Guidelines for Rel-19 ASN.1 review

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# Revison history

v00 First R19 version, based on R18 guideline and R2-2505665 “ASN1 review plan”

v01 Added LTE WI list.

V02 In NR WI list, corrected company for UECap.  
 In NR WI list, deleted WI IoTNTN, since no NR RRC impact.  
 In LTE WI list, added WI for LTE TN to NR NTN IDLE.

# General

* RIL means “Review Issue”, the L probably means “List”, but yet we (RAN2) call the finding/error/problem a “RIL”.

We will use this FTP folder to store files in this review.

[Directory Listing /ftp/Email\_Discussions/RAN2/[Misc]/ASN1 review/Rel-19 2025-09](https://www.3gpp.org/ftp/Email_Discussions/RAN2/%5BMisc%5D/ASN1%20review/Rel-19%202025-09)

The review will be run by companies inserting their RILs into Review files and review comments into Comments files (always one-to-one):

* Companies may insert new RILs for identified issues/problems.
* Companies may insert comments on existing RILs, e.g. to indicate alternative solutions.

Typically, each WI RRC CR rapporteur is expected to provide a “WI CR” with corrections for the RILs related to the WI. Companies that identified RILs are encouraged to cooperate offline with the WI RRC CR rapporteur. For RILs that impact multiple Wis, we will decide on case by case on CR to correct the issue.

# Overall process

1. RIL collection:
   1. Use RIL tags inline in the **Review file** (spec), using Track changes “on”. MS Word comments in bubbles are not used. The RIL tag indicates the RIL Id and the WI code.  
        
      Example:  
      The UE initiates the procedure when upper layers or AS (when responding to RAN paging, upon triggering RNA[RIL]: Exxx, WI-code updates while the UE is in RRC\_INACTIVE, upon requesting multicast reception as specified in clause 5.3.13.1d, for NR sidelink communication/discovery/V2X sidelink communication as specified in clause 5.3.13.1a, for
   2. RIL details (RIL header/details, description and comments) are kept in a separate **Comments file**.
2. Review of WI CRs  
   R19 ASN.1 review will start by reviewing the agreed RRC WI CRs.
   1. Copies of the agreed WI CRs (now Review files) are stored in ASN.1 review FTP folders and will be used as Review files
   2. RIL descriptions and comments are collected in one Comments file per WI CR.
3. Review of RRC spec  
   When RRC spec is published after September plenary, a joint review of the full RRC spec is started.
   1. Split the RRC spec in smaller sub-parts per sections (Review files).
      1. Each Review file sub-part has a RIL Comments file
      2. The file lock for a Review file (sub-part) covers also the Comments file.
   2. RRC Rapp moves RILs from WI CR Review and RIL Comments files to the new Review files and RIL comments files, and the review continues.
   3. The “old” agreed WI CRs are no longer used for the review.
   4. RRC Rapp will at the end of the review concatenate the Review Files (sub-parts) to a single Review File and a single Comments file (covering the full spec).   
      RIL headers will be exported to XL file as usual (mainly for follow up purpose).
4. WI CRs  
   WI CR editors create and maintain new WI CRs (based on v19.0.0) which they continuously update and implement resolved RILs, and submit to RAN2 Nov meeting. RRC spec rapporteur submits one CR to RAN2 Nov meeting to address clashes and miscellaneous cross-WI issues. Usually, the WI CRs handle most issues.
   1. Store new WI CRs in ASN.1 review FTP folder.
5. There is only one “ASN.1 review phase”, since we will review v19.0.0 only. ASN.1 review continues over RAN2#131bis as a single phase. At RAN2#131bis, WI sessions and common sessions aim to resolve RILs.
6. RRC spec rapp collects ASN1 deviations from RAN1/RAN4 parameter list (with support from WI CI editors). RAN2 sends LS from RAN2 Nov meeting.
7. RAN2 submits agreed WI CRs to December plenary.

# Review execution

This section provides some further guidance on how the review is executed.

1. Typically, the company that introduces the RIL (**RIL source company**) is the RIL leader.
2. The RIL is introduced by the following two actions:
   1. Insert a tag [RIL]: Exxx, WI-code in the Review file at the point of the issue.
      1. Use tracked changes ON!
   2. Provide RIL comments in the Comments file
3. The RIL source company is encouraged to provide a sketch on solution in the Comments file.
4. The RIL source company indicates in the RIL whether the solution is expected to be
   1. Captured in WI CR (most common case)
      1. [Tdoc] field is left empty.
      2. **WI CR editors** are expected monitor the review file for RILs of the WI.
   2. Specific tdoc is needed for the solution (only for more complicated cases).
      1. RIL source company adds “R2-24xxxxx” to the RIL field [Tdoc]
5. Companies that have concern on the solution of a RIL should enter comments in the Comments file, and they should offline contact the RIL source company.  
   Other companies will recognize there is an offline discussing that they can hook on to, and they may (but need not) put own comments in the RIL Comments file.   
   Coordination will happen in offline mail thread (with draft documents stored in ftp folder if needed). This discussion should also include the WI CR editor.
   1. Outcome of this offline discussion could be
      1. Correction is captured in WI CR (most common case).
      2. Specific tdoc is needed (in some cases). Preferably this should be a single tdoc (also with solution alternatives, and co-sourced by multiple companies).
      3. It is wise to involve the WI CR editor in this offline.
      4. The outcome should be captured inside the RIL in the Comments file by the WI Source company or WI CR editor, as agreed. This ensures transparency.
6. Companies are encouraged to provide early drafts with TPs on solutions, so that other companies can check whether the solution is agreeable. Put draft TP directly in Comments file, or else the **Offline discussions** ftp folder for this purpose, and add subfolder per WI code (e.g. Gen, MBS, MUSIM, …).
7. At the end of the phase focused on introducing RILs to the Review file, **WI CR editors** will update the RRC review file for the WI-specific RILs, **Status** field (currently set to “ToDo”), as follows:
   1. **PropAgree**, for RIL where the proposed solution is implemented in the WI CR
   2. **PropReject**, for RIL where you reject the proposal made in the RIL
   3. Remaining RILs are left as **ToDo**. They are typically expected to be covered in specific tdoc as indicated in the RIL and be handled in the WI session at the RAN2 meeting.
   4. **Duplicate**, for RIL that covers same issue as another RIL.  
      Good practice is to add some text on the outcome of the RIL, (e.g. from offline discussions, who will provide tdoc, …) in the RIL Comments field.
   5. The RRC spec rapporteur will take care of RILs with WI codes Gen and MULTI
   6. The RRC spec rapporteur will provide Excel file with all RILs in table format to support this.
8. **WI CR editors** are asked do the following:
   1. Try to update the Status field and add further comments for WI specific RILs as much as possible in the Comments file (this may not be possible in all cases as companies may add comments until last minute).
   2. RRC Spec Rapp will upload RIL lists in excel format to the FTP folder now and then.
   3. Filter the WI-specific RIL comments from RIL excel list into **WI RIL List**) using macro and add rapporteur resolutions directly in the excel sheet (if not already added as part of step 7a).
   4. Submit to the RAN2 meeting the following:
      1. WI RIL list comments excel sheet per WI (from step 7b).
         1. At WI session, RAN2 is expected to agree on the outcome of the ASN.1 review (i.e. companies will confirm the RIL Status settings PropAgree/PropReject/Duplicate, or raise concern).
         2. This list can be used to track the status during the RAN2 meeting.
      2. WI CR with resolutions to the PropAgree RILs.

# Check out/in ASN.1 Review file:

To avoid parallel editing of the ASN.1 Review and Comments files, we use a simple (traditional…) check-out mechanism.

The checkout/in covers both the Review file and the Comments file.  
The following steps need to be followed:

1. **Create** a check-out file
   1. Name the file “vX is locked for editing.txt”, where X is the highest version of the Review file stored in the FTP folder. E.g. “v06 is locked for editing.txt”
   2. Insert your name and email i.e. <Delegate name (Delegate email)>, as only content in the file.
2. **Upload** this checkout file to the FTP folder.
   1. If your checkout file was successfully uploaded, you have now checked out the files.
3. **Download** the Review file vX and Comments filelocally to your disc, and **step** the version of the files from vX to v(X+1).
4. **Insert** your RILs and RIL comments into the Review and Comment files.
   1. For each RIL, Indicate the v(x+1) in the field **[File version]**.
5. **Upload** the updated Review and Comment files to the FTP folder.
   1. By this, you now allow others to check-out the Review file.
6. (We skip the sending of “check in” mails on RAN2 reflector, that we did in previous ASN.1 reviews.)

**NOTE** For this process to work effectively we ask that you **do not have file checked out for more than 1 hour** (implying you must do the review work and prepare the RILs “offline”, before checking out the Review file for editing)

# How to fill in the RIL fields in the Comments File

RIL-Comments template:

Xnnn

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| Xnnn |  |  |  |  |  |  |  |  |

**[Description]**:

**[Proposed Change]**:

**[Comments]**:

|  |  |  |
| --- | --- | --- |
| RIL Id | Number allocated by the company, **one/two letters + 3 digits**, e.g “E123”.  See list of company codes below. | |
| WI | Work Item   * Use code from list below. Should always be filled in. **Single WI code** for single-WI issue, see table below.   + Correction to be captured in WI-specific CR.   + If needed, discussed in RAN2 meeting WI session (agenda point). * **Multiple WI codes, e.g. “WI1, WI2”, in alphabetical order**   + Used if WIs are easily identified.   + Correction to be captured in general “Gen ASN1 CR” (or other CR upon decision)   + To be decided if the RIL discussed in RAN2 meeeting WI session(s) or General ASN.1 session. * **MULTI** for issue affecting multiple WIs.   + Indicate the concerned WIs in Description field, if applicable.   + Correction to be captured in general “Gen ASN1 CR” (or other CR upon decision)   + To be decided if the RIL discussed in RAN2 meeeting WI session(s) or General ASN.1 session. * **GEN** for ASN.1 general issue related to single WI or multiple WIs   + To be used for issues that need ASN.1 experts to conclude e.g. when     - Guidelines are missing or cannot be applied     - Existing solutions in RRC on similar issues cannot be re-used     - Relates to future evolution of the specification | |
| Class | Shall be set by the Delegate to value 1 or 2 (Class 0 issues are collected in separate file, see below).  **Class 0: Expected correction has no functional impact**  - Typo, minor wording improvement etc.  - ASN.1 field not following naming rules (e.g. incorrect suffix, capitalization, etc).  These minor corrections are not collected as RIL in Review file, but in separate Word document, see below.  **Class 1: Expected correction has functional impact but does not affect successful RRC PDU decoding**  - Incorrect/incomplete procedure text  - Incorrect/incomplete field description  - Unsuitable need code (e.g. Need M should be replaced with Need R)  **Class2: Expected correction affects successful RRC PDU decoding**  - Change a field from optional to mandatory or vice versa  - Change of the structure of an IE  - Addition of extension marker within an IE | |
| Title | Short one-line title/description. | |
| Tdoc | Add Tdoc number if the issue needs to be described and the solution is presented in separate Tdoc.  (or just “R2-24xxxxx” if no tdoc number yet allocated allocated) | |
| Delegate | Company(Delegate), e.g. Ericsson(Håkan) | |
| Misc | Leave empty now | |
| File version | Use this field to indicate the vX value of the new version of the Review file that you will upload. This allows us to easier detect recent updates to RILs in the review file. | |
| Status | Set to ToDo.  Rapporteurs may later change this status. | |
| Description | Describe the problem | Can copy spec text and use e.g. tracked changes to propose and discuss/comment.  Use a tag, e.g. [Company/delegate] for identification. |
| Proposed Change | Propose a change/solution |
| Comments | Comments added by other companies. |

# Class 0 issues

Class 0 issues shall be stored by the companies in the file **NR Rel-19 ASN.1 Editorials vX** by following this procedure:

To avoid parallel editing of this file, we use the usual simple check-out/check-in mechanism.   
The following steps need to be followed:

1. **Create** a check-out file
   1. Name the file “vX is locked for editing.txt”, where X is the highest version of the Editorials file stored in the FTP folder. E.g. “v06 is locked for editing.txt”
   2. Insert your name and email i.e. <Delegate name (Delegate email)>, as only content in the file.
2. **Upload** this checkout file to the FTP folder.
   1. If your checkout file was successfully uploaded, you have now checked out the Editorials file.
3. **Download** the Editorials file vX locally to your disc, and **step** the version of the Editorials file from vX to v(X+1).
4. **Insert** your draft changes into the Editorials file.
5. **Upload** the updated Editorials file to the FTP folder.
   1. By this, you now allow others to check-out the Editorials file.

**NOTE** For this process to work effectively we ask that you **do not have file checked out for more than 1 hour** (implying you must do the review work and prepare the RILs “offline”, before checking out the Editorials file for editing)

# Mails on RAN2 reflector

In mails sent on RAN2 reflector and in offline mails (e.g. related to specific RILs and Wis), use the following mail subject fields:

**[ASN1][NR][<WI code>]** Exxx, Eyyy

**[ASN1][LTE][<WI code>]** Exxxx, Eyyy

# Company identifiers

The following 1-letter identifiers are “reserved” by companies since earlier reviews, e.g. to form the RIL issue number.

Companies wishing to participate in the review can send mail to [hakan.l.palm@ericsson.com](mailto:hakan.l.palm@ericsson.com) to reserve their letter.

|  |  |
| --- | --- |
| **ID** | **Companies** |
| A | Apple |
| B | Lenovo |
| C | CATT |
| D | DOCOMO |
| E | Ericsson |
| F | Fujitsu |
| G | Google |
| H | Huawei |
| I | Intel |
| J | Sharp |
| K | ASUSTeK |
| L | LGE |
| M | Mediatek |
| N | Nokia |
| O | OPPO |
| P | CMCC |
| Q | QUALCOMM |
| R | Rapporteur |
| S | Samsung |
| T | Microelectronics Technology Inc. |
| U | China Unicom |
| V | Vivo |
| W | NEC |
| X | Xiaomi |
| Y | Toyota ITC |
| Z | ZTE |

# WI identifiers

The following identifiers need to be used when linking a certain RIL to the WI that is addressed.

* Please use the exact spelling of the WI code!   
  We will use these codes to filter per WI in RIL excel sheets.

If more than one WI is affected, please provide the list in the RIL according to the following format: **[WI]**: WI1, WI2, … (in alphabetical order, e.g. “MBS, SON, URLLC”).

## WI codes (NR)

|  |  |  |  |
| --- | --- | --- | --- |
| **WI Code** | **WI CR** | **TDoc** | **CR Editor Company** |
| GEN |  |  |  |
| Multi |  |  |  |
| AIML | AI/ML for NR air interface |  | Ericsson |
| LPWUS | Low-power wake-up signal and receiver for NR |  | Vivo |
| NES | Network Energy Saving Enh. |  | Ericsson |
| MOB | Mobility Enhancement Ph4 |  | Ericsson |
| XR | XR Enhancements Ph3 |  | Huawei |
| NTN | NTN for NR Ph3 |  | Ericsson |
| IoTNTN | IoT NTN Ph3 |  | Huawei |
| SONMDT | SON/MDT Ph4 |  | Ericsson |
| SBFD | Evolution of NR duplex operation: Sub-band full duplex (SBFD) |  | Huawei |
| MIMO | NR MIMO Phase 5 |  | Ericsson |
| SLRelay | NR sidelink multi-hop relay (“Rel-19 relay merged CR to 38.331”) |  | Huawei |
| IoTTDD | IoT-NTN TDD mode |  | Huawei |
| UECap | UE capabilities |  | Xiaomi |

## WI codes (LTE)

|  |  |  |  |
| --- | --- | --- | --- |
| **WI Code** | **WI CR** | **TDoc** | **CR Editor Company** |
| GEN |  |  |  |
| Multi |  |  |  |
| IoTNTN | IoT NTN Ph3 |  | Huawei |
| SONMDT | SON/MDT Ph4 |  | Huawei |
| IoTTDD | IoT-NTN TDD mode |  | Huawei |
| TerrBcast | LTE-based 5G Broadcast |  | Qualcomm |
| TEI | TEI |  |  |
| TNtoNRNTN | LTE TN to NR NTN IDLE mode mobility |  | CATT |