this outgoing LS: S3-183719

## 9 Work Plan and Rapporteur Input

### 9.1 Review of work plan

**S3-183202 SA3 Work Plan**

*Type: Work Plan For: (not specified)  
 Source: MCC*

**Discussion:**

Ericsson commented that the study "Study on the Security of the enhancement to the 5GC Location Services" was to be finished in Dec 19 and that was inside Rel-17 timeline. CATT thought that this was a mistake but it could be corrected.

BT added that the study FS\_15LIS was finished and it should not appear in the Work Plan.

**Decision:** The document was **noted**.

### 9.2 Rapporteur input on status of WID or SID

**S3-183205 Work Plan input from Rapporteurs**

*Type: other For: (not specified)  
 Source: MCC*

**Decision:** The document was **revised to S3-183837**.

**S3-183837 Work Plan input from Rapporteurs**

*Type: other For: -  
 Source: MCC*

(Replaces S3-183205)

**Discussion:**

Hans (DT) will bring a revised SID for SBA since the scope has changed to include Rel-16.

**Decision:** The document was **noted**.

## 10 Future Meeting Dates and Venues

Marcus (Huawei) proposed to have an ad-hoc meeting in March given the workload on the different studies.

**S3-183204 SA3 meeting calendar**

*Type: other For: (not specified)  
 Source: MCC*

**Discussion:**

Ericsson will host a meeting in March (week of 11th).

NAF will host the May 2019 meeting.

**Decision:** The document was **revised to S3-183838**.

**S3-183838 SA3 meeting calendar**

*Type: other For: -  
 Source: MCC*

(Replaces S3-183204)

**Discussion:**

SA3#94Ad-Hoc (11th March 2019) will be hosted by Ericsson in Stockholm. The meeting will deal only with studies.

NAF will host the May 2019 meeting.

Vodafone will host July 2020 meeting.

**Decision:** The document was **noted**.

## 11 Any Other Business

## 12 Close

The SA3 Chair thanked the attendees for the hard work, to NAF for hosting and to MCC.

With this, the meeting was closed.

## Annex A: List of contribution documents

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| Document | Title | Source | Decision | Replaces | Replaced by |
| * S3-183200 | * Agenda | * WG Chairman | * revised |  | * S3-183253 |
| * S3-183201 | * Report from SA3#92 | * MCC | * approved |  |  |
| * S3-183202 | * SA3 Work Plan | * MCC | * noted |  |  |
| * S3-183203 | * Report from last SA meeting | * WG Chairman | * noted |  |  |
| * S3-183204 | * SA3 meeting calendar | * MCC | * revised |  | * S3-183838 |
| * S3-183205 | * Work Plan input from Rapporteurs | * MCC | * revised |  | * S3-183837 |
| * S3-183206 | * Report from SA3#92Ad-Hoc | * MCC | * approved |  |  |
| * S3-183207 | * Intra-gNB-CU term synchronization | * Huawei, HiSilicon | * agreed |  |  |
| * S3-183208 | * Update RNA Update Procedure Security | * Huawei, HiSilicon | * agreed |  |  |
| * S3-183209 | * N2 HO: Handling source algorithms for RRC Reestablishment procedure | * Huawei, Hisilicon | * agreed |  |  |
| * S3-183210 | * Handling of UP security policy in MR-DC | * Huawei, Hisilicon, Qualcomm Incorporated, Ericsson | * revised |  | * S3-183835 |
| * S3-183211 | * Delete EN in SBA Requirements | * Huawei, Hisilicon | * agreed |  |  |
| * S3-183212 | * Clarifications on AccessToken\_Get Response message | * Huawei, Hisilicon | * agreed |  |  |
| * S3-183213 | * Editorial corrections on Authorization of NF service access | * Huawei, Hisilicon | * agreed |  |  |
| * S3-183214 | * Add discover procedure as a pre-requisite for obtaining access token | * Huawei, Hisilicon | * agreed |  |  |
| * S3-183215 | * correction on the mobility from 5G to 4G | * Huawei, Hisilicon | * agreed |  |  |
| * S3-183216 | * Clarification on handover from EPS to 5GS | * Huawei, Hisilicon | * merged |  | * S3-183836 |
| * S3-183217 | * Editorial corrections on the 5GS to EPS handover procedure | * Huawei, HiSilicon | * agreed |  |  |
| * S3-183218 | * Clarification for Target to Source container | * Huawei, HiSilicon | * agreed |  |  |
| * S3-183219 | * Multiple NAS connections: clarification on the action of MAC verification in registration request over non-3gpp access | * Huawei, HiSilicon | * agreed |  |  |
| * S3-183220 | * Interworking – correcting keying material in HO request message (EPS to 5GS) | * Ericsson | * revised |  | * S3-183836 |
| * S3-183221 | * Length of IV salt and sequence counter | * Ericsson | * agreed |  |  |
| * S3-183222 | * Correction to the Security Service for Steering of Roaming | * Ericsson | * agreed |  |  |
| * S3-183223 | * Mobility – Clarification of downlink NAS COUNT in N2 handover | * Ericsson | * agreed |  |  |
| * S3-183224 | * NAS key refresh | * Ericsson | * agreed |  |  |
| * S3-183225 | * Caching access tokens | * Ericsson | * agreed |  |  |
| * S3-183226 | * Addition of multiple instance IDs to OAuth2.0 access token claims | * Ericsson | * agreed |  |  |
| * S3-183227 | * Corrections to references for security related service in clause 14 | * CATT | * agreed |  |  |
| * S3-183228 | * Correction to Nudm\_UEAuthentication\_ResultConfirmation service | * CATT | * agreed |  |  |
| * S3-183229 | * Correction to 5G AKA procedure – no need for "SUPI or SUCI" (in step 10) | * Orange, Ericsson, Nokia | * agreed |  |  |
| * S3-183230 | * Adding references for the TLS Protocol Profiles clause | * Juniper Networks, Ericsson | * withdrawn |  |  |
| * S3-183231 | * Update NDS/IP scope with application layer crypto profiles | * Juniper Networks, Ericsson | * withdrawn |  |  |
| * S3-183232 | * Move TLS crypto profiles to TS 33.210 | * Juniper Networks, Ericsson | * withdrawn |  |  |
| * S3-183233 | * Adjusting the description of the initial NAS protection method | * Qualcomm Incorporated, ZTE, China Mobile | * not pursued |  |  |
| * S3-183234 | * Acknowledging possibility of early calculation of EMSK | * Qualcomm Incorporated, Huawei, Hsilicon | * agreed |  |  |
| * S3-183235 | * Precedence of protection policies on the N32 interface | * Telekom Deutschland GmbH | * agreed |  |  |
| * S3-183236 | * Handling of encrypted IEs on the N32 interface | * Telekom Deutschland GmbH | * agreed |  |  |
| * S3-183237 | * Corrections and additions in definitions and related clauses | * Nokia, Nokia Shanghai Bell | * agreed | * S3-183072 |  |
| * S3-183238 | * Clarification to AUSF key derivation | * Nokia, Nokia Shanghai Bell | * agreed | * S3-183097 |  |
| * S3-183239 | * Clarification to support of authentication methods | * Nokia, Nokia Shanghai Bell | * agreed | * S3-183077 |  |
| * S3-183240 | * Adding reference to 33.501 in 33.102 | * Nokia, Nokia Shanghai Bell | * agreed | * S3-182957 |  |
| * S3-183241 | * Alignment regarding KEY reference to 33.220 | * Nokia, Nokia Shanghai Bell | * agreed | * S3-183098 |  |
| * S3-183242 | * Misleading text with reference regarding serving network name | * Nokia, Nokia Shanghai Bell | * agreed | * S3-183099 |  |
| * S3-183243 | * Clarification on first bits of EMSK | * Nokia, Nokia Shanghai Bell | * agreed | * S3-182960 |  |
| * S3-183244 | * Removing mandatory text from note | * Nokia, Nokia Shanghai Bell | * agreed | * S3-182967 |  |
| * S3-183245 | * Reference correction | * Nokia, Nokia Shanghai Bell | * agreed | * S3-182968 |  |
| * S3-183246 | * Remove EN in 13.2 | * Nokia, Nokia Shanghai Bell | * agreed |  |  |
| * S3-183247 | * Clarifications to clause 13.2.1 | * Nokia, Nokia Shanghai Bell | * agreed |  |  |
| * S3-183248 | * Remove EN in 13.2.2.1 | * Nokia, Nokia Shanghai Bell | * agreed |  |  |
| * S3-183249 | * Correction in step 2 of 13.2.2.2 | * Nokia, Nokia Shanghai Bell | * agreed |  |  |
| * S3-183250 | * Corrections in 13.2.2.4 on N32-f context ID | * Nokia, Nokia Shanghai Bell | * agreed |  |  |
| * S3-183251 | * Clarifications and corrections in clause 13.2.4 | * Nokia, Nokia Shanghai Bell | * agreed |  |  |
| * S3-183252 | * pCR to TS 33.841 - restructure of section 4 as agreed in conf call | * VODAFONE Group Plc | * noted |  |  |
| * S3-183253 | * Agenda | * WG Chairman | * approved | * S3-183200 |  |
| * S3-183254 | * Multiple NAS Connection: Correcting NAS link identifier | * Nokia | * agreed |  |  |
| * S3-183255 | * CR to 33210 r15 adding references for the TLS Protocol Profiles clause | * Juniper Networks, Ericsson | * agreed |  |  |
| * S3-183256 | * CR to 33210 r16 adding Other 3GPP Profiles clause and references | * Juniper Networks, Ericsson | * agreed |  |  |
| * S3-183257 | * CR to 33310 r16 removing annex e | * Juniper Networks, Ericsson | * agreed |  |  |
| * S3-183258 | * CR to 33310 r15 corrections of references and annex | * Juniper Networks, Ericsson | * agreed |  |  |
| * S3-183259 | * CR to 33310 r16 corrections of references | * Juniper Networks, Ericsson | * agreed |  |  |
| * S3-183260 | * Reply LS on Control Plane Solution for Steering of Roaming in 5GS | * C1-186841 | * noted |  |  |
| * S3-183261 | * Reply LS on the Impacts of increasing the MAC-I and NAS-MAC size | * R2-1816012 | * noted |  |  |
| * S3-183262 | * Reply LS on LS on the Impacts of increasing the MAC-I and NAS-MAC size | * C1-186961 | * noted |  |  |
| * S3-183263 | * LS on Observations from 2nd MCPTT Plugtests | * C1-186964 | * noted |  |  |
| * S3-183264 | * Reply LS on maximum output size of SUPI concealment schemes | * C1-186992 | * replied to |  |  |
| * S3-183265 | * LS on Scenarios with multiple registrations to the same AMF | * C1-186993 | * noted |  |  |
| * S3-183266 | * Reply LS on inclusion of selected PLMN into the complete message | * C1-186994 | * noted |  |  |
| * S3-183267 | * Reply LS on initial NAS security agreements | * R2-1816022 | * noted |  |  |
| * S3-183268 | * LS on initial NAS message protection | * C1-186995 | * replied to |  |  |
| * S3-183269 | * LS on EAS-C&U support | * C3-186313 | * postponed |  |  |
| * S3-183270 | * LS on security method negotiation | * C3-186335 | * replied to |  |  |
| * S3-183271 | * LS on API invoker onboarding | * C3-186414 | * noted |  |  |
| * S3-183272 | * LS on N32 error signalling | * C4-187145 | * noted |  |  |
| * S3-183273 | * Reply LS on Maximum output size of SUPI concealment schemes | * C4-187633 | * replied to |  |  |
| * S3-183274 | * LS on Control Plane Solution for Steering of Roaming in 5GS | * CP-182234 | * noted |  |  |
| * S3-183275 | * Response to 3GPP SA2 liaison S2-189038 on ‘general status of work’ | * BBF | * postponed |  |  |
| * S3-183276 | * LS to 3GPP TSG-SA WG6 on Use of ITS Dedicated Spectrum within V2X UE | * ETSI TC ITS | * noted |  |  |
| * S3-183277 | * LS on Joint ETSI - OSA Workshop: Open Implementations & Standardization | * ETSI | * noted |  |  |
| * S3-183278 | * Observations on standards and technical constraints from 2nd MCPTT Plugtests | * ETSI CTI | * noted |  |  |
| * S3-183279 | * Reply LS on " LS on Using same counter in EDCE5" | * R2-1816010 | * noted |  |  |
| * S3-183280 | * Reply LS on security requirements for RRC connection release | * R2-1816053 | * noted |  |  |
| * S3-183281 | * LS on security requirements for Integrity protection for DRBs in MR-DC | * R2-1816054 | * replied to |  |  |
| * S3-183282 | * Reply LS on devices behind 5G-RG accessing the 5GC | * S2-1810989 | * noted |  |  |
| * S3-183283 | * Reply LS on Secondary Re-Authentication | * S2-1811431 | * noted |  |  |
| * S3-183284 | * Reply LS on Clarifications on SUPI definition and NAI format | * S2-1811525 | * replied to |  |  |
| * S3-183285 | * LS Reply on Control Plane Solution for Steering of Roaming in 5GS | * GSMA | * noted |  |  |
| * S3-183286 | * LS on SG17 work item X.5Gsec-q: Security guidelines for applying quantum-safe algorithms in 5G systems | * ITU-T SG17 | * replied to |  |  |
| * S3-183287 | * Reply LS on initial NAS security agreements | * S2-1811568 | * replied to |  |  |
| * S3-183288 | * Reply LS on 5WWC status of work and interim agreements | * S2-1811575 | * noted |  |  |
| * S3-183289 | * LS on separate HSS and UDM and security credentials storage | * S2-1811603 | * replied to |  |  |
| * S3-183290 | * Potential Requirements for TR 33.841 | * NCSC | * revised |  | * S3-183766 |
| * S3-183291 | * Conclusions for TR 33.841 | * NCSC | * revised |  | * S3-183767 |
| * S3-183292 | * Update to Impacted NextGen Areas - TR 33.841 | * NCSC | * revised |  | * S3-183760 |
| * S3-183293 | * Editorials for TR 33.841 | * NCSC | * revised |  | * S3-183768 |
| * S3-183294 | * Modifications and Clarifications for TR 33.841 | * NCSC | * revised |  | * S3-183765 |
| * S3-183295 | * Draft Reply LS to ITU-T SG17 on X.5Gsec-q study | * NCSC | * revised |  | * S3-183654 |
| * S3-183296 | * Discussion of Potential threats caused by false base station | * Apple Computer Trading Co. Ltd | * noted |  |  |
| * S3-183297 | * Key issue of authenticating gNB on broadcast and unicast message | * Apple Computer Trading Co. Ltd | * merged |  | * S3-183801 |
| * S3-183298 | * Corrections to definition of 5G NAS security context | * CMCC | * revised |  | * S3-183303, S3-183304 |
| * S3-183299 | * Key issue of security protection on the unicast message from the UE before security activation | * Apple Computer Trading Co. Ltd | * revised |  | * S3-183803 |
| * S3-183300 | * skeleton of TR 33.809-Study on 5G Security Enhancement against False Base Station | * Apple Computer Trading Co. Ltd | * approved |  |  |
| * S3-183301 | * Key issue of security overhead and complexity | * Apple Computer Trading Co. Ltd | * noted |  |  |
| * S3-183302 | * Discussion on one potential way to improve the efficiency of IP | * Apple Computer Trading Co. Ltd | * revised |  | * S3-183632 |
| * S3-183303 | * Unify the name of RAN network in 33.501 | * CMCC | * revised | * S3-183298 | * S3-183324 |
| * S3-183304 | * Replace 5G-RAN with NG-RAN in 33.501 | * China Mobile | * withdrawn | * S3-183298 |  |
| * S3-183305 | * Add symmetric key distribution mechanisms to TS 33.180 | * Airbus DS SLC | * noted |  |  |
| * S3-183306 | * Key Issue on secure communication between UE and application server | * Alibaba (China) group., Ltd., China Mobile | * revised |  | * S3-183631 |
| * S3-183307 | * AKMA candidate solution for non-3GPP credential download | * Alibaba (China) group., Ltd., China Mobile | * noted |  |  |
| * S3-183308 | * Algorithm Agility | * NIST | * noted |  |  |
| * S3-183309 | * pCR Discussing mitigating of risks by using larger keys | * NIST | * noted |  |  |
| * S3-183310 | * pCR to Include content discussing forward security | * NIST | * revised |  | * S3-183759 |
| * S3-183311 | * VERTICAL\_LAN\_SEC skeleton | * Nokia Germany | * approved |  |  |
| * S3-183312 | * New Key Issue: Authentication and Authorization for Interworking, Roaming between NPN and PLMN | * InterDigital Europe. Ltd. | * revised |  | * S3-183828 |
| * S3-183313 | * Modification of initial NAS message protection | * ZTE Corporation | * merged |  | * S3-183673 |
| * S3-183314 | * Modification on NAS SMC procedure | * ZTE Corporation | * merged |  | * S3-183673 |
| * S3-183315 | * Handling of initial NAS message other than RR when failure occur | * ZTE Corporation | * not pursued |  |  |
| * S3-183316 | * Editorial modification on initial NAS message protection | * ZTE Corporation | * merged |  | * S3-183673 |
| * S3-183317 | * Editorial modification on gNB requirement | * ZTE Corporation | * agreed |  |  |
| * S3-183318 | * AS subscription temporary identifier privacy | * ZTE Corporation | * revised |  | * S3-183663 |
| * S3-183319 | * Scope of TS 33.519 | * ZTE Corporation | * approved |  |  |
| * S3-183320 | * References of TS 33.519 | * ZTE Corporation | * approved |  |  |
| * S3-183321 | * Authentication on application functions | * ZTE Corporation | * revised |  | * S3-183707 |
| * S3-183322 | * Proposal about improvement of the UP security policy | * China Mobile | * revised |  | * S3-183666 |
| * S3-183323 | * Corrections to definition of 5G AS security context for 3GPP access | * China Mobile | * revised |  | * S3-183695 |
| * S3-183324 | * Replace 5G-RAN with NG-RAN in TS 33.501 | * China Mobile | * agreed | * S3-183303 |  |
| * S3-183325 | * Discussion on i/c LS S2-1811543 NSSAI in RRC message | * Nokia, AT&T, Verizon Wireless, Inter Digital | * noted |  |  |
| * S3-183326 | * draft-LS out reply to i/c LS on NSSAI in RRC message | * Nokia | * noted |  |  |
| * S3-183327 | * Discussion on LS (S3-183289) on separate HSS and UDM credential storage | * Nokia | * noted |  |  |
| * S3-183328 | * Clarify SUPI format in KAMF computation | * Nokia | * revised |  | * S3-183675 |
| * S3-183329 | * Editorial correction in Clause 6.9.3.2 | * Nokia | * revised |  | * S3-183677 |
| * S3-183330 | * Key issue false base station detection and isolation | * Nokia | * revised |  | * S3-183802 |
| * S3-183331 | * Add security requirements to key issue#6 | * Nokia | * noted |  |  |
| * S3-183332 | * Adding Key issue for Connectionless service security | * Nokia | * revised |  | * S3-183775 |
| * S3-183333 | * Skeleton proposal for TR for Enhanced Network Slicing | * Nokia | * approved |  |  |
| * S3-183334 | * eNet Slice TR content for scope | * Nokia | * approved |  |  |
| * S3-183335 | * pCR to TR 33.813 content for references | * Nokia | * approved |  |  |
| * S3-183336 | * pCR to TR33.813 content for definitions and abbreviations | * Nokia | * noted |  |  |
| * S3-183337 | * pCR to TR 33.813 Adding key issue for Slice specific authentication | * Nokia | * revised |  | * S3-183808 |
| * S3-183338 | * Solution proposal for FS\_CIoT\_sec\_5G | * NEC Corporation | * revised |  | * S3-183777 |
| * S3-183339 | * Key issue proposal for security aspects of enhanced support of network slices | * NEC Corporation | * noted |  |  |
| * S3-183340 | * Key issue proposal for security of URLLC for 5GS | * NEC Corporation | * revised |  | * S3-183817 |
| * S3-183341 | * Correction/enhancement in CAPIF TS | * NEC Corporation | * revised |  | * S3-183713 |
| * S3-183342 | * Update RRC reestablishment security procedure based on RAN2 agreement | * Huawei, Hisilicon | * revised |  | * S3-183664 |
| * S3-183343 | * eNB allowing Unauthenticated UEs in LSM | * Huawei, Hisilicon | * not pursued |  |  |
| * S3-183344 | * Adding UP security policy in SN Addition/modification Request message | * Huawei, Hisilicon | * revised |  | * S3-183740 |
| * S3-183345 | * Clarification on how AMF confirm UE SUPI | * Huawei, Hisilicon | * not pursued |  |  |
| * S3-183346 | * Solution for protecting gNB from RRC re-establishment DDoS attack | * Huawei, Hisilicon | * revised |  | * S3-183782 |
| * S3-183347 | * Key Issue on spoofing system information | * Huawei, Hisilicon | * merged |  | * S3-183801 |
| * S3-183348 | * Key Issue on HO failure caused by fake base station | * Huawei, Hisilicon | * merged |  | * S3-183804 |
| * S3-183349 | * Key Issue on Spoofing UE paging messages | * Huawei, Hisilicon | * noted |  |  |
| * S3-183350 | * Protecting UE from connecting to fake base station during HO | * Huawei, Hisilicon | * noted |  |  |
| * S3-183351 | * Avoiding unnecessary HO caused by fake base station | * Huawei, Hisilicon | * noted |  |  |
| * S3-183352 | * Solution for protecting gNB from RRC re-establishment DDoS attack | * Huawei, Hisilicon | * withdrawn |  |  |
| * S3-183353 | * Key Issue on spoofing system information | * Huawei, Hisilicon | * withdrawn |  |  |
| * S3-183354 | * Key Issue on HO failure caused by fake base station | * Huawei, Hisilicon | * withdrawn |  |  |
| * S3-183355 | * Key Issue on Spoofing UE paging messages | * Huawei, Hisilicon | * withdrawn |  |  |
| * S3-183356 | * IoT Group Authentication | * Huawei, Hisilicon | * revised |  | * S3-183691 |
| * S3-183357 | * Solution for protecting UE from HO to fake base station | * Huawei, Hisilicon | * withdrawn |  |  |
| * S3-183358 | * Protecting UE from connecting to fake base station during HO | * Huawei, Hisilicon | * withdrawn |  |  |
| * S3-183359 | * Avoiding unnecessary HO caused by fake base station | * Huawei, Hisilicon | * withdrawn |  |  |
| * S3-183360 | * Clarification: AMF confirming UE SUPI in case NAS SMC failed | * Huawei, Hisilicon | * revised |  | * S3-183676 |
| * S3-183361 | * UP IP handling for split PDU session in MR-DC scenarios | * Huawei, Hisilicon | * not pursued |  |  |
| * S3-183362 | * Adding NR-DC to the scenarios of MR-DC | * Huawei, Hisilicon | * revised |  | * S3-183668 |
| * S3-183363 | * Reply LS on security requirements for Integrity protection for DRBs in MR-DC | * Huawei, Hisilicon | * withdrawn |  |  |
| * S3-183364 | * IoT Group Authentication | * Huawei, Hisilicon | * withdrawn |  |  |
| * S3-183365 | * Solution for protecting UE from HO to fake base station | * Huawei, Hisilicon | * withdrawn |  |  |
| * S3-183366 | * Key issue on security protection of Location service exposure for TR33.814 | * CATR, China Unicom, CATT | * merged |  | * S3-183771 |
| * S3-183367 | * New WID on security aspects of single radio voice continuity from 5G to 3G | * China Unicom, Huawei, HiSilicon, ZTE, CATT, OPPO, CATR | * revised |  | * S3-183739 |
| * S3-183368 | * Impacts on existing nodes and functionality for the solution "Return from UTRAN to E-UTRAN or NR" | * China Unicom | * approved |  |  |
| * S3-183369 | * Evaluation for the solution "Return from UTRAN to E-UTRAN or NR" | * China Unicom | * revised |  | * S3-183730 |
| * S3-183370 | * Conclusion for the solution "Return from UTRAN to E-UTRAN or NR" | * China Unicom | * revised |  | * S3-183731 |
| * S3-183371 | * Scope of FS\_eLCS\_Sec | * China Unicom | * merged |  | * S3-183744 |
| * S3-183372 | * key issue on protect distribution positioning assistance data | * China Unicom | * merged |  | * S3-183770 |
| * S3-183373 | * Correction on LTE suspend/resume procedure for EDT capable UE | * Intel Corporation (UK) Ltd | * revised |  | * S3-183650 |
| * S3-183374 | * Initial NAS Discussion on privacy solutions | * Intel Corporation (UK) Ltd | * noted |  |  |
| * S3-183375 | * draft reply LS on security requirements for RRC connection release | * Intel Corporation (UK) Ltd | * noted |  |  |
| * S3-183376 | * Key Issue: Requirement of Trust mechanism of Non 3GPP UEs | * China Telecom Corporation Ltd. | * noted |  |  |
| * S3-183377 | * URLLC pCR - new key issue on security of redundant transmission in user plane | * LG Electronics | * merged |  | * S3-183818 |
| * S3-183378 | * Discussion about a new SI for 5G V2X security | * LG Electronics | * noted |  |  |
| * S3-183379 | * Corrections to 5.2 Requirements on the UE | * LG Electronics | * agreed |  |  |
| * S3-183380 | * Corrections to 5.3 Requirements on the gNB | * LG Electronics | * agreed |  |  |
| * S3-183381 | * Corrections to 9. Security procedures for non-service based interfaces | * LG Electronics | * agreed |  |  |
| * S3-183382 | * IP protection for SN terminated bearers | * Intel Corporation (UK) Ltd | * not pursued |  |  |
| * S3-183383 | * 5G inclusion in TS 33.117 | * Nokia, Nokia Shanghai Bell, Telekom Deutschland GmbH | * agreed |  |  |
| * S3-183384 | * Incorporating general SBA aspects in TS 33.117 | * Nokia, Nokia Shanghai Bell, Telekom Deutschland GmbH | * not pursued |  |  |
| * S3-183385 | * Test Case of transport layer protection for SBI | * Nokia, Nokia Shanghai Bell, Telekom Deutschland GmbH | * not pursued |  |  |
| * S3-183386 | * Editorial corrections in TS 33.117 | * Nokia, Nokia Shanghai Bell | * agreed |  |  |
| * S3-183387 | * Skeleton of SCAS SEPP TS 33.517 | * Nokia, Nokia Shanghai Bell | * approved |  |  |
| * S3-183388 | * Scope of SCAS SEPP TS 33.517 | * Nokia, Nokia Shanghai Bell | * approved |  |  |
| * S3-183389 | * Reference of SCAS SEPP TS 33.517 | * Nokia, Nokia Shanghai Bell | * noted |  |  |
| * S3-183390 | * Skeleton of SCAS NRF TS 33.518 | * Nokia, Nokia Shanghai Bell | * approved |  |  |
| * S3-183391 | * Scope of SCAS NRF TS 33.518 | * Nokia, Nokia Shanghai Bell | * approved |  |  |
| * S3-183392 | * Reference of SCAS NRF TS 33.518 | * Nokia, Nokia Shanghai Bell | * noted |  |  |
| * S3-183393 | * pCR to TR 33.841 draft conclusion | * CATT | * withdrawn |  |  |
| * S3-183394 | * Protecting SUPI for user privacy | * ZTE Corporation | * revised |  | * S3-183734 |
| * S3-183395 | * Proposed change to the solution #1.1 of TR 33.856 | * Huawei, Hisilicon | * revised |  | * S3-183728 |
| * S3-183396 | * clean up the EN of subclause 6.4.3 in TR 33.856 | * Huawei, Hisilicon | * approved |  |  |
| * S3-183397 | * clean up the EN of subclause 7 in TR 33.856 | * Huawei, Hisilicon | * revised |  | * S3-183732 |
| * S3-183398 | * add evaluation to solution #5 | * Huawei, Hisilicon | * approved |  |  |
| * S3-183399 | * editorial modification on TR 33.856 | * Huawei, Hisilicon | * approved |  |  |
| * S3-183400 | * correction on handover procedure from 5G to 4G | * Huawei, Hisilicon | * agreed |  |  |
| * S3-183401 | * Editorial corrections on the UP integrity mechanisms | * Huawei, Hisilicon | * agreed |  |  |
| * S3-183402 | * Editorial corrections on NAS SMC procedure | * Huawei, Hisilicon | * agreed |  |  |
| * S3-183403 | * Key issue for encryption protection of location data | * Huawei, Hisilicon | * revised |  | * S3-183770 |
| * S3-183404 | * Key issue for integrity protection of location and assistance data | * Huawei, Hisilicon | * revised |  | * S3-183771 |
| * S3-183405 | * Mapping requirements and test cases from 33.216 to 33.511 | * Huawei, Hisilicon | * revised |  | * S3-183699 |
| * S3-183406 | * Add the evidences of the test cases | * Huawei, Hisilicon | * noted |  |  |
| * S3-183407 | * CR-to-TS33501-RRC Reestablishment security handling when N2 Handover happens | * Huawei, Hisilicon | * not pursued |  |  |
| * S3-183408 | * Discussion on Support AS Security Algorithms Negotiation during INACTIVE transition and RRC Reestablishment in R15 | * Huawei, Hisilicon | * noted |  |  |
| * S3-183409 | * Discussion on UP Integrity protection for small data in Early Data Transfer | * Huawei, Hisilicon | * noted |  |  |
| * S3-183410 | * LS to RAN23 on UP Integrity Protection for Small Data in Early Data Transfer | * Huawei, Hisilicon | * revised |  | * S3-183652 |
| * S3-183411 | * User Plane Integrity Protection for EDT | * Huawei, Hisilicon | * revised |  | * S3-183651 |
| * S3-183412 | * Key Issue on KDF negotiation between UE and AMF | * Huawei, Hisilicon | * revised |  | * S3-183796 |
| * S3-183413 | * Key Issue on Avoiding Bidding down attack on KDF negotiation | * Huawei, Hisilicon | * noted |  |  |
| * S3-183414 | * Scope for TR 33.808 KDF negotiation | * Huawei, Hisilicon | * approved |  |  |
| * S3-183415 | * Key Issue on Classification of IoT UE based on Attack Method | * Huawei, Hisilicon | * noted |  |  |
| * S3-183416 | * Capture IoT Security Related Requirement in other 3GPP Document | * Huawei, Hisilicon | * noted |  |  |
| * S3-183417 | * Key Issue on Authentication of a UE for Non-public network | * Huawei, Hisilicon | * revised |  | * S3-183831 |
| * S3-183418 | * Key Issue on Protection of interfaces that 5GS interact with TSN | * Huawei, Hisilicon | * approved |  |  |
| * S3-183419 | * Security solution for temporary group – broadcast group call procedure | * Huawei, Hisilicon | * not pursued |  |  |
| * S3-183420 | * Solution for bootstrapping authentication of AKMA | * Huawei, Hisilicon | * revised |  | * S3-183747 |
| * S3-183421 | * Delete information during API invoker offboarding | * Huawei, Hisilicon | * revised |  | * S3-183716 |
| * S3-183422 | * Editorial corrections on Application layer security on the N32 interface | * Huawei, Hisilicon | * merged |  | * S3-183689 |
| * S3-183423 | * Secure storage of UICC | * Huawei, Hisilicon | * noted |  |  |
| * S3-183424 | * secure boot of 5G-RG | * Huawei, Hisilicon | * noted |  |  |
| * S3-183425 | * Prevent from 5G-RG cheating | * Huawei, Hisilicon | * noted |  |  |
| * S3-183426 | * solution on 5G-RG authentication | * Huawei, Hisilicon | * approved |  |  |
| * S3-183427 | * Editorial Change of Solution 1 | * Huawei, Hisilicon | * approved |  |  |
| * S3-183428 | * Add EDCE5 related requirements and testcases to 33.216 | * Huawei, Hisilicon | * revised |  | * S3-183710 |
| * S3-183429 | * Adding Execution Steps to in 4.2.2.1.1, 4.2.2.1.2, and 4.2.2.1.7 | * Huawei, Hisilicon | * revised |  | * S3-183698 |
| * S3-183430 | * UPdate test cases in 33.511 | * Huawei, Hisilicon | * revised |  | * S3-183696 |
| * S3-183431 | * New requirements and testcases on UP security policy related | * Huawei, Hisilicon | * noted |  |  |
| * S3-183432 | * Update requirements in 4.2.3.2.2 in 33.117 | * Huawei, Hisilicon | * agreed |  |  |
| * S3-183433 | * Draft skeleton for TR 33.814 | * CATT | * revised |  | * S3-183811 |
| * S3-183434 | * pCR to TR33.814 - Scope | * CATT | * revised |  | * S3-183744 |
| * S3-183435 | * pCR to TR33.814 - Key issue for ciphering key delivery | * CATT | * noted |  |  |
| * S3-183436 | * New SID on User Plane Integrity Protection | * VODAFONE Group Plc | * revised |  | * S3-183718 |
| * S3-183437 | * Reply LS on security requirements for Integrity protection for DRBs in MR-DC | * Huawei, Hisilicon | * revised |  | * S3-183660 |
| * S3-183438 | * CR to TS33.501-Registration related text correction | * CATT | * revised |  | * S3-183738 |
| * S3-183439 | * Security requirements on the CAPIF-3e/4e/5e reference points | * China Telecommunications | * not pursued |  |  |
| * S3-183440 | * New SID on LTKUP Detailed Solutions | * VODAFONE Group Plc | * revised |  | * S3-183755 |
| * S3-183441 | * Telescopic FQDN creation within the SEPP | * Telekom Deutschland GmbH, Nokia | * not pursued |  |  |
| * S3-183442 | * Corrections to N32 Protection Policies | * Telekom Deutschland GmbH, Nokia | * revised |  | * S3-183684 |
| * S3-183443 | * Verification of the PLMN-ID by the receiving SEPP | * Telekom Deutschland GmbH, Nokia | * not pursued |  |  |
| * S3-183444 | * Adopting more normative language in clause 13 | * Telekom Deutschland GmbH, Nokia | * revised |  | * S3-183688 |
| * S3-183445 | * pCR to TR 33.834 - Update to LTKUP Conclusions | * VODAFONE Group Plc | * revised |  | * S3-183752 |
| * S3-183446 | * Adding unique names to test cases | * Telekom Deutschland GmbH | * approved |  |  |
| * S3-183447 | * pCR to TR 33 841 Performance aspects for the new 256-bit algorithms | * CATT | * withdrawn |  |  |
| * S3-183448 | * pCR to TR 33 841 Potential requirements | * CATT | * withdrawn |  |  |
| * S3-183449 | * pCR to TR 33 841 Study of individual algorithm details | * CATT | * withdrawn |  |  |
| * S3-183450 | * New WID - Updates and enhancements to BEST for 5G | * VODAFONE Group Plc | * postponed |  |  |
| * S3-183451 | * pCR to TR 33 841 Threat details to symmetric cryptography | * CATT | * revised |  | * S3-183757 |
| * S3-183452 | * New test case: No code execution or inclusion of external resources by JSON parsers | * Telekom Deutschland GmbH | * not pursued |  |  |
| * S3-183453 | * Scope for TR33.825 on URLLC security | * Huawei, HiSilicon | * revised |  | * S3-183815 |
| * S3-183454 | * Key issue authentication adaptions | * Huawei, HiSilicon | * noted |  |  |
| * S3-183455 | * Key issue security for redundant transmissions | * Huawei, HiSilicon | * revised |  | * S3-183818 |
| * S3-183456 | * Key issue security policy for URLLC service | * Huawei, HiSilicon | * revised |  | * S3-183819 |
| * S3-183457 | * Key issue security aspect of low latency handover procedures | * Huawei, HiSilicon | * revised |  | * S3-183820 |
| * S3-183458 | * Key issue QoS monitoring protection | * Huawei, HiSilicon | * approved |  |  |
| * S3-183459 | * Key issue considerations of security algorithms for URLLC | * Huawei, HiSilicon | * noted |  |  |
| * S3-183460 | * Improvement for key issue on the signalling overload due to malicious applications on the UE | * Huawei, HiSilicon | * revised |  | * S3-183772 |
| * S3-183461 | * New KI on security features for NSaaS | * Huawei, HiSilicon | * revised |  | * S3-183810 |
| * S3-183462 | * New KI on monitored security features | * Huawei, HiSilicon | * noted |  |  |
| * S3-183463 | * New KI on slice authentication | * Huawei, HiSilicon | * merged |  | * S3-183808 |
| * S3-183464 | * New KI on slice isolation | * Huawei, HiSilicon | * noted |  |  |
| * S3-183465 | * New KI on NSSAI confidentiality | * Huawei, HiSilicon | * noted |  |  |
| * S3-183466 | * Discussion on LS from SA2 on 2nd Authentication | * Huawei, HiSilicon | * noted |  |  |
| * S3-183467 | * CR on Secondary Re-authentication | * Huawei, HiSilicon | * revised |  | * S3-183661 |
| * S3-183468 | * Discussion on verification of PLMN ID in N32 message | * Huawei, Hisilicon | * noted |  |  |
| * S3-183469 | * Verification of PLMN ID in N32 message | * Huawei, Hisilicon | * revised |  | * S3-183639 |
| * S3-183470 | * Key issue on Authentication relay attack | * Huawei, Hisilicon | * revised |  | * S3-183805 |
| * S3-183471 | * Study on mitigation of the charging fraud attack | * Huawei, Hisilicon | * revised |  | * S3-183719 |
| * S3-183472 | * Discussion on UE Parameters Update via UDM Control Plane Procedure | * Huawei, Hisilicon | * noted |  |  |
| * S3-183473 | * pCR to TR 33.841 draft conclusion | * CAICT, CATT, China Mobile, China Telecom, China Unicom, Huawei, HiSilicon, ZTE, OPPO, Qihoo 360 | * merged |  | * S3-183767 |
| * S3-183474 | * Solution for UE Parameters Update via UDM Control Plane Procedure | * Huawei, Hisilicon | * merged |  | * S3-183742 |
| * S3-183475 | * pCR to TR 33 841 Potential requirements | * CAICT, CATT, China Mobile, China Telecom, China Unicom, Huawei, HiSilicon, ZTE, OPPO | * merged |  | * S3-183766 |
| * S3-183476 | * Clarification on interworking | * Huawei, Hisilicon | * revised |  | * S3-183680 |
| * S3-183477 | * pCR to TR 33 841 Study of individual algorithm details | * CATT, CAICT, China Mobile, China Telecom, China Unicom, Huawei, HiSilicon, ZTE, OPPO | * revised |  | * S3-183763 |
| * S3-183478 | * Update on access token in roaming scenario | * Huawei, Hisilicon | * revised |  | * S3-183743 |
| * S3-183479 | * Remove the shared secret based token protection mechanism from the token related procedure | * Huawei, Hisilicon | * not pursued |  |  |
| * S3-183480 | * CR to TS 33.501 regarding N32-f key hierarchy | * China Mobile | * agreed |  |  |
| * S3-183481 | * pCR to TR 33 841 regarding key derivation function | * China Mobile; Vodafone | * revised |  | * S3-183761 |
| * S3-183482 | * LS\_to\_LS on SG17 work item X 5Gsec-q | * China Mobile | * noted |  |  |
| * S3-183483 | * enhance the security of the authentication procedure | * China Mobile | * noted |  |  |
| * S3-183484 | * Discussing ToE of security assurance for 3GPP virtualized network products | * China Mobile,CATR,ZTE | * noted |  |  |
| * S3-183485 | * Discussing gaps from applying current SECAM to 3GPP virtualized network products | * China Mobile, CATR, ZTE | * noted |  |  |
| * S3-183486 | * Security Impacts of Virtualisation | * BT plc | * revised |  | * S3-183722 |
| * S3-183487 | * VERTICAL study - Scope | * Nokia, Nokia Shanghai Bell | * revised |  | * S3-183827 |
| * S3-183488 | * VERTICAL study - Background to and key issues for VERTICAL\_LAN\_SEC study | * Nokia, Nokia Shanghai Bell | * noted |  |  |
| * S3-183489 | * VERTICAL study - High-level overview of security aspects | * Nokia, Nokia Shanghai Bell | * noted |  |  |
| * S3-183490 | * VERTICAL study - KI1 on primary authentication using EAP | * Nokia, Nokia Shanghai Bell | * merged |  | * S3-183831 |
| * S3-183491 | * VERTICAL study - KI2 on primary authentication in NPN using Rel-15 authentication methods | * Nokia, Nokia Shanghai Bell | * merged |  | * S3-183831 |
| * S3-183492 | * VERTICAL study - KI3 on authentication framework for NPN | * Nokia, Nokia Shanghai Bell | * merged |  | * S3-183831 |
| * S3-183493 | * VERTICAL study - KI4 on Security implications for accessing PLMN services via NPN and vice versa | * Nokia, Nokia Shanghai Bell | * merged |  | * S3-183828 |
| * S3-183494 | * VERTICAL study - KI5 on verification of the integrity of a message | * Nokia, Nokia Shanghai Bell | * noted |  |  |
| * S3-183495 | * VERTICAL study - KI6 on non-repudiation of the sender of a message | * Nokia, Nokia Shanghai Bell | * noted |  |  |
| * S3-183496 | * VERTICAL study - definitions and abbreviations | * Nokia, Nokia Shanghai Bell | * noted |  | * - |
| * S3-183497 | * VERTICAL study - reference | * Nokia, Nokia Shanghai Bell | * noted |  |  |
| * S3-183498 | * Formatting issue | * Nokia, Nokia Shanghai Bell | * agreed |  |  |
| * S3-183499 | * Shift of text from SEPP intro to subclause | * Nokia, Nokia Shanghai Bell | * revised |  | * S3-183690 |
| * S3-183500 | * Clarification to protection scheme identifier | * Nokia, Nokia Shanghai Bell | * revised |  | * S3-183693 |
| * S3-183501 | * Clarification to the transfer of authentication success result to the UDM | * Nokia, Nokia Shanghai Bell | * agreed |  |  |
| * S3-183502 | * Intro of subclauses to clause 6.12.2 | * Nokia, Nokia Shanghai Bell | * not pursued |  |  |
| * S3-183503 | * Correction of formatting error | * Nokia, Nokia Shanghai Bell | * not pursued |  |  |
| * S3-183504 | * Alignment on KEY | * Nokia, Nokia Shanghai Bell | * agreed |  |  |
| * S3-183505 | * Alignment on Home Network Public Key | * Nokia, Nokia Shanghai Bell | * revised |  | * S3-183694 |
| * S3-183506 | * Skeleton of TR 33.818 | * China Mobile, CATR | * approved |  |  |
| * S3-183507 | * pCR to 33.841 (256bit) - Update section 4 with new drivers | * VODAFONE Group Plc | * noted |  |  |
| * S3-183508 | * Key issue on Need for UE capability based KDF negotiation in 5GS | * NEC Corporation | * noted |  |  |
| * S3-183509 | * Scope of TR 33.818 | * China Mobile, CATR | * revised |  | * S3-183824 |
| * S3-183510 | * Key Issue on Need for Flexible KDF negotiation | * NEC Corporation | * noted |  |  |
| * S3-183511 | * Discussion and pCR of Candidate Solution: Transport independent procedure using existing protocols | * China Mobile; Alibaba (China) Group., Ltd. | * revised |  | * S3-183748 |
| * S3-183512 | * Key Issue on Need for Bidding down protection | * NEC Corporation | * noted |  |  |
| * S3-183513 | * Discussion and pCR of candidate solution: UE implementation schemes in achieving AKMA procedures | * China Mobile; Alibaba (China) Group., Ltd. | * revised |  | * S3-183749 |
| * S3-183514 | * Key issue for authentication and authorization of 5GLAN UE in 5GLAN group communication | * NEC Corporation | * revised |  | * S3-183829 |
| * S3-183515 | * Adding missing references in TS 33.117 | * Nokia, Nokia Shanghai Bell | * agreed |  |  |
| * S3-183516 | * Clause 13.1.1: AES modes | * Ericsson | * revised |  | * S3-183764 |
| * S3-183517 | * Update of Key Issue #2: FN-RG authentication and authorization | * Ericsson | * noted |  |  |
| * S3-183518 | * New solution for Key Issue #2: FN-RG authentication and authorization | * Ericsson | * noted |  |  |
| * S3-183519 | * New KI: Authentication of 5G capable UE behind a RG | * Ericsson | * revised |  | * S3-183786 |
| * S3-183520 | * New KI: User plane data handling for 5G capable UE behind a RG | * Ericsson | * revised |  | * S3-183787 |
| * S3-183521 | * New Solution: 5GC-capable UEs behind 5G-RG/FN-RG using N3GPP-access solutions | * Ericsson | * revised |  | * S3-183791 |
| * S3-183522 | * N32: remove redundant references to encrypted IEs | * Ericsson | * revised |  | * S3-183685 |
| * S3-183523 | * pSEPP-pNF authentication | * Ericsson | * agreed |  |  |
| * S3-183524 | * Maximum output size of SUPI concealment scheme | * Ericsson | * noted |  | * - |
| * S3-183525 | * Maximum output size of SUPI concealment schemes | * Ericsson | * noted |  |  |
| * S3-183526 | * WLAN positioning - new KI for the upcoming TR on FS\_eLCS\_Sec | * Ericsson | * approved |  | * - |
| * S3-183527 | * Bluetooth positioning - new KI for the upcoming TR on FS\_eLCS\_Sec | * Ericsson | * approved |  |  |
| * S3-183528 | * TBS positioning - new KI for the upcoming TR on FS\_eLCS\_Sec | * Ericsson | * revised |  | * S3-183814 |
| * S3-183529 | * New key issue for key refreshment in 5GLAN group communication | * NEC Corporation | * noted |  |  |
| * S3-183530 | * A key issue on Slice-specific security features in NSaaS | * China Mobile | * merged |  | * S3-183810 |
| * S3-183531 | * A key issue: Security and privacy aspects related to Network Slice specific access authentication and authorization | * China Mobile | * approved |  |  |
| * S3-183532 | * New key issue for securing the communication between 5GLAN UE and GMF | * NEC Corporation | * noted |  |  |
| * S3-183533 | * Key Issue on Compliance with Local Rules and Regulations | * NEC Corporation | * approved |  |  |
| * S3-183534 | * Key Issue on Access Independent Security for 5WWC | * NEC Corporation | * revised |  | * S3-183788 |
| * S3-183535 | * Security solution for small data sent with EDT in RRC Resume Request for E-UTRA connected to 5GC | * Ericsson | * revised |  | * S3-183779 |
| * S3-183536 | * Security solution for small data included in initial NAS to handle AMF reallocation | * Ericsson LM | * revised |  | * S3-183780 |
| * S3-183537 | * Security solution for MO SMS in initial NAS message - handling AMF re-allocation | * Ericsson LM | * revised |  | * S3-183778 |
| * S3-183538 | * New Key Issue: Remote (de)provisioning of credentials | * KPN | * noted |  |  |
| * S3-183539 | * Key Issue #4 – Signalling overload due to Malicious Applications on the UE | * KPN | * merged |  | * S3-183772 |
| * S3-183540 | * Editorial corrections in 13.2 | * Nokia, Nokia Shanghai Bell | * revised |  | * S3-183689 |
| * S3-183541 | * New KI: Protection of interface used by NIDD procedures | * Ericsson LM | * revised |  | * S3-183773 |
| * S3-183542 | * New Solution for Key Issue #4: Use of UE Configuration Update | * KPN | * revised |  | * S3-183781 |
| * S3-183543 | * New solution for protection of interface used by NIDD procedures | * Ericsson LM | * revised |  | * S3-183783 |
| * S3-183544 | * New Key Issue: Generic battery efficient end-to-end security | * KPN | * revised |  | * S3-183736 |
| * S3-183545 | * New KI: Privacy protection of the NIDD API between UPF/NEF and AF | * Ericsson LM | * noted |  | * - |
| * S3-183546 | * Issue with using wildcard certificates in SEPP | * Nokia, Nokia Shanghai Bell | * noted |  |  |
| * S3-183547 | * Security between SEPP and IPX | * Nokia, Nokia Shanghai Bell, Telekom Deutschland GmbH | * revised |  | * S3-183686 |
| * S3-183548 | * Telescopic FQDN for callback URIs | * Nokia, Nokia Shanghai Bell | * noted |  |  |
| * S3-183549 | * Two parallel N32-c connections between SEPPs | * Nokia, Nokia Shanghai Bell | * revised |  | * S3-183687 |
| * S3-183550 | * Discussion on the Reply LSs on initial NAS security agreements | * Samsung | * noted |  |  |
| * S3-183551 | * Key issue on AS security during RRC Idle mode | * Samsung | * merged |  | * S3-183801 |
| * S3-183552 | * Solution for AS security during RRC Idle mode | * Samsung | * noted |  |  |
| * S3-183553 | * Draft-Reply LS on Control Plane Solution for Steering of Roaming in 5GS | * Samsung | * noted |  |  |
| * S3-183554 | * Correction to Key hierarchy diagram | * Samsung | * revised |  | * S3-183678 |
| * S3-183555 | * RES\* verification failure test case | * Nokia, Nokia Shanghai Bell | * approved |  |  |
| * S3-183556 | * Corrections to KSEAF derivation in Key distribution and derivation | * Samsung | * agreed |  |  |
| * S3-183557 | * Association of security context | * Samsung | * not pursued |  |  |
| * S3-183558 | * Missing subclause headings | * Samsung | * agreed |  |  |
| * S3-183559 | * [DRAFT] LS on API invoker onboarding | * Samsung | * noted |  |  |
| * S3-183560 | * [DRAFT] LS on Security method negotiation | * Samsung | * revised |  | * S3-183795 |
| * S3-183561 | * New KI: Key Lifetimes | * Ericsson India Private Limited | * revised |  | * S3-183737 |
| * S3-183562 | * New solution: Access independent architecture solution for AKMA | * Ericsson India Private Limited | * revised |  | * S3-183750 |
| * S3-183563 | * New KI: API for AKMA keys in UE | * Ericsson India Private Limited | * revised |  | * S3-183746 |
| * S3-183564 | * New solution: Stand-alone architecture solution for AKMA | * Ericsson India Private Limited | * revised |  | * S3-183751 |
| * S3-183565 | * New option for 33.855 solution #8 | * Ericsson India Private Limited | * revised |  | * S3-183723 |
| * S3-183566 | * NF-SEPP TLS handling | * Ericsson India Private Limited | * revised |  | * S3-183647 |
| * S3-183567 | * Update of PARLOS solution #1 | * Motorola Mobility, Lenovo | * revised |  | * S3-183725 |
| * S3-183568 | * Clause #4 for the upcoming TR on FS\_5GFBS | * Ericsson | * revised |  | * S3-183800 |
| * S3-183569 | * SON security - new KI for the upcoming TR on FS\_5GFBS | * Ericsson | * revised |  | * S3-183804 |
| * S3-183570 | * Enhancing detection - new KI for the upcoming TR on FS\_5GFBS | * Ericsson | * merged |  | * S3-183802 |
| * S3-183571 | * Enhancing untraceability - new KI for the upcoming TR on FS\_5GFB | * Ericsson | * noted |  |  |
| * S3-183572 | * Privacy visibility - new KI for the upcoming TR on FS\_5GFB | * Ericsson | * noted |  |  |
| * S3-183573 | * KI for security keys for redundant data | * Ericsson | * merged |  | * S3-183818 |
| * S3-183574 | * KI for UP security policy handling for redundant data | * Ericsson | * approved |  |  |
| * S3-183575 | * Security solution for handling UP security policy for redundant data | * Ericsson | * revised |  | * S3-183822 |
| * S3-183576 | * Service visibility - new KI for the upcoming TR on FS\_5GFB | * Ericsson | * noted |  |  |
| * S3-183577 | * KI for retaining AS security key | * Ericsson | * revised |  | * S3-183821 |
| * S3-183578 | * Solution for flexibility to retain or to change AS security keys | * Ericsson | * revised |  | * S3-183823 |
| * S3-183579 | * SI replay - new KI for the upcoming TR on FS\_5GFB | * Ericsson | * merged |  | * S3-183801 |
| * S3-183580 | * SI integrity - new KI for the upcoming TR on FS\_5GFB | * Ericsson | * revised |  | * S3-183801 |
| * S3-183581 | * Rogue REJECTS - new KI for the upcoming TR on FS\_5GFB | * Ericsson | * merged |  | * S3-183803 |
| * S3-183582 | * Radio jamming - placeholder-only KI for the upcoming TR on FS\_5GFB | * Ericsson | * revised |  | * S3-183806 |
| * S3-183583 | * New key issue on key separation between Network Slices | * Ericsson | * revised |  | * S3-183809 |
| * S3-183584 | * Multiple NAS connections and algorithm change | * Ericsson | * noted |  |  |
| * S3-183585 | * Multiple NAS connections: mobility with horizontal KAMF derivation | * Ericsson | * noted |  |  |
| * S3-183586 | * Support of UP security policy in ng-eNB | * Ericsson | * approved |  | * - |
| * S3-183587 | * E-UTRA connected to 5GC | * Ericsson | * withdrawn |  |  |
| * S3-183588 | * Handling of initial NAS protection failures | * Ericsson | * noted |  |  |
| * S3-183589 | * Way forward on how to address mobility cases for the initial NAS protection mechanism | * Ericsson | * noted |  |  |
| * S3-183590 | * Handling of mobility scenarios involving an AMF key change for the initial NAS protection mechanism | * Ericsson | * noted |  |  |
| * S3-183591 | * Handling of mobility scenarios involving an AMF key change for the initial NAS protection mechanism | * Ericsson | * noted |  |  |
| * S3-183592 | * EDCE5 – Fixing contradicting and insecure scg/sk counter handling in 33.401 from 36.331 | * Ericsson | * revised |  | * S3-183712 |
| * S3-183593 | * LTE EDT – integrity protection of uplink EDT data | * Ericsson | * merged |  | * S3-183651 |
| * S3-183594 | * Update of EAP-AKA’ reference to make it compatible with 5G | * Ericsson | * noted |  | * - |
| * S3-183595 | * Update of EAP-AKA’ RFC 5448 in progress | * Ericsson | * noted |  |  |
| * S3-183596 | * Update of EAP-AKA PFS work in progress | * Ericsson | * noted |  |  |
| * S3-183597 | * New SID on authentication enhancements in 5GS | * Ericsson | * revised |  | * S3-183721 |
| * S3-183598 | * Work on improving perfect forward secrecy in 5G network access | * Ericsson | * withdrawn |  |  |
| * S3-183599 | * discussion on security credential storage | * Ericsson | * noted |  |  |
| * S3-183600 | * DRAFT Reply LS on Separate HSS and UDM and security credentials storage | * Ericsson | * noted |  |  |
| * S3-183601 | * Handling of NAS COUNTs | * Ericsson | * revised |  | * S3-183674 |
| * S3-183602 | * Discussion on the applicability of gNB requirements to ng-eNB | * Ericsson | * noted |  |  |
| * S3-183603 | * NG-RAN – clause 6.9.2.2 | * Ericsson | * revised |  | * S3-183644 |
| * S3-183604 | * NG-RAN – clause 6.9.2.3.3 | * Ericsson | * revised |  | * S3-183645 |
| * S3-183605 | * NG-RAN – clause 6.9.2.3.4 | * Ericsson | * revised |  | * S3-183646 |
| * S3-183606 | * Draft CR to S3-183210 (Handling of UP security policy in MR-DC) | * Ericsson | * merged |  | * S3-183668 |
| * S3-183607 | * draft TS 33.516 (AUSF SCAS) | * Ericsson India Private Limited | * approved |  |  |
| * S3-183608 | * SCAS discussion | * Ericsson India Private Limited | * noted |  |  |
| * S3-183609 | * Discussion on the CT1 LS on initial NAS security | * Qualcomm Incorporated | * noted |  |  |
| * S3-183610 | * Adjusting the description of the initial NAS protection method | * Qualcomm Incorporated | * noted |  | * - |
| * S3-183611 | * LS on initial NAS message protection | * Qualcomm Incorporated | * revised |  | * S3-183741 |
| * S3-183612 | * Discussion on the SA2 LS on initial NAS security | * Qualcomm Incorporated | * noted |  |  |
| * S3-183613 | * LS on initial NAS message protection | * Qualcomm Incorporated | * noted |  |  |
| * S3-183614 | * Network control of sending S-NSSAIs in the RRC signalling | * Qualcomm Incorporated | * not pursued |  |  |
| * S3-183615 | * Discussion on CT1 on Scenarios with multiple registrations to the same AMF | * Qualcomm Incorporated | * noted |  |  |
| * S3-183616 | * Addressing possible security context mismatch on non-3GPP access when multiply registered on one PLMN | * Qualcomm Incorporated | * not pursued |  |  |
| * S3-183617 | * Addressing the editor’s notes in the conclusions clause of TR 33.856 | * Qualcomm Incorporated | * noted |  |  |
| * S3-183618 | * Corrections on the number of bits of downlink NAS COUNT value to be delivered in the 5GS to EPS handover procedure | * Qualcomm Incorporated | * agreed |  |  |
| * S3-183619 | * Clarification on storing the selected EPS NAS algorithms | * Qualcomm Incorporated | * agreed |  |  |
| * S3-183620 | * KgNB derivation in EPS to 5GS handover | * Qualcomm Incorporated | * noted |  | * - |
| * S3-183621 | * Clarification on RRC Inactive procedure support by ng-eNB | * Qualcomm Incorporated | * revised |  | * S3-183665 |
| * S3-183622 | * NR-NR Dual Connectivity | * Qualcomm Incorporated | * merged |  | * S3-183668 |
| * S3-183623 | * KgNB derivation in N2 handover | * Qualcomm Incorporated | * agreed |  |  |
| * S3-183624 | * Security mechanism for UE Parameters Update via UDM Control Plane Procedure | * Qualcomm Incorporated | * revised |  | * S3-183742 |
| * S3-183625 | * Clarifications to SUPI and SUCI | * Qualcomm Incorporated | * withdrawn |  |  |
| * S3-183626 | * General SCAS API requirements | * Ericsson India Private Limited | * not pursued |  |  |
| * S3-183627 | * New SID on data rate enhancements for user plane integrity protection | * Motorola Mobility, Lenovo | * merged |  | * S3-183718 |
| * S3-183628 | * Clarifications to SUPI and SUCI | * Qualcomm Incorporated | * noted |  |  |
| * S3-183629 | * TR 33.841: complete clause on OTA mechanism | * Gemalto N.V. | * revised |  | * S3-183762 |
| * S3-183630 | * P-CR describing current manual roaming in US | * Sprint Corporation | * revised |  | * S3-183727 |
| * S3-183631 | * Key Issue on secure communication between ME and UICC | * Alibaba (China) group., Ltd., China Mobile | * noted | * S3-183306 |  |
| * S3-183632 | * Discussion on one potential way to improve the efficiency of IP | * Apple Computer Trading Co. Ltd | * noted | * S3-183302 |  |
| * S3-183633 | * Resolution of Editor’s note on wildcard certificates in S3-183441 | * Nokia, Nokia Shanghai Bell, Telekom Deutschland GmbH | * not pursued |  |  |
| * S3-183634 | * TS 33 127 v110 | * BT plc | * approved | * s3i180608 |  |
| * S3-183635 | * Cover sheet for presentation of TS 33.127 to SA Plenary | * SA3 (SA3-LI) | * approved | * s3i180603 |  |
| * S3-183636 | * Comments on S3-183624 | * NEC Corporation | * noted |  |  |
| * S3-183637 | * PCR to TR33.514 SUCI test case correction | * CATT | * revised |  | * S3-183701 |
| * S3-183638 | * Scenarios that require generation of telescopic FQDN in SEPP | * Nokia, Nokia Shanghai Bell | * not pursued |  |  |
| * S3-183639 | * Verification of PLMN ID in N32 message | * Huawei, Hisilicon | * not pursued | * S3-183469 |  |
| * S3-183640 | * LS-Reply proposal - Commenting on S3-183599, S3-183600, S3-183327 | * Nokia, Nokia Shanghai Bell | * noted |  |  |
| * S3-183641 | * Comments on S3-183550 NSSAI inclusion in NAS | * Nokia, Nokia Shangahi bell | * noted |  |  |
| * S3-183642 | * Comments on S3-183374 | * Nokia, Nokia Shanghai Bell | * noted |  |  |
| * S3-183643 | * Discussion on the changes proposed in S3-183620 and S3-183623 | * Qualcomm Incorporated | * noted |  |  |
| * S3-183644 | * NG-RAN – clause 6.9.2.2 | * Ericsson | * revised | * S3-183603 | * S3-183670 |
| * S3-183645 | * NG-RAN – clause 6.9.2.3.3 | * Ericsson | * revised | * S3-183604 | * S3-183671 |
| * S3-183646 | * NG-RAN – clause 6.9.2.3.4 | * Ericsson | * revised | * S3-183605 | * S3-183672 |
| * S3-183647 | * NF-SEPP TLS handling | * Ericsson Hungary Ltd | * noted | * S3-183566 |  |
| * S3-183648 | * Draft CR Corrections to N32 Protection Policies | * Telekom Deutschland | * noted | * - | * - |
| * S3-183649 | * Draft CR Adopting more normative language in clause 13 | * Telekom Deutschland | * noted | * - | * - |
| * S3-183650 | * Correction on LTE suspend/resume procedure for EDT capable UE | * Intel Corporation (UK) Ltd | * agreed | * S3-183373 | * - |
| * S3-183651 | * User Plane Integrity Protection for EDT | * Huawei, Hisilicon,Ericsson | * agreed | * S3-183411 | * - |
| * S3-183652 * S3‑183652 | * LS to RAN23 on UP Integrity Protection for Small Data in Early Data Transfer | * Huawei, Hisilicon | * approved | * S3-183410 | * - |
| * S3-183653 | * 3GPP SA3 statement | * SA3 WG vice chair (NTT-Docomo) | * endorsed | * - | * - |
| * S3-183654 | * Reply LS to ITU-T SG17 on X.5Gsec-q study | * NCSC | * approved | * S3-183295 | * - |
| * S3-183655 | * Two parallel N32-c connections between SEPPs | * Nokia | * noted | * - | * - |
| * S3-183656 | * Security between SEPP and IPX | * Nokia | * noted | * - | * - |
| * S3-183657 | * Editorial corrections in 13.2 | * Nokia | * noted | * - | * - |
| * S3-183658 | * Response LS on maximum output size of SUPI concealment schemes | * Ericsson | * approved | * - | * - |
| * S3-183659 | * Reply to:LS on initial NAS security agreements | * Intel | * approved | * - | * - |
| * S3-183660 | * Reply LS on security requirements for Integrity protection for DRBs in MR-DC | * Huawei, Hisilicon | * approved | * S3-183437 | * - |
| * S3-183661 | * CR on Secondary Re-authentication | * Huawei, HiSilicon | * agreed | * S3-183467 | * - |
| * S3-183662 | * Reply to: Reply LS on Clarifications on SUPI definition and NAI format | * Qualcomm | * approved | * - | * - |
| * S3-183663 | * AS subscription temperary identifier privacy | * ZTE Corporation | * agreed | * S3-183318 | * - |
| * S3-183664 | * Update RRC reestablishment security procedure based on RAN2 agreement | * Huawei, Hisilicon | * agreed | * S3-183342 | * - |
| * S3-183665 | * Clarification on RRC Inactive procedure support by ng-eNB | * Qualcomm Incorporated | * agreed | * S3-183621 | * - |
| * S3-183666 | * Proposal about improvement of the UP security policy | * China Mobile | * agreed | * S3-183322 | * - |
| * S3-183667 | * Support of UP security policy in ng-eNB | * Ericsson | * agreed | * - | * - |
| * S3-183668 | * Adding NR-DC to the scenarios of MR-DC | * Huawei, Hisilicon,Qualcomm,Ericsson | * merged | * S3-183362 | * S3-183835 |
| * S3-183669 | * Draft CR to S3-183210 (Handling of UP security policy in MR-DC) | * Ericsson | * withdrawn | * - | * - |
| * S3-183670 | * NG-RAN – clause 6.9.2.2 | * Ericsson | * agreed | * S3-183644 | * - |
| * S3-183671 | * NG-RAN – clause 6.9.2.3.3 | * Ericsson | * agreed | * S3-183645 | * - |
| * S3-183672 | * NG-RAN – clause 6.9.2.3.4 | * Ericsson | * agreed | * S3-183646 | * - |
| * S3-183673 | * Aligning the description of the initial NAS security procedures based on the CT1 agreements | * Qualcomm Incorporated,ZTE | * agreed | * - | * - |
| * S3-183674 | * Handling of NAS COUNTs | * Ericsson | * agreed | * S3-183601 | * - |
| * S3-183675 | * Clarify SUPI format in KAMF computation | * Nokia | * agreed | * S3-183328 | * - |
| * S3-183676 | * Clarification: AMF confirming UE SUPI in case NAS SMC failed | * Huawei, Hisilicon,Nokia | * agreed | * S3-183360 | * - |
| * S3-183677 | * Editorial correction in Clause 6.9.3.2 | * Nokia | * agreed | * S3-183329 | * - |
| * S3-183678 | * Correction to Key hierarchy diagram | * Samsung | * agreed | * S3-183554 | * - |
| * S3-183679 | * Update of EAP-AKA’ reference to make it compatible with 5G | * Ericsson | * agreed | * - | * - |
| * S3-183680 | * Clarification on interworking | * Huawei, Hisilicon | * agreed | * S3-183476 | * - |
| * S3-183681 | * Inter PLMN routing | * Nokia | * withdrawn | * - | * - |
| * S3-183682 | * Inter PLMN routing | * Nokia | * agreed | * - | * - |
| * S3-183683 | * Verification of PLMNid by the receiving SEPP | * Deutsche Telekom | * agreed | * - | * - |
| * S3-183684 | * Corrections to N32 Protection Policies | * Telekom Deutschland GmbH, Nokia | * agreed | * S3-183442 | * - |
| * S3-183685 | * N32: remove redundant references to encrypted IEs | * Ericsson | * agreed | * S3-183522 | * - |
| * S3-183686 | * Security between SEPP and IPX | * Nokia, Nokia Shanghai Bell, Telekom Deutschland GmbH | * agreed | * S3-183547 | * - |
| * S3-183687 | * Two parallel N32-c connections between SEPPs | * Nokia, Nokia Shanghai Bell | * agreed | * S3-183549 | * - |
| * S3-183688 | * Adopting more normative language in clause 13 | * Telekom Deutschland GmbH, Nokia | * agreed | * S3-183444 | * - |
| * S3-183689 | * Editorial corrections in 13.2 | * Nokia, Nokia Shanghai Bell,Huawei | * agreed | * S3-183540 | * - |
| * S3-183690 | * Shift of text from SEPP intro to subclause | * Nokia, Nokia Shanghai Bell | * agreed | * S3-183499 | * - |
| * S3-183691 | * IoT Group Authentication | * Huawei, Hisilicon | * noted | * S3-183356 | * - |
| * S3-183692 | * Maximum output size of SUPI concealment scheme | * Ericsson | * agreed | * - | * - |
| * S3-183693 | * Clarification to protection scheme identifier | * Nokia, Nokia Shanghai Bell | * agreed | * S3-183500 | * - |
| * S3-183694 | * Alignment on Home Network Public Key | * Nokia, Nokia Shanghai Bell | * agreed | * S3-183505 | * - |
| * S3-183695 | * Corrections to definition of 5G AS security context for 3GPP access | * China Mobile | * agreed | * S3-183323 | * - |
| * S3-183696 | * UPdate test cases in 33.511 | * Huawei, Hisilicon | * approved | * S3-183430 | * - |
| * S3-183697 | * Draft TS 33.511 | * Huawei | * approved | * - | * - |
| * S3-183698 | * Adding Execution Steps to in 4.2.2.1.1, 4.2.2.1.2, and 4.2.2.1.7 | * Huawei, Hisilicon | * approved | * S3-183429 | * - |
| * S3-183699 | * Mapping requirements and test cases from 33.216 to 33.511 | * Huawei, Hisilicon | * approved | * S3-183405 | * - |
| * S3-183700 | * draft TS 33.512 | * Deutsche Telekom | * approved | * - | * - |
| * S3-183701 | * PCR to TR33.514 SUCI test case correction | * CATT | * approved | * S3-183637 | * - |
| * S3-183702 | * Draft TS 33.514 | * NEC | * approved | * - | * - |
| * S3-183703 | * Draft TS 33.517 | * Nokia | * approved | * - | * - |
| * S3-183704 | * Draft TS 33.518 | * Nokia | * approved | * - | * - |
| * S3-183705 | * Draft TS 33.519 | * ZTE | * approved | * - | * - |
| * S3-183706 | * LS on IAB security | * R2-1818748 | * replied to | * - | * - |
| * S3-183707 | * Authentication on application functions | * ZTE Corporation | * approved | * S3-183321 | * - |
| * S3-183708 | * Minutes of SBA Offline Discussion | * Deutsche Telekom | * withdrawn | * - | * - |
| * S3-183709 | * Draft CR Incorporating general SBA aspects in TS 33.117 | * Nokia | * approved | * - | * - |
| * S3-183710 | * Add EDCE5 realted requirements and testcases to 33.216 | * Huawei, Hisilicon | * agreed | * S3-183428 | * - |
| * S3-183711 | * Reply to: LS on IAB security | * Ericsson | * approved | * - | * - |
| * S3-183712 | * EDCE5 – Fixing contradicting and insecure scg/sk counter handling in 33.401 from 36.331 | * Ericsson | * not pursued | * S3-183592 | * - |
| * S3-183713 | * Correction/enhancement in CAPIF TS | * NEC Corporation | * agreed | * S3-183341 | * - |
| * S3-183714 | * Reply to: LS on EAS-C&U support | * Vodafone | * withdrawn | * - | * - |
| * S3-183715 | * LS on Control Plane Solution for Steering of Roaming in 5GS | * Vodafone | * approved | * - | * - |
| * S3-183716 | * Delete information during API invoker offboarding | * Huawei, Hisilicon | * agreed | * S3-183421 | * - |
| * S3-183717 | * LS on authentication of group of IoT devices | * NTT-Docomo | * approved | * - | * - |
| * S3-183718 | * New SID on User Plane Integrity Protection | * VODAFONE Group Plc | * agreed | * S3-183436 | * - |
| * S3-183719 | * Study on mitigation of the charging fraud attack | * Huawei, Hisilicon | * noted | * S3-183471 | * - |
| * S3-183720 | * LS to GSMA on mitigation of the charging fraud attack | * Huawei | * approved | * - | * - |
| * S3-183721 | * New SID on authentication enhancements in 5GS | * Ericsson | * revised | * S3-183597 | * S3-183745 |
| * S3-183722 | * Security Impacts of Virtualisation | * BT plc | * agreed | * S3-183486 | * - |
| * S3-183723 | * New option for 33.855 solution #8 | * Ericsson India Private Limited | * approved | * S3-183565 | * - |
| * S3-183724 | * Draft TR 33.855 | * Deutsche Telekom | * approved | * - | * - |
| * S3-183725 | * Update of PARLOS solution #1 | * Motorola Mobility, Lenovo | * approved | * S3-183567 | * - |
| * S3-183726 | * Draft TR 33.815 | * Sprint | * approved | * - | * - |
| * S3-183727 | * P-CR describing current manual roaming in US | * Sprint Corporation | * approved | * S3-183630 | * - |
| * S3-183728 | * Proposed change to the solution #1.1 of TR 33.856 | * Huawei, Hisilicon | * approved | * S3-183395 | * - |
| * S3-183729 | * Draft TR 33.856 | * China Unicom | * approved | * - | * - |
| * S3-183730 | * Evaluation for the solution "Return from UTRAN to E-UTRAN or NR" | * China Unicom | * approved | * S3-183369 | * - |
| * S3-183731 | * Conclusion for the solution "Return from UTRAN to E-UTRAN or NR" | * China Unicom | * approved | * S3-183370 | * - |
| * S3-183732 | * clean up the EN of subclause 7 in TR 33.856 | * Huawei, Hisilicon | * approved | * S3-183397 | * - |
| * S3-183733 | * Cover sheet TR 33.856 | * Huawei | * approved | * - | * - |
| * S3-183734 | * Protecting SUPI for user privacy | * ZTE Corporation | * approved | * S3-183394 | * - |
| * S3-183735 | * Draft TR 33.835 | * China Mobile | * approved | * - | * - |
| * S3-183736 | * New Key Issue: Generic battery efficient end-to-end security | * KPN | * approved | * S3-183544 | * - |
| * S3-183737 | * New KI: Key Lifetimes | * Ericsson India Private Limited | * approved | * S3-183561 | * - |
| * S3-183738 | * CR to TS33.501-Registration related text correction | * CATT | * agreed | * S3-183438 | * - |
| * S3-183739 | * New WID on security aspects of single radio voice continuity from 5G to 3G | * China Unicom, Huawei, HiSilicon, ZTE, CATT, OPPO, CATR | * agreed | * S3-183367 | * - |
| * S3-183740 | * Adding UP security policy in SN Addition/modification Request message | * Huawei, Hisilicon | * agreed | * S3-183344 | * - |
| * S3-183741 | * LS on initial NAS message protection | * Qualcomm Incorporated | * approved | * S3-183611 | * - |
| * S3-183742 | * Security mechanism for UE Parameters Update via UDM Control Plane Procedure | * Qualcomm Incorporated,Huawei | * agreed | * S3-183624 | * - |
| * S3-183743 | * Update on access token in roaming scenario | * Huawei, Hisilicon | * agreed | * S3-183478 | * - |
| * S3-183744 | * pCR to TR33.814 - Scope | * CATT | * approved | * S3-183434 | * - |
| * S3-183745 | * New SID on authentication enhancements in 5GS | * Ericsson | * agreed | * S3-183721 | * - |
| * S3-183746 | * New KI: API for AKMA keys in UE | * Ericsson India Private Limited | * approved | * S3-183563 | * - |
| * S3-183747 | * Solution for bootstrapping authentication of AKMA | * Huawei, Hisilicon | * approved | * S3-183420 | * - |
| * S3-183748 | * Discussion and pCR of Candidate Solution: Transport independent procedure using existing protocols | * China Mobile; Alibaba (China) Group., Ltd. | * approved | * S3-183511 | * - |
| * S3-183749 | * Discussion and pCR of candidate solution: UE implementation schemes in achieving AKMA procedures | * China Mobile; Alibaba (China) Group., Ltd. | * approved | * S3-183513 | * - |
| * S3-183750 | * New solution: Access independent architecture solution for AKMA | * Ericsson India Private Limited | * approved | * S3-183562 | * - |
| * S3-183751 | * New solution: Stand-alone architecture solution for AKMA | * Ericsson India Private Limited | * approved | * S3-183564 | * - |
| * S3-183752 | * pCR to TR 33.834 - Update to LTKUP Conclusions | * VODAFONE Group Plc | * approved | * S3-183445 | * - |
| * S3-183753 | * Draft TR 33.834 | * Vodafone | * approved | * - | * - |
| * S3-183754 | * cover sheet TR 33.834 | * Vodafone | * approved | * - | * - |
| * S3-183755 | * New SID on LTKUP Detailed Solutions | * VODAFONE Group Plc | * agreed | * S3-183440 | * - |
| * S3-183756 | * LS to SAGE on 256bit algorithms | * Vodafone | * approved | * - | * - |
| * S3-183757 | * pCR to TR 33 841 Threat details to symmetric cryptography | * CATT | * approved | * S3-183451 | * - |
| * S3-183758 | * Draft TR 33.841 | * Vodafone | * approved | * - | * - |
| * S3-183759 | * pCR to Include content discussing forward security | * NIST | * approved | * S3-183310 | * - |
| * S3-183760 | * Update to Impacted NextGen Areas - TR 33.841 | * NCSC | * approved | * S3-183292 | * - |
| * S3-183761 | * pCR to TR 33 841 regarding key derivation function | * China Mobile; Vodafone | * approved | * S3-183481 | * - |
| * S3-183762 | * TR 33.841: complete clause on OTA mechanism | * Gemalto N.V. | * approved | * S3-183629 | * - |
| * S3-183763 | * pCR to TR 33 841 Study of individual algorithm details | * CATT, CAICT, China Mobile, China Telecom, China Unicom, Huawei, HiSilicon, ZTE, OPPO | * approved | * S3-183477 | * - |
| * S3-183764 | * Clause 13.1.1: AES modes | * Ericsson | * approved | * S3-183516 | * - |
| * S3-183765 | * Modifications and Clarifications for TR 33.841 | * NCSC | * approved | * S3-183294 | * - |
| * S3-183766 | * Potential Requirements for TR 33.841 | * NCSC, CAICT, CATT, China Mobile, China Telecom, China Unicom, Huawei, HiSilicon, ZTE, OPPO | * approved | * S3-183290 | * - |
| * S3-183767 | * Conclusions for TR 33.841 | * NCSC, CAICT, CATT, China Mobile, China Telecom, China Unicom, Huawei, HiSilicon, ZTE, OPPO, Qihoo 360 | * approved | * S3-183291 | * - |
| * S3-183768 | * Editorials for TR 33.841 | * NCSC | * approved | * S3-183293 | * - |
| * S3-183769 | * Cover sheet TR 33.841 | * Vodafone | * approved | * - | * - |
| * S3-183770 | * Key issue for encryption protection of location data | * Huawei, Hisilicon | * noted | * S3-183403 | * - |
| * S3-183771 | * Key issue for integrity protection of location and assistance data | * Huawei, Hisilicon | * noted | * S3-183404 | * - |
| * S3-183772 | * Improvement for key issue on the signalling overload due to malicious applications on the UE | * Huawei, HiSilicon,KPN | * approved | * S3-183460 | * - |
| * S3-183773 | * New KI: Protection of interface used by NIDD procedures | * Ericsson LM | * approved | * S3-183541 | * - |
| * S3-183774 | * Draft TR 33.861 | * Ericsson | * approved | * - | * - |
| * S3-183775 | * Adding Key issue for Connectionless service security | * Nokia | * approved | * S3-183332 | * - |
| * S3-183776 | * New KI: Privacy protection of the NIDD API between UPF/NEF and AF | * Ericsson LM | * withdrawn | * - | * - |
| * S3-183777 | * Solution proposal for FS\_CIoT\_sec\_5G | * NEC Corporation | * approved | * S3-183338 | * - |
| * S3-183778 | * Security solution for MO SMS in initial NAS message - handling AMF re-allocation | * Ericsson LM | * approved | * S3-183537 | * - |
| * S3-183779 | * Security solution for small data sent with EDT in RRC Resume Request for E-UTRA connected to 5GC | * Ericsson | * approved | * S3-183535 | * - |
| * S3-183780 | * Security solution for small data included in initial NAS to handle AMF reallocation | * Ericsson LM | * approved | * S3-183536 | * - |
| * S3-183781 | * New Solution for Key Issue #4: Use of UE Configuration Update | * KPN | * approved | * S3-183542 | * - |
| * S3-183782 | * Solution for protecting gNB from RRC re-establishment DDoS attack | * Huawei, Hisilicon | * approved | * S3-183346 | * - |
| * S3-183783 | * New solution for protection of interface used by NIDD procedures | * Ericsson LM | * approved | * S3-183543 | * - |
| * S3-183784 | * Draft TR 33.807 | * Huawei | * approved | * - | * - |
| * S3-183785 | * LS on FN-RG authentication and related questions | * Ericsson | * approved | * - | * - |
| * S3-183786 | * New KI: Authentication of 5G capable UE behind a RG | * Ericsson | * approved | * S3-183519 | * - |
| * S3-183787 | * New KI: User plane data handling for 5G capable UE behind a RG | * Ericsson,NEC | * approved | * S3-183520 | * - |
| * S3-183788 | * Key Issue on Access Independent Security for 5WWC | * NEC Corporation | * approved | * S3-183534 | * - |
| * S3-183789 | * LS on verification of PLMN-ID in the SEPP | * Deutsche Telekom | * approved | * - | * - |
| * S3-183790 | * Clarifications to SUPI and SUCI | * Qualcomm,Nokia | * agreed | * - | * - |
| * S3-183791 | * New Solution: 5GC-capable UEs behind 5G-RG/FN-RG using N3GPP-access solutions | * Ericsson | * approved | * S3-183521 | * - |
| * S3-183792 | * Draft TR 33.808 | * Huawei | * approved | * - | * - |
| * S3-183793 | * Reply-LS on work item "X.5Gsec-q" | * ETSI TC Cyber WG QSC | * noted | * - | * - |
| * S3-183794 | * Liaison Statement to ITU-T SG17: Response to proposal for ITU-T SG17 question on quantum-safe communication | * ETSI TC Cyber WG QSC | * noted | * - | * - |
| * S3-183795 | * LS on Security method negotiation | * Samsung | * approved | * S3-183560 | * - |
| * S3-183796 | * Key Issue on KDF negotiation between UE and AMF | * Huawei, Hisilicon | * approved | * S3-183412 | * - |
| * S3-183797 | * KgNB derivation in EPS to 5GS handover | * Qualcomm Incorporated | * agreed | * - | * - |
| * S3-183798 | * Proposal for key issue structure | * Nokia | * approved | * - | * - |
| * S3-183799 | * Draft TR 33.809 | * Apple | * approved | * - | * - |
| * S3-183800 | * Clause #4 for the upcoming TR on FS\_5GFBS | * Ericsson | * approved | * S3-183568 | * - |
| * S3-183801 | * SI integrity - new KI for the upcoming TR on FS\_5GFB | * Ericsson,Samsung,Apple,Huawei | * approved | * S3-183580 | * - |
| * S3-183802 | * Key issue false base station detection and isolation | * Nokia,Ericsson | * approved | * S3-183330 | * - |
| * S3-183803 | * Key issue of security protection on the unicast message from the UE before security activation | * Apple Computer Trading Co. Ltd,Ericsson | * approved | * S3-183299 | * - |
| * S3-183804 | * SON security - new KI for the upcoming TR on FS\_5GFBS | * Ericsson | * approved | * S3-183569 | * - |
| * S3-183805 | * Key issue on Authentication relay attack | * Huawei, Hisilicon | * revised | * S3-183470 | * S3-183839 |
| * S3-183806 | * Radio jamming - placeholder-only KI for the upcoming TR on FS\_5GFB | * Ericsson | * approved | * S3-183582 | * - |
| * S3-183807 | * Draft TR 33.813 | * Nokia | * approved | * - | * - |
| * S3-183808 | * pCR to TR 33.813 Adding key issue for Slice specific authentication | * Nokia,Huawei | * approved | * S3-183337 | * - |
| * S3-183809 | * New key issue on key separation between Network Slices | * Ericsson | * approved | * S3-183583 | * - |
| * S3-183810 | * New KI on security features for NSaaS | * Huawei, HiSilicon,China Mobile | * approved | * S3-183461 | * - |
| * S3-183811 | * Draft skeleton for TR 33.814 | * CATT | * approved | * S3-183433 | * - |
| * S3-183812 | * Draft TR 33.814 | * CATT | * approved | * - | * - |
| * S3-183813 | * WLAN positioning - new KI for the upcoming TR on FS\_eLCS\_Sec | * Ericsson | * withdrawn | * - | * - |
| * S3-183814 | * TBS positioning - new KI for the upcoming TR on FS\_eLCS\_Sec | * Ericsson | * approved | * S3-183528 | * - |
| * S3-183815 | * Scope for TR33.825 on URLLC security | * Huawei, HiSilicon | * approved | * S3-183453 | * - |
| * S3-183816 | * Draft TR 33.825 | * Huawei | * approved | * - | * - |
| * S3-183817 | * Key issue proposal for security of URLLC for 5GS | * NEC Corporation | * approved | * S3-183340 | * - |
| * S3-183818 | * Key issue security for redundant transmissions | * Huawei, HiSilicon,Ericsson,LG | * approved | * S3-183455 | * - |
| * S3-183819 | * Key issue security policy for URLLC service | * Huawei, HiSilicon | * approved | * S3-183456 | * - |
| * S3-183820 | * Key issue security aspect of low latency handover procedures | * Huawei, HiSilicon | * approved | * S3-183457 | * - |
| * S3-183821 | * KI for retaining AS security key | * Ericsson | * approved | * S3-183577 | * - |
| * S3-183822 | * Security solution for handling UP security policy for redundant data | * Ericsson | * approved | * S3-183575 | * - |
| * S3-183823 | * Solution for flexibility to retain or to change AS security keys | * Ericsson | * approved | * S3-183578 | * - |
| * S3-183824 | * Scope of TR 33.818 | * China Mobile, CATR | * approved | * S3-183509 | * - |
| * S3-183825 | * Draft TR 33.818 | * China Mobile | * approved | * - | * - |
| * S3-183826 | * Draft TR 33.819 | * Nokia | * approved | * - | * - |
| * S3-183827 | * VERTICAL study - Scope | * Nokia, Nokia Shanghai Bell | * approved | * S3-183487 | * - |
| * S3-183828 | * New Key Issue: Authentication and Authorization for Interworking, Roaming between NPN and PLMN | * InterDigital Europe. Ltd.,Nokia | * approved | * S3-183312 | * - |
| * S3-183829 | * Key issue for authentication and authorization of 5GLAN UE in 5GLAN group communication | * NEC Corporation | * approved | * S3-183514 | * - |
| * S3-183830 | * Assigning additional FC values to TS 33.501 | * Qualcomm | * agreed | * - | * - |
| * S3-183831 | * Key Issue on Authentication of a UE for Non-public network | * Huawei, Hisilicon,Nokia | * noted | * S3-183417 | * - |
| * S3-183832 | * Reply LS on UP Integrity Protection for Small Data in Early Data Transfer | * R3-187230 | * noted | * - | * - |
| * S3-183833 | * Reply LS on UP Integrity Protection for Small Data in Early Data Transfer | * R2-1818666 | * noted | * - | * - |
| * S3-183834 | * Reply LS on Separate HSS and UDM and security credentials storage | * Nokia | * approved | * - | * - |
| * S3-183835 | * Handling of UP security policy in MR-DC | * Huawei, Hisilicon, Qualcomm Incorporated, Ericsson | * agreed | * S3-183210 | * - |
| * S3-183836 | * Interworking – correcting keying material in HO request message (EPS to 5GS) | * Ericsson,Huawei | * agreed | * S3-183220 | * - |
| * S3-183837 | * Work Plan input from Rapporteurs | * MCC | * noted | * S3-183205 | * - |
| * S3-183838 | * SA3 meeting calendar | * MCC | * noted | * S3-183204 | * - |
| * S3-183839 | * Key issue on Authentication relay attack | * Huawei, Hisilicon | * approved | * S3-183805 | * - |

## Annex B: List of change requests

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Document | Title | Source | Spec | CR | Rev | Rel | Cat | WI | Decision |
| * S3-183240 | * Adding reference to 33.501 in 33.102 | * Nokia, Nokia Shanghai Bell | * 33.102 | * 0276 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183383 | * 5G inclusion in TS 33.117 | * Nokia, Nokia Shanghai Bell, Telekom Deutschland GmbH | * 33.117 | * 0008 | * - | * Rel-16 | * B | * SCAS\_5G | * agreed |
| * S3-183384 | * Incorporating general SBA aspects in TS 33.117 | * Nokia, Nokia Shanghai Bell, Telekom Deutschland GmbH | * 33.117 | * 0009 | * - | * Rel-16 | * B | * SCAS\_5G | * not pursued |
| * S3-183385 | * Test Case of transport layer protection for SBI | * Nokia, Nokia Shanghai Bell, Telekom Deutschland GmbH | * 33.117 | * 0010 | * - | * Rel-15 | * B | * SCAS | * not pursued |
| * S3-183386 | * Editorial corrections in TS 33.117 | * Nokia, Nokia Shanghai Bell | * 33.117 | * 0011 | * - | * Rel-16 | * D | * SCAS\_5G | * agreed |
| * S3-183432 | * Update requirements in 4.2.3.2.2 in 33.117 | * Huawei, Hisilicon | * 33.117 | * 0012 | * - | * Rel-15 | * F | * SCAS-SA3,TEI15 | * agreed |
| * S3-183452 | * New test case: No code execution or inclusion of external ressources by JSON parsers | * Telekom Deutschland GmbH | * 33.117 | * 0013 | * - | * Rel-15 | * B | * SCAS | * not pursued |
| * S3-183498 | * Formatting issue | * Nokia, Nokia Shanghai Bell | * 33.117 | * 0014 | * - | * Rel-15 | * F | * SCAS,TEI15 | * agreed |
| * S3-183515 | * Adding missing references in TS 33.117 | * Nokia, Nokia Shanghai Bell | * 33.117 | * 0015 | * - | * Rel-15 | * F | * SCAS,TEI15 | * agreed |
| * S3-183626 | * General SCAS API requirements | * Ericsson India Private Limited | * 33.117 | * 0016 | * - | * Rel-16 | * B | * SCAS\_5G | * not pursued |
| * S3-183341 | * Correction/enhancement in CAPIF TS | * NEC Corporation | * 33.122 | * 0013 | * - | * Rel-15 | * F | * CAPIF-Sec | * revised |
| * S3-183713 | * Correction/enhancement in CAPIF TS | * NEC Corporation | * 33.122 | * 0013 | * 1 | * Rel-15 | * F | * CAPIF-Sec | * agreed |
| * S3-183421 | * Delete information during API invoker offboarding | * Huawei, Hisilicon | * 33.122 | * 0014 | * - | * Rel-15 | * F | * CAPIF-Sec | * revised |
| * S3-183716 | * Delete information during API invoker offboarding | * Huawei, Hisilicon | * 33.122 | * 0014 | * 1 | * Rel-15 | * F | * CAPIF-Sec | * agreed |
| * S3-183439 | * Security requirements on the CAPIF-3e/4e/5e reference points | * China Telecommunications | * 33.122 | * 0015 | * - | * Rel-15 | * C | * CAPIF-Sec | * not pursued |
| * S3-183557 | * Association of security context | * Samsung | * 33.122 | * 0016 | * - | * Rel-15 | * F | * CAPIF-Sec | * not pursued |
| * S3-183558 | * Missing subclause headings | * Samsung | * 33.122 | * 0017 | * - | * Rel-15 | * F | * CAPIF-Sec | * agreed |
| * S3-183419 | * Security solution for temporary group – broadcast group call procedure | * Huawei, Hisilicon | * 33.180 | * 0095 | * - | * Rel-15 | * F | * MCSec | * not pursued |
| * S3-183230 | * Adding references for the TLS Protocol Profiles clause | * Juniper Networks, Ericsson | * 33.210 | * 0053 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * withdrawn |
| * S3-183231 | * Update NDS/IP scope with application layer crypto profiles | * Juniper Networks, Ericsson | * 33.210 | * 0054 | * - | * Rel-16 | * B | * TEI16 | * withdrawn |
| * S3-183255 | * CR to 33210 r15 adding references for the TLS Protocol Profiles clause | * Juniper Networks, Ericsson | * 33.210 | * 0055 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183256 | * CR to 33210 r16 adding Other 3GPP Profiles clause and references | * Juniper Networks, Ericsson | * 33.210 | * 0056 | * - | * Rel-16 | * B | * TEI16 | * agreed |
| * S3-183428 | * Add EDCE5 realted requirements and testcases to 33.216 | * Huawei, Hisilicon | * 33.216 | * 0002 | * - | * Rel-15 | * F | * SCAS\_5G | * revised |
| * S3-183710 | * Add EDCE5 realted requirements and testcases to 33.216 | * Huawei, Hisilicon | * 33.216 | * 0002 | * 1 | * Rel-16 | * B | * SCAS\_eNB,TEI16 | * agreed |
| * S3-183830 | * Assigning additional FC values to TS 33.501 | * Qualcomm | * 33.220 | * 0197 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183232 | * Move TLS crypto profiles to TS 33.210 | * Juniper Networks, Ericsson | * 33.310 | * 0097 | * - | * Rel-16 | * C | * TEI16 | * withdrawn |
| * S3-183257 | * CR to 33310 r16 removing annex e | * Juniper Networks, Ericsson | * 33.310 | * 0098 | * - | * Rel-16 | * C | * TEI16 | * agreed |
| * S3-183258 | * CR to 33310 r15 corrections of references and annex | * Juniper Networks, Ericsson | * 33.310 | * 0099 | * - | * Rel-15 | * F | * TEI15 | * agreed |
| * S3-183259 | * CR to 33310 r16 corrections of references | * Juniper Networks, Ericsson | * 33.310 | * 0100 | * - | * Rel-16 | * A | * TEI15 | * agreed |
| * S3-183343 | * eNB allowing Unauthenticated UEs in LSM | * Huawei, Hisilicon | * 33.401 | * 0667 | * - | * Rel-15 | * F | * TEI15,SAES | * not pursued |
| * S3-183373 | * Correction on LTE suspend/resume procedure for EDT capable UE | * Intel Corporation (UK) Ltd | * 33.401 | * 0668 | * - | * Rel-15 | * F | * TEI15 | * revised |
| * S3-183650 | * Correction on LTE suspend/resume procedure for EDT capable UE | * Intel Corporation (UK) Ltd | * 33.401 | * 0668 | * 1 | * Rel-15 | * F | * TEI15 | * agreed |
| * S3-183411 | * User Plane Integrity Protection for EDT | * Huawei, Hisilicon | * 33.401 | * 0669 | * - | * Rel-15 | * F | * CIoT | * revised |
| * S3-183651 | * User Plane Integrity Protection for EDT | * Huawei, Hisilicon,Ericsson | * 33.401 | * 0669 | * 1 | * Rel-15 | * F | * TEI15 | * agreed |
| * S3-183592 | * EDCE5 – Fixing contradicting and insecure scg/sk counter handling in 33.401 from 36.331 | * Ericsson | * 33.401 | * 0670 | * - | * Rel-15 | * F | * EDCE5 | * revised |
| * S3-183712 | * EDCE5 – Fixing contradicting and insecure scg/sk counter handling in 33.401 from 36.331 | * Ericsson | * 33.401 | * 0670 | * 1 | * Rel-15 | * F | * EDCE5 | * not pursued |
| * S3-183593 | * LTE EDT – integrity protection of uplink EDT data | * Ericsson | * 33.401 | * 0671 | * - | * Rel-15 | * B | * LTE\_eMTC4-Core | * merged |
| * S3-183207 | * Intra-gNB-CU term synchronization | * Huawei, HiSilicon | * 33.501 | * 0377 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183208 | * Update RNA Update Procedure Security | * Huawei, HiSilicon | * 33.501 | * 0378 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183209 | * N2 HO: Handling source algorithms for RRC Reestablishment procedure | * Huawei, Hisilicon | * 33.501 | * 0379 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183210 | * Handling of UP security policy in MR-DC | * Huawei, Hisilicon, Qualcomm Incorporated, Ericsson | * 33.501 | * 0380 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183835 | * Handling of UP security policy in MR-DC | * Huawei, Hisilicon, Qualcomm Incorporated, Ericsson | * 33.501 | * 0380 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183211 | * Delete EN in SBA Requirements | * Huawei, Hisilicon | * 33.501 | * 0381 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183212 | * Clarifications on AccessToken\_Get Response message | * Huawei, Hisilicon | * 33.501 | * 0382 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183213 | * Editorial corrections on Authorization of NF service access | * Huawei, Hisilicon | * 33.501 | * 0383 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183214 | * Add discover procedure as a pre-requisite for obtaining access token | * Huawei, Hisilicon | * 33.501 | * 0384 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183215 | * correction on the mobility from 5G to 4G | * Huawei, Hisilicon | * 33.501 | * 0385 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183216 | * Clarification on handover from EPS to 5GS | * Huawei, Hisilicon | * 33.501 | * 0386 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * merged |
| * S3-183217 | * Editorial corrections on the 5GS to EPS handover procedure | * Huawei, HiSilicon | * 33.501 | * 0387 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183218 | * Clarification for Target to Source container | * Huawei, HiSilicon | * 33.501 | * 0388 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183219 | * Multiple NAS connections: clarification on the action of MAC verification in registration request over non-3gpp access | * Huawei, HiSilicon | * 33.501 | * 0389 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183220 | * Interworking – correcting keying material in HO request message (EPS to 5GS) | * Ericsson | * 33.501 | * 0390 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183836 | * Interworking – correcting keying material in HO request message (EPS to 5GS) | * Ericsson,Huawei | * 33.501 | * 0390 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183221 | * Length of IV salt and sequence counter | * Ericsson | * 33.501 | * 0391 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183222 | * Correction to the Security Service for Steering of Roaming | * Ericsson | * 33.501 | * 0392 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183223 | * Mobility – Clarification of downlink NAS COUNT in N2 handover | * Ericsson | * 33.501 | * 0393 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183224 | * NAS key refresh | * Ericsson | * 33.501 | * 0394 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183225 | * Caching access tokens | * Ericsson | * 33.501 | * 0395 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183226 | * Addition of multiple instance IDs to OAuth2.0 access token claims | * Ericsson | * 33.501 | * 0396 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183227 | * Corrections to references for security related service in clause 14 | * CATT | * 33.501 | * 0397 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183228 | * Correction to Nudm\_UEAuthentication\_ResultConfirmation service | * CATT | * 33.501 | * 0398 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183229 | * Correction to 5G AKA procedure – no need for "SUPI or SUCI" (in step 10) | * Orange, Ericsson, Nokia | * 33.501 | * 0399 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183233 | * Adjusting the description of the initial NAS protection method | * Qualcomm Incorporated, ZTE, China Mobile | * 33.501 | * 0400 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * not pursued |
| * S3-183234 | * Acknowledging possibility of early calculation of EMSK | * Qualcomm Incorporated, Huawei, Hsilicon | * 33.501 | * 0401 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183235 | * Precedence of protection policies on the N32 interface | * Telekom Deutschland GmbH | * 33.501 | * 0402 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183236 | * Handling of encrypted IEs on the N32 interface | * Telekom Deutschland GmbH | * 33.501 | * 0403 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183245 | * Reference correction | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0404 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183244 | * Removing mandatory text from note | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0405 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183243 | * Clarification on first bits of EMSK | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0406 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183242 | * Misleading text with reference regarding serving network name | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0407 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183241 | * Alignment regarding KEY reference to 33.220 | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0408 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183239 | * Clarification to support of authentication methods | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0409 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183238 | * Clarification to AUSF key derivation | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0410 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183237 | * Corrections and additions in definitions and related clauses | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0411 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183246 | * Remove EN in 13.2 | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0412 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183247 | * Clarifications to clause 13.2.1 | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0413 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183248 | * Remove EN in 13.2.2.1 | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0414 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183249 | * Correction in step 2 of 13.2.2.2 | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0415 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183250 | * Corrections in 13.2.2.4 on N32-f context ID | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0416 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183251 | * Clarifications and corrections in clause 13.2.4 | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0417 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183254 | * Multiple NAS Connection: Correcting NAS link identifier | * Nokia | * 33.501 | * 0418 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183298 | * Corrections to definition of 5G NAS security context | * CMCC | * 33.501 | * 0419 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183303 | * Unify the name of RAN network in 33.501 | * CMCC | * 33.501 | * 0419 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183304 | * Replace 5G-RAN with NG-RAN in 33.501 | * China Mobile | * 33.501 | * 0419 | * 2 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * withdrawn |
| * S3-183324 | * Replace 5G-RAN with NG-RAN in TS 33.501 | * China Mobile | * 33.501 | * 0419 | * 3 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183313 | * Modification of initial NAS message protection | * ZTE Corporation | * 33.501 | * 0420 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * merged |
| * S3-183314 | * Modification on NAS SMC procedure | * ZTE Corporation | * 33.501 | * 0421 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * merged |
| * S3-183315 | * Handling of initial NAS message other than RR when failure occur | * ZTE Corporation | * 33.501 | * 0422 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * not pursued |
| * S3-183316 | * Editorial modification on initial NAS message protection | * ZTE Corporation | * 33.501 | * 0423 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * merged |
| * S3-183317 | * Editorial modification on gNB requirement | * ZTE Corporation | * 33.501 | * 0424 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183318 | * AS subscription temperary identifier privacy | * ZTE Corporation | * 33.501 | * 0425 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183663 | * AS subscription temperary identifier privacy | * ZTE Corporation | * 33.501 | * 0425 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183322 | * Proposal about improvement of the UP security policy | * China Mobile | * 33.501 | * 0426 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183666 | * Proposal about improvement of the UP security policy | * China Mobile | * 33.501 | * 0426 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183323 | * Corrections to definition of 5G AS security context for 3GPP access | * China Mobile | * 33.501 | * 0427 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183695 | * Corrections to definition of 5G AS security context for 3GPP access | * China Mobile | * 33.501 | * 0427 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183328 | * Clarify SUPI format in KAMF computation | * Nokia | * 33.501 | * 0428 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183675 | * Clarify SUPI format in KAMF computation | * Nokia | * 33.501 | * 0428 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183329 | * Editorial correction in Clause 6.9.3.2 | * Nokia | * 33.501 | * 0429 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183677 | * Editorial correction in Clause 6.9.3.2 | * Nokia | * 33.501 | * 0429 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183342 | * Update RRC reestablishment security procedure based on RAN2 agreement | * Huawei, Hisilicon | * 33.501 | * 0430 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183664 | * Update RRC reestablishment security procedure based on RAN2 agreement | * Huawei, Hisilicon | * 33.501 | * 0430 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183344 | * Adding UP security policy in SN Addition/modification Request message | * Huawei, Hisilicon | * 33.501 | * 0431 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183740 | * Adding UP security policy in SN Addition/modification Request message | * Huawei, Hisilicon | * 33.501 | * 0431 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183345 | * Clarification on how AMF confirm UE SUPI | * Huawei, Hisilicon | * 33.501 | * 0432 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * not pursued |
| * S3-183360 | * Clarification: AMF confirming UE SUPI in case NAS SMC failed | * Huawei, Hisilicon | * 33.501 | * 0433 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183676 | * Clarification: AMF confirming UE SUPI in case NAS SMC failed | * Huawei, Hisilicon,Nokia | * 33.501 | * 0433 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183361 | * UP IP handling for split PDU session in MR-DC scenarios | * Huawei, Hisilicon | * 33.501 | * 0434 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * not pursued |
| * S3-183362 | * Adding NR-DC to the scenarios of MR-DC | * Huawei, Hisilicon | * 33.501 | * 0435 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183668 | * Adding NR-DC to the scenarios of MR-DC | * Huawei, Hisilicon,Qualcomm,Ericsson | * 33.501 | * 0435 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * merged |
| * S3-183363 | * Reply LS on security requirements for Integrity protection for DRBs in MR-DC | * Huawei, Hisilicon | * 33.501 | * 0436 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * withdrawn |
| * S3-183379 | * Corrections to 5.2 Requirements on the UE | * LG Electronics | * 33.501 | * 0437 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183380 | * Corrections to 5.3 Requirements on the gNB | * LG Electronics | * 33.501 | * 0438 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183381 | * Corrections to 9. Security procedures for non-service based interfaces | * LG Electronics | * 33.501 | * 0439 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183382 | * IP protection for SN terminated bearers | * Intel Corporation (UK) Ltd | * 33.501 | * 0440 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * not pursued |
| * S3-183400 | * correction on handover procedure from 5G to 4G | * Huawei, Hisilicon | * 33.501 | * 0441 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183401 | * Editorial corrections on the UP integrity mechanisms | * Huawei, Hisilicon | * 33.501 | * 0442 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183402 | * Editorial corrections on NAS SMC procedure | * Huawei, Hisilicon | * 33.501 | * 0443 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183407 | * CR-to-TS33501-RRC Reestablishment security handling when N2 Handover happens | * Huawei, Hisilicon | * 33.501 | * 0444 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * not pursued |
| * S3-183422 | * Editorial corrections on Application layer security on the N32 interface | * Huawei, Hisilicon | * 33.501 | * 0445 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * merged |
| * S3-183438 | * CR to TS33.501-Registration related text correction | * CATT | * 33.501 | * 0446 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183738 | * CR to TS33.501-Registration related text correction | * CATT | * 33.501 | * 0446 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183441 | * Telescopic FQDN creation within the SEPP | * Telekom Deutschland GmbH, Nokia | * 33.501 | * 0447 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * not pursued |
| * S3-183442 | * Corrections to N32 Protection Policies | * Telekom Deutschland GmbH, Nokia | * 33.501 | * 0448 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183684 | * Corrections to N32 Protection Policies | * Telekom Deutschland GmbH, Nokia | * 33.501 | * 0448 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183443 | * Verification of the PLMN-ID by the receiving SEPP | * Telekom Deutschland GmbH, Nokia | * 33.501 | * 0449 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * not pursued |
| * S3-183444 | * Adopting more normative language in clause 13 | * Telekom Deutschland GmbH, Nokia | * 33.501 | * 0450 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183688 | * Adopting more normative language in clause 13 | * Telekom Deutschland GmbH, Nokia | * 33.501 | * 0450 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183467 | * CR on Secondary Re-authentication | * Huawei, HiSilicon | * 33.501 | * 0451 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183661 | * CR on Secondary Re-authentication | * Huawei, HiSilicon | * 33.501 | * 0451 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183469 | * Verification of PLMN ID in N32 message | * Huawei, Hisilicon | * 33.501 | * 0452 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183639 | * Verification of PLMN ID in N32 message | * Huawei, Hisilicon | * 33.501 | * 0452 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * not pursued |
| * S3-183474 | * Solution for UE Parameters Update via UDM Control Plane Procedure | * Huawei, Hisilicon | * 33.501 | * 0453 | * - | * Rel-15 | * B | * 5GS\_Ph1-SEC | * merged |
| * S3-183476 | * Clarification on interworking | * Huawei, Hisilicon | * 33.501 | * 0454 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183680 | * Clarification on interworking | * Huawei, Hisilicon | * 33.501 | * 0454 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183478 | * Update on access token in roaming scenario | * Huawei, Hisilicon | * 33.501 | * 0455 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183743 | * Update on access token in roaming scenario | * Huawei, Hisilicon | * 33.501 | * 0455 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183479 | * Remove the shared secret based token protection mechanism from the token related procedure | * Huawei, Hisilicon | * 33.501 | * 0456 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * not pursued |
| * S3-183480 | * CR to TS 33.501 regarding N32-f key hierarchy | * China Mobile | * 33.501 | * 0457 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183499 | * Shift of text from SEPP intro to subclause | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0458 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183690 | * Shift of text from SEPP intro to subclause | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0458 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183500 | * Clarification to protection scheme identifier | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0459 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183693 | * Clarification to protection scheme identifier | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0459 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183501 | * Clarification to the transfer of authentication success result to the UDM | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0460 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183502 | * Intro of subclauses to clause 6.12.2 | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0461 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * not pursued |
| * S3-183503 | * Correction of formatting error | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0462 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * not pursued |
| * S3-183504 | * Alignment on KEY | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0463 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183505 | * Alignment on Home Network Public Key | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0464 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183694 | * Alignment on Home Network Public Key | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0464 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183522 | * N32: remove redundant references to encrypted IEs | * Ericsson | * 33.501 | * 0465 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183685 | * N32: remove redundant references to encrypted IEs | * Ericsson | * 33.501 | * 0465 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183523 | * pSEPP-pNF authentication | * Ericsson | * 33.501 | * 0466 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183540 | * Editorial corrections in 13.2 | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0467 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183689 | * Editorial corrections in 13.2 | * Nokia, Nokia Shanghai Bell,Huawei | * 33.501 | * 0467 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183547 | * Security between SEPP and IPX | * Nokia, Nokia Shanghai Bell, Telekom Deutschland GmbH | * 33.501 | * 0468 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183686 | * Security between SEPP and IPX | * Nokia, Nokia Shanghai Bell, Telekom Deutschland GmbH | * 33.501 | * 0468 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183549 | * Two parallel N32-c connections between SEPPs | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0469 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183687 | * Two parallel N32-c connections between SEPPs | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0469 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183554 | * Correction to Key hierarchy diagram | * Samsung | * 33.501 | * 0470 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183678 | * Correction to Key hierarchy diagram | * Samsung | * 33.501 | * 0470 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183556 | * Corrections to KSEAF derivation in Key distribution and derivation | * Samsung | * 33.501 | * 0471 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183566 | * NF-SEPP TLS handling | * Ericsson India Private Limited | * 33.501 | * 0472 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183601 | * Handling of NAS COUNTs | * Ericsson | * 33.501 | * 0473 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183674 | * Handling of NAS COUNTs | * Ericsson | * 33.501 | * 0473 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183603 | * NG-RAN – clause 6.9.2.2 | * Ericsson | * 33.501 | * 0474 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183644 | * NG-RAN – clause 6.9.2.2 | * Ericsson | * 33.501 | * 0474 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183670 | * NG-RAN – clause 6.9.2.2 | * Ericsson | * 33.501 | * 0474 | * 2 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183604 | * NG-RAN – clause 6.9.2.3.3 | * Ericsson | * 33.501 | * 0475 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183645 | * NG-RAN – clause 6.9.2.3.3 | * Ericsson | * 33.501 | * 0475 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183671 | * NG-RAN – clause 6.9.2.3.3 | * Ericsson | * 33.501 | * 0475 | * 2 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183605 | * NG-RAN – clause 6.9.2.3.4 | * Ericsson | * 33.501 | * 0476 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183646 | * NG-RAN – clause 6.9.2.3.4 | * Ericsson | * 33.501 | * 0476 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183672 | * NG-RAN – clause 6.9.2.3.4 | * Ericsson | * 33.501 | * 0476 | * 2 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183614 | * Network control of sending S-NSSAIs in the RRC signalling | * Qualcomm Incorporated | * 33.501 | * 0477 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * not pursued |
| * S3-183616 | * Addressing possible security context mismatch on non-3GPP acces when multiply registered on one PLMN | * Qualcomm Incorporated | * 33.501 | * 0478 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * not pursued |
| * S3-183618 | * Corrections on the number of bits of downlink NAS COUNT value to be delivered in the 5GS to EPS handover procedure | * Qualcomm Incorporated | * 33.501 | * 0479 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183619 | * Clarification on storing the selected EPS NAS algorithms | * Qualcomm Incorporated | * 33.501 | * 0480 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183621 | * Clarification on RRC Inactive procedure support by ng-eNB | * Qualcomm Incorporated | * 33.501 | * 0481 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183665 | * Clarification on RRC Inactive procedure support by ng-eNB | * Qualcomm Incorporated | * 33.501 | * 0481 | * 1 | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183622 | * NR-NR Dual Connectivity | * Qualcomm Incorporated | * 33.501 | * 0482 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * merged |
| * S3-183623 | * KgNB derivation in N2 handover | * Qualcomm Incorporated | * 33.501 | * 0483 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183624 | * Security mechanism for UE Parameters Update via UDM Control Plane Procedure | * Qualcomm Incorporated | * 33.501 | * 0484 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * revised |
| * S3-183742 | * Security mechanism for UE Parameters Update via UDM Control Plane Procedure | * Qualcomm Incorporated,Huawei | * 33.501 | * 0484 | * 1 | * Rel-15 | * B | * 5GS\_Ph1-SEC | * agreed |
| * S3-183625 | * Clarifications to SUPI and SUCI | * Qualcomm Incorporated | * 33.501 | * 0485 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * withdrawn |
| * S3-183633 | * Resolution of Editor’s note on wildcard certificates in S3-183441 | * Nokia, Nokia Shanghai Bell, Telekom Deutschland GmbH | * 33.501 | * 0486 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * not pursued |
| * S3-183638 | * Scenarios that require generation of telescopic FQDN in SEPP | * Nokia, Nokia Shanghai Bell | * 33.501 | * 0487 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * not pursued |
| * S3-183673 | * Aligning the description of the initial NAS security procedures based on the CT1 agreements | * Qualcomm Incorporated,ZTE | * 33.501 | * 0488 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183682 | * Inter PLMN routing | * Nokia | * 33.501 | * 0489 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183683 | * Verification of PLMNid by the receiving SEPP | * Deutsche Telekom | * 33.501 | * 0490 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183692 | * Maximum output size of SUPI concealment scheme | * Ericsson | * 33.501 | * 0491 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183667 | * Support of UP security policy in ng-eNB | * Ericsson | * 33.501 | * 0492 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183679 | * Update of EAP-AKA’ reference to make it compatible with 5G | * Ericsson | * 33.501 | * 0493 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183790 | * Clarifications to SUPI and SUCI | * Qualcomm,Nokia | * 33.501 | * 0494 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |
| * S3-183797 | * KgNB derivation in EPS to 5GS handover | * Qualcomm Incorporated | * 33.501 | * 0495 | * - | * Rel-15 | * F | * 5GS\_Ph1-SEC | * agreed |

## Annex C: Lists of liaisons

### C1: Incoming liaison statements

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Document | Original | Title | From | Decision | Reply in |
| * S3-183260 |  | * Reply LS on Control Plane Solution for Steering of Roaming in 5GS | * C1-186841 | * noted |  |
| * S3-183261 |  | * Reply LS on the Impacts of increasing the MAC-I and NAS-MAC size | * R2-1816012 | * noted |  |
| * S3-183262 |  | * Reply LS on LS on the Impacts of increasing the MAC-I and NAS-MAC size | * C1-186961 | * noted |  |
| * S3-183263 |  | * LS on Observations from 2nd MCPTT Plugtests | * C1-186964 | * noted |  |
| * S3-183264 |  | * Reply LS on maximum output size of SUPI concealment schemes | * C1-186992 | * replied to | * S3-183658 |
| * S3-183265 |  | * LS on Scenarios with multiple registrations to the same AMF | * C1-186993 | * noted |  |
| * S3-183266 |  | * Reply LS on inclusion of selected PLMN into the complete message | * C1-186994 | * noted |  |
| * S3-183267 |  | * Reply LS on initial NAS security agreements | * R2-1816022 | * noted |  |
| * S3-183268 |  | * LS on initial NAS message protection | * C1-186995 | * replied to | * S3-183741 |
| * S3-183269 |  | * LS on EAS-C&U support | * C3-186313 | * postponed | * - |
| * S3-183270 |  | * LS on security method negotiation | * C3-186335 | * replied to | * S3-183795 |
| * S3-183271 |  | * LS on API invoker onboarding | * C3-186414 | * noted | * S3-183559 |
| * S3-183272 |  | * LS on N32 error signalling | * C4-187145 | * noted |  |
| * S3-183273 |  | * Reply LS on Maximum output size of SUPI concealment schemes | * C4-187633 | * replied to | * S3-183658 |
| * S3-183274 |  | * LS on Control Plane Solution for Steering of Roaming in 5GS | * CP-182234 | * noted |  |
| * S3-183275 |  | * Response to 3GPP SA2 liaison S2-189038 on ‘general status of work’ | * BBF | * postponed |  |
| * S3-183276 |  | * LS to 3GPP TSG-SA WG6 on Use of ITS Dedicated Spectrum within V2X UE | * ETSI TC ITS | * noted |  |
| * S3-183277 |  | * LS on Joint ETSI - OSA Workshop: Open Implementations & Standardization | * ETSI | * noted |  |
| * S3-183278 |  | * Observations on standards and technical constraints from 2nd MCPTT Plugtests | * ETSI CTI | * noted |  |
| * S3-183279 |  | * Reply LS on " LS on Using same counter in EDCE5" | * R2-1816010 | * noted |  |
| * S3-183280 |  | * Reply LS on security requirements for RRC connection release | * R2-1816053 | * noted | * S3-183375 |
| * S3-183281 |  | * LS on security requirements for Integrity protection for DRBs in MR-DC | * R2-1816054 | * replied to | * S3-183660 |
| * S3-183282 |  | * Reply LS on devices behind 5G-RG accessing the 5GC | * S2-1810989 | * noted |  |
| * S3-183283 |  | * Reply LS on Secondary Re-Authentication | * S2-1811431 | * noted |  |
| * S3-183284 |  | * Reply LS on Clarifications on SUPI definition and NAI format | * S2-1811525 | * replied to | * S3-183662 |
| * S3-183285 |  | * LS Reply on Control Plane Solution for Steering of Roaming in 5GS | * GSMA | * noted |  |
| * S3-183286 |  | * LS on SG17 work item X.5Gsec-q: Security guidelines for applying quantum-safe algorithms in 5G systems | * ITU-T SG17 | * replied to | * S3-183654 |
| * S3-183287 |  | * Reply LS on initial NAS security agreements | * S2-1811568 | * replied to | * S3-183659 |
| * S3-183288 |  | * Reply LS on 5WWC status of work and interim agreements | * S2-1811575 | * noted |  |
| * S3-183289 |  | * LS on separate HSS and UDM and security credentials storage | * S2-1811603 | * replied to | * S3-183834 |
| * S3-183706 |  | * LS on IAB security | * R2-1818748 | * replied to | * S3-183711 |
| * S3-183793 |  | * Reply-LS on work item "X.5Gsec-q" | * ETSI TC Cyber WG QSC | * noted |  |
| * S3-183794 |  | * Liaison Statement to ITU-T SG17: Response to proposal for ITU-T SG17 question on quantum-safe communication | * ETSI TC Cyber WG QSC | * noted |  |
| * S3-183832 |  | * Reply LS on UP Integrity Protection for Small Data in Early Data Transfer | * R3-187230 | * noted |  |
| * S3-183833 |  | * Reply LS on UP Integrity Protection for Small Data in Early Data Transfer | * R2-1818666 | * noted |  |

### C2: Outgoing liaison statements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Document | Title | To | Cc | reply to i/c LS |
| * S3-183652 * S3‑183652 | * LS to RAN23 on UP Integrity Protection for Small Data in Early Data Transfer | * RAN2, * RAN3 | * - | * - |
| * S3-183654 | * Reply LS to ITU-T SG17 on X.5Gsec-q study | * ITU-T SG17 | * ETSI TC Cyber | * S3-183286 |
| * S3-183658 | * Response LS on maximum output size of SUPI concealment schemes | * CT1,CT4 | * SA2,RAN2 | * S3-183273,S3-183264 |
| * S3-183659 | * Reply to:LS on initial NAS security agreements | * SA2,CT1 | * RAN2,RAN3,SA | * S3-183287 |
| * S3-183660 | * Reply LS on security requirements for Integrity protection for DRBs in MR-DC | * RAN2 | * - | * S3-183281 |
| * S3-183662 | * Reply to: Reply LS on Clarifications on SUPI definition and NAI format | * SA2,CT4 | * CT1,CT6 | * S3-183284 |
| * S3-183711 | * Reply to: LS on IAB security | * RAN2 | * RAN3 | * S3-183706 |
| * S3-183715 | * LS on Control Plane Solution for Steering of Roaming in 5GS | * SA,CT1 | * CT4,CT6,CT |  |
| * S3-183717 | * LS on authentication of group of IoT devices | * SA1 | * - |  |
| * S3-183720 | * LS to GSMA on mitigation of the charging fraud attack | * GSMA FASG | * - |  |
| * S3-183741 | * LS on initial NAS message protection | * CT1 | * SA2 | * S3-183268 |
| * S3-183756 | * LS to SAGE on 256bit algorithms | * ETSI SAGE | * ETSI TC CYBER QSC |  |
| * S3-183785 | * LS on FN-RG authentication and related questions | * SA2 | * - |  |
| * S3-183789 | * LS on verification of PLMN-ID in the SEPP | * CT3,CT4 | * - |  |
| * S3-183795 | * LS on Security method negotiation | * CT3 | * SA6 | * S3-183270 |
| * S3-183834 | * Reply LS on Separate HSS and UDM and security credentials storage | * SA2 | * - | * S3-183289 |

## Annex D: List of agreed/approved new and revised Work Items

|  |  |  |  |
| --- | --- | --- | --- |
| Document | Title | Source | new/revised |
| * S3-183718 | * New SID on User Plane Integrity Protection | * VODAFONE Group Plc | * SID new |
| * S3-183722 | * Security Impacts of Virtualisation | * BT plc | * SID new |
| * S3-183745 | * New SID on authentication enhancements in 5GS | * Ericsson | * SID new |
| * S3-183755 | * New SID on LTKUP Detailed Solutions | * VODAFONE Group Plc | * SID new |
| * S3-183739 | * New WID on security aspects of single radio voice continuity from 5G to 3G | * China Unicom, Huawei, HiSilicon, ZTE, CATT, OPPO, CATR | * WID new |

## Annex E: List of draft Technical Specifications and Reports

|  |  |  |  |
| --- | --- | --- | --- |
| Document | Spec | vers | Doc title |
| * S3-183311 | * 33.819 | * 0.0.0 | * VERTICAL\_LAN\_SEC skeleton |
| * S3-183506 | * 33.818 | * 0.0.0 | * Skeleton of TR 33.818 |
| * S3-183607 | * 33.516 | * 0.1.0 | * draft TS 33.516 (AUSF SCAS) |
| * S3-183634 | * 33.127 | * 1.1.0 | * TS 33 127 v110 |
| * S3-183697 | * 33.511 | * 0.3.0 | * Draft TS 33.511 |
| * S3-183700 | * 33.512 | * 0.4.0 | * draft TS 33.512 |
| * S3-183702 | * 33.514 | * 0.3.0 | * Draft TS 33.514 |
| * S3-183703 | * 33.517 | * 0.1.0 | * Draft TS 33.517 |
| * S3-183704 | * 33.518 | * 0.1.0 | * Draft TS 33.518 |
| * S3-183705 | * 33.519 | * 0.2.0 | * Draft TS 33.519 |
| * S3-183724 | * 33.855 | * 1.3.0 | * Draft TR 33.855 |
| * S3-183726 | * 33.815 | * 0.2.0 | * Draft TR 33.815 |
| * S3-183729 | * 33.856 | * 1.2.0 | * Draft TR 33.856 |
| * S3-183735 | * 33.835 | * 0.2.0 | * Draft TR 33.835 |
| * S3-183753 | * 33.834 | * 0.9.0 | * Draft TR 33.834 |
| * S3-183758 | * 33.841 | * 0.7.0 | * Draft TR 33.841 |
| * S3-183774 | * 33.861 | * 0.3.0 | * Draft TR 33.861 |
| * S3-183784 | * 33.807 | * 0.2.0 | * Draft TR 33.807 |
| * S3-183792 | * 33.808 | * 0.2.0 | * Draft TR 33.808 |
| * S3-183799 | * 33.809 | * 0.1.0 | * Draft TR 33.809 |
| * S3-183807 | * 33.813 | * 0.1.0 | * Draft TR 33.813 |
| * S3-183812 | * 33.814 | * 0.1.0 | * Draft TR 33.814 |
| * S3-183816 | * 33.825 | * 0.2.0 | * Draft TR 33.825 |
| * S3-183825 | * 33.818 | * 0.1.0 | * Draft TR 33.818 |
| * S3-183826 | * 33.819 | * 0.1.0 | * Draft TR 33.819 |

## Annex F: List of participants

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| TITLE | Family Name | Given Name | Employer Organization | Employer Category Code | Organization Represented | Organization Represented Category Code |
| Mr. | Alfarhan | Faris | InterDigital, Inc. | ETSI | InterDigital, Inc. | ETSI |
| Mr. | Ang | Peter | Qualcomm Korea | TTA | Qualcomm Finland RFFE Oy | ETSI |
| Dr. | Arumugam | Sivabalan | NEC Europe Ltd | ETSI | NEC Corporation | ARIB |
| Dr. | Baboescu | Florin | BROADCOM CORPORATION | ETSI | BROADCOM CORPORATION | ETSI |
| Mr. | Basu Mallick | Prateek | Lenovo Mobile Com. Technology | CCSA | Motorola Mobility UK Ltd. | ETSI |
| Mr. | Ben Henda | Noamen | Ericsson LM | ETSI | Ericsson Japan K.K. | ARIB |
| Mr. | Bernsen | John | Philips International B.V. | ETSI | Philips International B.V. | ETSI |
| Mr. | Blanchard | Colin | BT plc | ETSI | BT plc | ETSI |
| Mr. | Bykampadi | Nagendra | Nokia France | ETSI | Nokia Solutions & Networks (I) | TSDSI |
| Mr. | Cano Soveri | Mirko | ETSI | ETSI | ETSI | ETSI |
| Mr. | Canterbury | Mark | Tencastle Limited |  | National Technical Assistance | ETSI |
| Mr. | Cao | Yisheng | China Mobile Com. Corporation | CCSA | China Mobile Com. Corporation | CCSA |
| Mr. | Castagno | Mauro | TELECOM ITALIA S.p.A. | ETSI | TELECOM ITALIA S.p.A. | ETSI |
| Mr. | Cichonski | Jeffrey | NIST | ATIS | NIST | ATIS |
| Dr. | Cornily | Jean Michel | Orange | ETSI | Orange Romania | ETSI |
| Mr. | De Kievit | Sander | NEC Corporation | ETSI | NEC Corporation | ETSI |
| Dr. | Dhanda | Mungal Singh | Qualcomm UK Ltd | ETSI | QUALCOMM JAPAN LLC. | ARIB |
| Mr. | Dolly | Martin | AT&T | ATIS | AT&T | ATIS |
| Mr. | Domínguez Tijero | Enrique | ESA | ETSI | ESA | ETSI |
| Miss | Driscoll | Florence | NCSC | ETSI | NCSC | ETSI |
| Mr. | El Hamss | Aata | InterDigital Communications | ATIS | InterDigital Belgium. LLC | ETSI |
| Dr. | Escott | Adrian | Qualcomm CDMA Technologies | ETSI | Qualcomm UK Ltd | ETSI |
| Mr. | Evans | Tim P. | VODAFONE Group Plc | ETSI | VODAFONE Group Plc | ETSI |
| Mr. | Feng | Luo | China Mobile (Suzhou) Software | CCSA | China Mobile (Suzhou) Software | CCSA |
| Mr. | Ferdi | Samir | InterDigital, Inc. | ETSI | InterDigital Europe. Ltd. | ETSI |
| Dr. | Gaal | Peter | Qualcomm Incorporated | ATIS | Qualcomm CDMA Technologies | ETSI |
| Mr. | Gamishev | Todor | Orange | ETSI | Orange | ETSI |
| Mr. | Gowda | Pradeep | Qualcomm Incorporated | ATIS | Qualcomm Incorporated | ATIS |
| Dr. | Granboulan | Louis | Airbus DS SLC | ETSI | Airbus DS SLC | ETSI |
| Dr. | Grime | Matthew | NCSC | ETSI | NCSC | ETSI |
| Mr. | Guo | Longhua | CHENGDU TD TECH LTD. | CCSA | CHENGDU TD TECH LTD. | CCSA |
| Ms. | Guo | Shu | Apple Computer Trading Co. Ltd | CCSA | Apple Computer Trading Co. Ltd | CCSA |
| Mr. | Guttman | Erik | Samsung R&D Institute UK | ETSI | Samsung R&D Institute UK | ETSI |
| Mr. | Hall | Edward | Qualcomm UK Ltd | ETSI | Qualcomm Tech. Netherlands B.V | ETSI |
| Mr. | Hoang | Duc Tuong | InterDigital, Inc. | ETSI | Interdigital Asia LLC | TTA |
| Miss | Jerichow | Anja | Nokia Germany | ETSI | Nokia Germany | ETSI |
| Dr. | Jost | Christine | Ericsson LM | ETSI | Ericsson España S.A. | ETSI |
| Dr. | Keesmaat | Iko | TNO | ETSI | KPN N.V. | ETSI |
| Dr. | Kim | Joonwoong | LG Electronics France | ETSI | LG Electronics Deutschland | ETSI |
| Mr. | Kohalmi | Steve | Juniper Networks | ETSI | Juniper Networks | ETSI |
| Mr. | Kolekar | Abhijeet | Intel Corporation (UK) Ltd | ETSI | Intel China Ltd. | CCSA |
| Mr. | Kujanen | Juha | Ericsson LM | ETSI | Ericsson Hungary Ltd | ETSI |
| Dr. | Kunz | Andreas | Motorola Mobility Germany GmbH | ETSI | Motorola Mobility Germany GmbH | ETSI |
| Mr. | Leadbeater | Alex | BT plc | ETSI | BT plc | ETSI |
| Dr. | Lee | Soo Bum | Qualcomm Incorporated | ATIS | Qualcomm Austria RFFE GmbH | ETSI |
| Mr. | Lee | Xiaoyang | Office of Emergency Com. | ATIS | Office of Emergency Com. | ATIS |
| Dr. | Lei | Zander (Zhongding) | HuaWei Technologies Co., Ltd | CCSA | Huawei Tech.(UK) Co., Ltd | ETSI |
| Mr. | Li | He | Huawei Technologies Co. Ltd. | ETSI | Huawei Device Co., Ltd | CCSA |
| Mr. | Li | Xiangjun | China Mobile Com. Corporation | CCSA | China Mobile E-Commerce Co. | CCSA |
| Mr. | Libunao | Gerardo | Verizon UK Ltd | ETSI | Verizon UK Ltd | ETSI |
| Mr. | Liu | Chao | China Mobile E-Commerce Co. | CCSA | CMDI | CCSA |
| Mr. | Loehr | Joachim | Lenovo Mobile Com. Technology | CCSA | Lenovo (Beijing) Ltd | CCSA |
| Mr. | Lopes | Luis | Qualcomm UK Ltd | ETSI | Qualcomm Europe Inc.(Italy) | ETSI |
| Mr. | Lottin | Philippe | Orange | ETSI | Orange Spain | ETSI |
| Miss | Lu | Wei | Nokia Korea | TTA | Nokia Korea | TTA |
| Mr. | Luft | Achim | IPCom GmbH & Co.KG | ETSI | IPCom GmbH & Co.KG | ETSI |
| Mr. | Martin | Jesus | TELEFONICA S.A. | ETSI | TELEFONICA S.A. | ETSI |
| Mr. | Mayer | Georg | HuaWei Technologies Co., Ltd | CCSA | HuaWei Technologies Co., Ltd | CCSA |
| Mr. | Mellqvist | Anders | Sony Europe Limited | ETSI | Sony Europe Limited | ETSI |
| Mr. | Miller | James | Interdigital Asia LLC | TTA | InterDigital Germany GmbH | ETSI |
| Mr. | Minokuchi | Atsushi | NTT DOCOMO INC. | TTC | NTT DOCOMO INC. | TTC |
| Dr. | Montojo | Juan | Qualcomm CDMA Technologies | ETSI | QUALCOMM Europe Inc. - Spain | ETSI |
| Dr. | Muhanna | Ahmad | Huawei Technologies Sweden AB | ETSI | HiSilicon Technologies Co. Ltd | CCSA |
| Mr. | Nair | Suresh | Nokia Germany | ETSI | Nokia | ATIS |
| Mr. | Nakatogawa | Tsuyoshi | NHK | ARIB | NHK | ARIB |
| Mr. | Nasielski | Jack | Qualcomm CDMA Technologies | ETSI | Qualcomm Europe Inc.(France) | ETSI |
| Dr. | Neal | Adrian | VODAFONE Group Plc | ETSI | Vodafone Ireland Plc | ETSI |
| Dr. | Ni | Jiqing | China Mobile Com. Corporation | CCSA | China Mobile Group Device Co. | CCSA |
| Mr. | Normann | Henrik Andreas | Ericsson LM | ETSI | Ericsson GmbH, Eurolab | ETSI |
| Mr. | Oishi | Tateo | Sony Europe Limited | ETSI | Sony Corporation | ARIB |
| Mr. | Palanigounder | Anand | Qualcomm UK Ltd | ETSI | Qualcomm India Pvt Ltd | TSDSI |
| Mrs. | Pauliac | Mireille | Gemalto N.V. | ETSI | Gemalto N.V. | ETSI |
| Dr. | Pearce | Stephen | VT iDirect Solutions Ltd | ETSI | VT iDirect Solutions Ltd | ETSI |
| Dr. | Prasad | Anand | NEC Europe Ltd | ETSI | NEC Europe Ltd | ETSI |
| Mr. | Qi | Minpeng | China Mobile Com. Corporation | CCSA | China Mobile (Hangzhou) Inf. | CCSA |
| Mrs. | Quan | Haiyang | CATT | CCSA | DATANG TELECOM INTERNATIONAL | CCSA |
| Mr. | Rajadurai | Rajavelsamy | Samsung R&D Institute UK | ETSI | Samsung Electronics GmbH | ETSI |
| Dr. | Rico Alvarino | Alberto | Qualcomm Incorporated | ATIS | Qualcomm Wireless GmbH | ETSI |
| Mr. | RIES | Lionel | ESA | ETSI | ESA | ETSI |
| Mrs. | Rong | Wu | Huawei Technologies Co. Ltd. | ETSI | Huawei Technologies Sweden AB | ETSI |
| Mr. | Rudolph | Hans Christian | Deutsche Telekom AG | ETSI | Telekom Deutschland GmbH | ETSI |
| Mr. | Sällberg | Krister | Ericsson LM | ETSI | Ericsson Telecomunicazioni SpA | ETSI |
| Dr. | Sarkis | Gabi | Qualcomm Incorporated | ATIS | Qualcomm Korea | TTA |
| Mr. | Schumacher | Greg | SPRINT Corporation | ETSI | Sprint Corporation | ATIS |
| Mr. | Seidel | Eiko | Nomor Research GmbH | ETSI | Nomor Research GmbH | ETSI |
| Mr. | Sha | Wenhao | SRTC | CCSA | SRTC | CCSA |
| Mr. | Shitomi | Takuya | NHK | ARIB | NHK | ARIB |
| Mr. | Tangudu | Narendranath Durga | Samsung R&D Institute India | TSDSI | BEIJING SAMSUNG TELECOM R&D | CCSA |
| Dr. | Targali | Yousif | T-Mobile USA Inc. | ATIS | T-Mobile USA Inc. | ATIS |
| Mr. | Tossou | Bruno | Orange | ETSI | Orange UK | ETSI |
| Mr. | Vogedes | Jerome | NextNav | ATIS | NextNav | ATIS |
| Mr. | Vujcic | Dragan | IDEMIA | ETSI | IDEMIA | ETSI |
| Mr. | Wang | Ke | CATT | ETSI | GOHIGH DATA NETWORKS TECH. | CCSA |
| Dr. | Wang | Yong | HuaWei Technologies Co., Ltd | CCSA | TD Tech Ltd | CCSA |
| Mr. | Watts | Dylan | InterDigital, Inc. | ETSI | InterDigital CE Intermediate | ETSI |
| Mr. | Wong | Marcus | Huawei Tech.(UK) Co., Ltd | ETSI | HuaWei Technologies Co., Ltd | CCSA |
| Mr. | Woodward | Tim | Motorola Solutions Danmark A/S | ETSI | Motorola Solutions Danmark A/S | ETSI |
| Mr. | Xia | Liang | China Mobile Com. Corporation | CCSA | China Mobile International Ltd | CCSA |
| Mr. | Xie | Zhenhua | ZTE Corporation | ETSI | ZTE Trunking Technology Corp. | CCSA |
| Miss | Xu | Hui | CATT | ETSI | CATT | ETSI |
| Mr. | Yoshizawa | Taka | NEC Europe Ltd | ETSI | NEC Corporation | TTC |
| Dr. | Zhang | Dawei | Apple France | ETSI | Apple France | ETSI |
| Mr. | Zhao | Xuwen | HiSilicon Technologies Co. Ltd | CCSA | Huawei Technologies R&D UK | ETSI |
| Dr. | Zheng | Jianping | China Mobile Com. Corporation | CCSA | China Mobile M2M Company Ltd. | CCSA |
| Mr. | Zhou | Wei | CATT | CCSA | CATT | CCSA |
| Dr. | Zugenmaier | Alf | NTT DOCOMO INC. | TTC | DOCOMO Communications Lab. | ETSI |

## Annex G: List of future meetings

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Title | Start date | End date (OP) | Town | Country | Reference |
| * SA3#72-LI | * 2019-01-21 | * 2019-01-24 | * Sophia Antipolis | * FR | * S3-ah-34081 |
| * SA3#94 | * 2019-01-28 | * 2019-02-01 | * Kochi | * IN | * S3-94 |
| * SA3#94-AH | * 2019-03-11 | * 2019-03-15 | * Stockholm | * SW |  |
| * SA3#95 | * 2019-05-06 | * 2019-05-10 | * TBD | * US | * S3-95 |
| * SA3-Ad-Hoc | * 2019-06-24 | * 2019-06-28 | * Sapporo | * JP | * S3-ah-40149 |
| * SA3#96 | * 2019-08-26 | * 2019-08-30 | * Wroclaw | * PL | * S3-96 |
| * SA3-Ad-Hoc | * 2019-10-14 | * 2019-10-18 | * TBD | * CH | * S3-ah-40150 |
| * SA3#97 | * 2019-11-18 | * 2019-11-22 | * Reno | * US | * S3-97 |