3GPP RAN WG2 Meeting #118-e R2-22xxxxx

eMeeting May 9th – 20th, 2022

Agenda Item: 6.10.3.1.1

Source: ZTE corporation,Sanechips

Title: Report of [POST118-e][111][NTN] 38.304 CR (ZTE)

Document for: Discussion, Decision

# Introduction

This document is intended address a subset of remaining idle mode open issues as per the following email discussion guidelines:

* [POST118-e][111][NTN] 38.304 CR (ZTE)

Scope: Update the 38.304 CR, reflecting the meeting agreements

Intended outcome: Agreeable 38.304 CR in R2-2206500

Deadline (for companies' feedback): **Thursday 2022-05-26 20:00 UTC**

Deadline (for final CR): Friday 2022-05-27 10:00 UTC

# Discussion

## Two options on capturing the cellBarredNTN

Two options have been provided on how to capture the usage of *cellBarredNTN* in 38.304:

### **Option 1**

Option 1-Start of change

5.3.1 Cell status and cell reservations

Cell status and cell reservations are indicated in the *MIB or SIB1* message as specified in TS 38.331 [3] by means of following fields:

- *cellBarred* (IE type: "barred" or "not barred")   
Indicated in *MIB* message. In case of multiple PLMNs or NPNs indicated in *SIB1*, this field is common for all PLMNs and NPNs.

- *cellBarred-NTN* (IE type: "barred" or "not barred")  
Indicated in SIB1 message. In case of multiple PLMNs or NPNs indicated in *SIB1*, this field is common for all PLMNs and NPNs. This field is only applicable to NTN-capable UEs.

- *cellBarredRedCap1Rx* (IE type: "barred" or "not barred")  
Indicated in *SIB1* message. In case of multiple PLMNs or NPNs indicated in *SIB1*, this field is common for all PLMNs and NPNs. This field is only applicable to RedCap UEs.

- *cellBarredRedCap2Rx* (IE type: "barred" or "not barred")  
Indicated in *SIB1* message. In case of multiple PLMNs or NPNs indicated in *SIB1*, this field is common for all PLMNs and NPNs. This field is only applicable to RedCap UEs.

- *cellReservedForOperatorUse* (IE type: "reserved" or "not reserved")   
Indicated in *SIB1* message*.* In case of multiple PLMNs or NPNs indicated in *SIB1*, this field is specified per PLMN or per SNPN.

- *cellReservedForOtherUse* (IE type: "true")   
Indicated in *SIB1* message. In case of multiple PLMNs indicated in *SIB1*, this field is common for all PLMNs.

*- cellReservedForFutureUse* (IE type: "true")   
Indicated in *SIB1* message. In case of multiple PLMNs or NPNs indicated in *SIB1*, this field is common for all PLMNs and NPNs.

NOTE 0: IAB-MT ignores the *cellBarred*, *cellReservedForOperatorUse, cellReservedForFutureUse,* and *intraFreqReselection* (i.e. treats *intraFreqReselection* as if it was set to *allowed*) as defined in TS 38.331 [3]. IAB-MT also ignores *cellReservedForOtherUse* for cell barring determination (i.e. NPN capable IAB-MT considers *cellReservedForOtherUse* for determination of an NPN-only cell) as defined in TS 38.331 [3].

- *iab-Support* (IE type: "true")  
Indicated in *SIB1* message. In case of multiple PLMNs or NPNs indicated in *SIB1*, this field is specified per PLMN or per SNPN.

Editor's note: Working assumption: A new bit, e.g. cellBarred-NTN, is introduced in SIB1 for NR-NTN. FFS on the expected UE behaviour upon reception of the new bit and the existing cellBarred.

When cell status is indicated as "not barred" and "not reserved" for operator use and not "true" for other use and not "true" for future use,

- UEs shall treat this cell as candidate during the cell selection and cell reselection procedures.

When cell broadcasts any CAG-IDs or NIDs and the cell status is indicated as "not barred" and "not reserved" for operator use and "true" for other use, and not "true" for future use:

- All NPN-capable UEs shall treat this cell as candidate during the cell selection and cell reselection procedures, other UEs shall treat this cell as if cell status is "barred".

When cell status is indicated as "true" for other use, and either cell does not broadcast any CAG-IDs or NIDs or does not broadcast any CAG-IDs and the UE is not operating in SNPN Access Mode,

- The UE shall treat this cell as if cell status is "barred".

When cell status is indicated as "true" for future use,

- The UE shall treat this cell as if cell status is "barred".

When cell status is indicated as "not barred" and "reserved" for operator use for any PLMN/SNPN and not "true" for other use and not "true" for future use,

- UEs assigned to Access Identity 11 or 15 operating in their HPLMN/EHPLMN shall treat this cell as candidate during the cell selection and reselection procedures if the field *cellReservedForOperatorUse* for that PLMN set to "reserved".

- UEs assigned to Access Identity 11 or 15 shall treat this cell as candidate during the cell selection and reselection procedures if the field *cellReservedForOperatorUse* for selected/registered SNPN is set to "reserved".

- UEs assigned to an Access Identity 0, 1, 2 and 12 to 14 shall behave as if the cell status is "barred" in case the cell is "reserved for operator use" for the registered PLMN/SNPN or the selected PLMN/SNPN.

- UEs assigned to Access Identity 3 shall behave as if the cell status is "barred" in case the cell is "reserved for operator use" for the registered PLMN or the selected PLMN.

NOTE 1: Access Identities 11, 15 are only valid for use in the HPLMN/ EHPLMN; Access Identities 12, 13, 14 are only valid for use in the home country as specified in TS 22.261 [12].

NOTE 1a: Access Identity 3 is only valid for PLMNs that indicate to potential Disaster Inbound Roamers that the UEs can access the PLMN as specified in TS 22.261 [12].

When cell status "barred" is indicated or to be treated as if the cell status is "barred",

- The UE is not permitted to select/reselect this cell for TN access, not even for emergency calls.

- The UE shall select another cell according to the following rule:

- If the cell is to be treated as if the cell status is "barred" due to being unable to acquire the *MIB*:

- the UE may exclude the barred cell as a candidate for cell selection/reselection for up to 300 seconds.

- the UE may select another cell on the same frequency if the selection criteria are fulfilled.

- else:

- If the UE is a RedCap UE, the UE shall acquire SIB1 and, in the remainder of this procedure, consider '*intraFreqReselection* in MIB' to be '*intraFreqReselectionRedCap* in SIB1', if available*.*

- If the field *intraFreqReselection* in *MIB* message is set to "allowed":

- the UE may select another cell on the same frequency if re-selection criteria are fulfilled;

- If the cell is to be treated as if the cell status is "barred" due to being unable to acquire the *SIB1*:

- the UE may exclude the barred cell as a candidate for cell selection/reselection for up to 300 seconds;

- else:

- the UE shall exclude the barred cell as a candidate for cell selection/reselection for 300 seconds.

- If the field *intraFreqReselection* in *MIB* message is set to "not allowed":

- If the cell is to be treated as if the cell status is "barred" due to being unable to acquire the *SIB1*:

- the UE may exclude the barred cell as a candidate for cell selection/reselection for up to 300 seconds;

- If the cell operates in licensed spectrum:

- the UE shall not re-select to another cell on the same frequency as the barred cell and exclude such cell(s) as candidate(s) for cell selection/reselection for 300 seconds;

- else:

- the UE may select to another cell on the same frequency if the reselection criteria are fulfilled.

- else:

- If the cell operates in licensed spectrum, or if this cell belongs to a PLMN which is indicated as being equivalent to the registered PLMN or the selected PLMN of the UE, or if this cell belongs to the registered SNPN or the selected SNPN of the UE:

- the UE shall not re-select to another cell on the same frequency as the barred cell and exclude such cell(s) as candidate(s) for cell selection/reselection for 300 seconds;

- else:

- the UE may select to another cell on the same frequency if the reselection criteria are fulfilled.

- the UE shall exclude the barred cell as a candidate for cell selection/reselection for 300 seconds.

When cell status "barred" is indicated for RedCap UEs with 1Rx/2Rx or to be treated as if the cell status is "barred",

- The UE is not permitted to select/reselect this cell, not even for emergency calls.

- The UE shall select another cell according to the following rule:

- If the cell is to be treated as if the cell status is "barred" due to not supporting RedCap UEs:

- the UE may exclude the barred cell as a candidate for cell selection/reselection for up to 300 seconds.

- the UE may select another cell on the same frequency if the selection criteria are fulfilled.

- else:

- If the field *intraFreqReselectionRedCap* in *SIB1* message is set to "allowed":

- the UE shall exclude the barred cell as a candidate for cell selection/reselection for 300 seconds.

- the UE may select another cell on the same frequency if re-selection criteria are fulfilled.

- If the field *intraFreqReselectionRedCap* in *SIB1* message is set to "not allowed":

- If the cell operates in licensed spectrum, or if this cell belongs to a PLMN which is indicated as being equivalent to the registered PLMN or the selected PLMN of the UE, or if this cell belongs to the registered SNPN or the selected SNPN of the UE:

- the UE shall not re-select to another cell on the same frequency as the barred cell and exclude such cell(s) as candidate(s) for cell selection/reselection for 300 seconds.

- else:

- the UE may select to another cell on the same frequency if the reselection criteria are fulfilled.

- the UE shall exclude the barred cell as a candidate for cell selection/reselection for 300 seconds.

When *cellBarredNTN* is indicated as “barred” for NTN UEs,

- The NTN UE is not permitted to select/reselect this cell for NTN access, not even for emergency calls.

- The NTN UE shall select another cell for NTN access according to the following rule:

- If the field *intraFreqReselection* in *MIB* message is set to "allowed":

- the UE may select another cell on the same frequency if re-selection criteria are fulfilled;

- the UE shall exclude the barred cell as a candidate for cell selection/reselection for 300 seconds.

- If the field *intraFreqReselection* in *MIB* message is set to "not allowed":

- If the cell operates in licensed spectrum, or if this cell belongs to a PLMN which is indicated as being equivalent to the registered PLMN or the selected PLMN of the UE, or if this cell belongs to the registered SNPN or the selected SNPN of the UE:

- the UE shall not re-select to another cell on the same frequency as the barred cell and exclude such cell(s) as candidate(s) for cell selection/reselection for 300 seconds;

- else:

- the UE may select to another cell on the same frequency if the reselection criteria are fulfilled.

- the UE shall exclude the barred cell as a candidate for cell selection/reselection for 300 seconds.

When *cellBarredNTN* is not broadcast for NTN UEs,

- The NTN UE is not permitted to select/reselect this cell for NTN access, not even for emergency calls.

- The NTN UE shall select another cell for NTN access according to the following rule:

- If the field *intraFreqReselection* in *MIB* message is set to "allowed":

- the UE may select another cell on the same frequency if re-selection criteria are fulfilled;

- If the field *intraFreqReselection* in *MIB* message is set to "not allowed":

- If the cell operates in licensed spectrum, or if this cell belongs to a PLMN which is indicated as being equivalent to the registered PLMN or the selected PLMN of the UE, or if this cell belongs to the registered SNPN or the selected SNPN of the UE:

- the UE shall not re-select to another cell on the same frequency as the barred cell;

- else:

- the UE may select to another cell on the same frequency if the reselection criteria are fulfilled.

The cell selection of another cell may also include a change of RAT.

NOTE 2: If barring of a cell is triggered by the condition of *trackingAreaCode* and *trackingAreaList* not being provided, as specified in TS 38.331 [3], the barring only applies to this PLMN and the UE can re-evaluate the barring condition again due to selection of another PLMN.

Option 1-End of change

### **Option 2**

Option 2-Start of change

5.3.1 Cell status and cell reservations

Cell status and cell reservations are indicated in the *MIB or SIB1* message as specified in TS 38.331 [3] by means of following fields:

- *cellBarred* (IE type: "barred" or "not barred")   
Indicated in *MIB* message. In case of multiple PLMNs or NPNs indicated in *SIB1*, this field is common for all PLMNs and NPNs.

- *cellBarred-NTN* (IE type: "barred" or "not barred")  
Indicated in SIB1 message. In case of multiple PLMNs or NPNs indicated in *SIB1*, this field is common for all PLMNs and NPNs. This field is only applicable to NTN-capable UEs.

- *cellBarredRedCap1Rx* (IE type: "barred" or "not barred")  
Indicated in *SIB1* message. In case of multiple PLMNs or NPNs indicated in *SIB1*, this field is common for all PLMNs and NPNs. This field is only applicable to RedCap UEs.

- *cellBarredRedCap2Rx* (IE type: "barred" or "not barred")  
Indicated in *SIB1* message. In case of multiple PLMNs or NPNs indicated in *SIB1*, this field is common for all PLMNs and NPNs. This field is only applicable to RedCap UEs.

- *cellReservedForOperatorUse* (IE type: "reserved" or "not reserved")   
Indicated in *SIB1* message*.* In case of multiple PLMNs or NPNs indicated in *SIB1*, this field is specified per PLMN or per SNPN.

- *cellReservedForOtherUse* (IE type: "true")   
Indicated in *SIB1* message. In case of multiple PLMNs indicated in *SIB1*, this field is common for all PLMNs.

*- cellReservedForFutureUse* (IE type: "true")   
Indicated in *SIB1* message. In case of multiple PLMNs or NPNs indicated in *SIB1*, this field is common for all PLMNs and NPNs.

NOTE 0: IAB-MT ignores the *cellBarred*, *cellReservedForOperatorUse, cellReservedForFutureUse,* and *intraFreqReselection* (i.e. treats *intraFreqReselection* as if it was set to *allowed*) as defined in TS 38.331 [3]. IAB-MT also ignores *cellReservedForOtherUse* for cell barring determination (i.e. NPN capable IAB-MT considers *cellReservedForOtherUse* for determination of an NPN-only cell) as defined in TS 38.331 [3].

- *iab-Support* (IE type: "true")  
Indicated in *SIB1* message. In case of multiple PLMNs or NPNs indicated in *SIB1*, this field is specified per PLMN or per SNPN.

Editor's note: Working assumption: A new bit, e.g. cellBarred-NTN, is introduced in SIB1 for NR-NTN. FFS on the expected UE behaviour upon reception of the new bit and the existing cellBarred.

When cell status is indicated as "not barred" and "not reserved" for operator use and not "true" for other use and not "true" for future use,

- UEs shall treat this cell as candidate during the cell selection and cell reselection procedures.

When cell broadcasts any CAG-IDs or NIDs and the cell status is indicated as "not barred" and "not reserved" for operator use and "true" for other use, and not "true" for future use:

- All NPN-capable UEs shall treat this cell as candidate during the cell selection and cell reselection procedures, other UEs shall treat this cell as if cell status is "barred".

When cell status is indicated as "true" for other use, and either cell does not broadcast any CAG-IDs or NIDs or does not broadcast any CAG-IDs and the UE is not operating in SNPN Access Mode,

- The UE shall treat this cell as if cell status is "barred".

When cell status is indicated as "true" for future use,

- The UE shall treat this cell as if cell status is "barred".

When cell status is indicated as "not barred" and "reserved" for operator use for any PLMN/SNPN and not "true" for other use and not "true" for future use,

- UEs assigned to Access Identity 11 or 15 operating in their HPLMN/EHPLMN shall treat this cell as candidate during the cell selection and reselection procedures if the field *cellReservedForOperatorUse* for that PLMN set to "reserved".

- UEs assigned to Access Identity 11 or 15 shall treat this cell as candidate during the cell selection and reselection procedures if the field *cellReservedForOperatorUse* for selected/registered SNPN is set to "reserved".

- UEs assigned to an Access Identity 0, 1, 2 and 12 to 14 shall behave as if the cell status is "barred" in case the cell is "reserved for operator use" for the registered PLMN/SNPN or the selected PLMN/SNPN.

- UEs assigned to Access Identity 3 shall behave as if the cell status is "barred" in case the cell is "reserved for operator use" for the registered PLMN or the selected PLMN.

NOTE 1: Access Identities 11, 15 are only valid for use in the HPLMN/ EHPLMN; Access Identities 12, 13, 14 are only valid for use in the home country as specified in TS 22.261 [12].

NOTE 1a: Access Identity 3 is only valid for PLMNs that indicate to potential Disaster Inbound Roamers that the UEs can access the PLMN as specified in TS 22.261 [12].

When cell status "barred" is indicated or to be treated as if the cell status is "barred",

- The UE is not permitted to select/reselect this cell, not even for emergency calls.

- The UE shall select another cell according to the following rule:

- If the cell is to be treated as if the cell status is "barred" due to being unable to acquire the *MIB*:

- the UE may exclude the barred cell as a candidate for cell selection/reselection for up to 300 seconds.

- the UE may select another cell on the same frequency if the selection criteria are fulfilled.

- else:

- If the UE is a RedCap UE, the UE shall acquire SIB1 and, in the remainder of this procedure, consider '*intraFreqReselection* in MIB' to be '*intraFreqReselectionRedCap* in SIB1', if available*.*

- If the field *intraFreqReselection* in *MIB* message is set to "allowed":

- the UE may select another cell on the same frequency if re-selection criteria are fulfilled;

- If the cell is to be treated as if the cell status is "barred" due to being unable to acquire the *SIB1*:

- the UE may exclude the barred cell as a candidate for cell selection/reselection for up to 300 seconds;

- else:

- the UE shall exclude the barred cell as a candidate for cell selection/reselection for 300 seconds.

- If the field *intraFreqReselection* in *MIB* message is set to "not allowed":

- If the cell is to be treated as if the cell status is "barred" due to being unable to acquire the *SIB1*:

- the UE may exclude the barred cell as a candidate for cell selection/reselection for up to 300 seconds;

- If the cell operates in licensed spectrum:

- the UE shall not re-select to another cell on the same frequency as the barred cell and exclude such cell(s) as candidate(s) for cell selection/reselection for 300 seconds;

- else:

- the UE may select to another cell on the same frequency if the reselection criteria are fulfilled.

- else:

- If the cell operates in licensed spectrum, or if this cell belongs to a PLMN which is indicated as being equivalent to the registered PLMN or the selected PLMN of the UE, or if this cell belongs to the registered SNPN or the selected SNPN of the UE:

- the UE shall not re-select to another cell on the same frequency as the barred cell and exclude such cell(s) as candidate(s) for cell selection/reselection for 300 seconds;

- else:

- the UE may select to another cell on the same frequency if the reselection criteria are fulfilled.

- the UE shall exclude the barred cell as a candidate for cell selection/reselection for 300 seconds.

When cell status "barred" is indicated for RedCap UEs with 1Rx/2Rx or to be treated as if the cell status is "barred",

- The UE is not permitted to select/reselect this cell, not even for emergency calls.

- The UE shall select another cell according to the following rule:

- If the cell is to be treated as if the cell status is "barred" due to not supporting RedCap UEs:

- the UE may exclude the barred cell as a candidate for cell selection/reselection for up to 300 seconds.

- the UE may select another cell on the same frequency if the selection criteria are fulfilled.

- else:

- If the field *intraFreqReselectionRedCap* in *SIB1* message is set to "allowed":

- the UE shall exclude the barred cell as a candidate for cell selection/reselection for 300 seconds.

- the UE may select another cell on the same frequency if re-selection criteria are fulfilled.

- If the field *intraFreqReselectionRedCap* in *SIB1* message is set to "not allowed":

- If the cell operates in licensed spectrum, or if this cell belongs to a PLMN which is indicated as being equivalent to the registered PLMN or the selected PLMN of the UE, or if this cell belongs to the registered SNPN or the selected SNPN of the UE:

- the UE shall not re-select to another cell on the same frequency as the barred cell and exclude such cell(s) as candidate(s) for cell selection/reselection for 300 seconds.

- else:

- the UE may select to another cell on the same frequency if the reselection criteria are fulfilled.

- the UE shall exclude the barred cell as a candidate for cell selection/reselection for 300 seconds.

The cell selection of another cell may also include a change of RAT.

NOTE 2: If barring of a cell is triggered by the condition of *trackingAreaCode* and *trackingAreaList* not being provided, as specified in TS 38.331 [3], the barring only applies to this PLMN and the UE can re-evaluate the barring condition again due to selection of another PLMN.

Option 2-End of change

**Question 1) On how to capture the usage of cellBarredNTN, which option do companies prefer? Option 1/2/other?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Option 1/2/other** | **Comments** |
| Samsung | Option 1 with comment | We prefer Option 1 that it would be better to specify cell barring procedure for NTN UE separately, similar to redcap UE.  However, “*This field is only applicable to NTN-capable UEs.*” => We think it should be changed into “This field is only applicable for NTN access” since NTN-capable UEs can access either TN access or NTN access, for TN access, NTN UE follows cellBarred, and only for NTN access, NTN UE follows cellBarredNTN. |
| Qualcomm | Option 2 with comments | See above, it says “When cell status "barred" is indicated or to be treated as if the cell status is "barred",  This should be true whether be it for cellBarred or cellBarredNTN. So additional text specific to NTN in option 1 is not necessary.  However, following part of the option 1 is ok. It helps a lot to clarify.  When *cellBarredNTN* is not broadcast in the cell,  - The NTN UE is not permitted to select/reselect this cell for NTN access, not even for emergency calls.  - The NTN UE shall select another cell for NTN access: |
| OPPO | Option 2 with comment | No matter cellBarred or cellBarredNTN is indicated as “barred”, it all means that the cell status is “barred”. Anyway, the branch of “when cell status barred is indicated or to be treated as if the cell status is barred” would be performed in this case. Therefore, it is not necessary to duplicate the part “When cell status "barred" is indicated or to be treated as if the cell status is "barred"” for NTN.  We suggest to follow the same way as 36304:  - *cellBarred* (IE type: "barred" or "not barred")  Indicated in *MIB* message. In case of multiple PLMNs or NPNs indicated in *SIB1*, this field is common for all PLMNs and NPNs. This field is ignored by UEs supporting NTN while *cellBarred-NTN* is included in SIB1.  - *cellBarred-NTN* (IE type: "barred" or "not barred") Indicated in SIB1 message. In case of multiple PLMNs or NPNs indicated in *SIB1*, this field is common for all PLMNs and NPNs. This field is ignored if the UE does not support NTN connectivity.  Besides, it may need to capture that If cellBarredNTN is not broadcast in an NTN cell, the UE considers the cell is not allowed for connectivity to NTN, i.e., this cell is treated as if the cell status is “barred” for NTN access. This could be captured before the part “When cell status "barred" is indicated or to be treated as if the cell status is "barred"”.  When this cell is an NTN cell and *cellBarred-NTN* is not broadcast in this cell,  - The UE shall treat this cell as if cell status is "barred". |
| Huawei, HiSilicon | Option 2 with comments | RAN2 has not discussed the joint configuration of NTN and private network, so the description should not mention NPN.  Besides, we agree with Oppo to align it with IoT NTN.  - *cellBarred-NTN* (IE type: "barred" or "not barred") Indicated in SIB1 message. In case of multiple PLMNs indicated in *SIB1*, this field is common for all PLMNs. This field is ignored if the UE does not support NTN connectivity.  Regarding the case where *cellBarred-NTN* is not broadcast (as mentioned by QC and Oppo), we have some concern on Oppo’s wording: if *cellBarred-NTN* is not broadcast, the UE can only consider the cell as a TN cell, thus “when this cell is an NTN cell” seems redundant. The suggested wording is:  When *cellBarred-NTN* is not broadcast,  - The UE shall treat this cell as if cell status is "barred" for NTN connectivity. |
| Xiaomi | Option 2 with comments | Regarging the ‘cellBarred’ and ‘cellBarred-NTN’, agree with OPPO and Huawei to align it with IoT NTN.  For cellBarred-NTN is not broadcast, agree with Huawei. |
| CATT | Option 2 with comments | Regarging the ‘cellBarred’ and ‘cellBarred-NTN’, agree with OPPO and Huawei to align it with IoT NTN.  For cellBarred-NTN , agree with Huawei, for the following sentence is included in the cellBarred-NTN field description in 38.331:  “If not present, the UE considers the cell is not allowed for connectivity to NTN, as defined in TS 38.304 [20].This field is only applicable to NTN-capable UEs.” |
| Ericsson | Option 2 | This is how we normally specify things, i.e avoiding to reproduce the same procedures unless really needed. If we do not then there is a risk that new idle mode features will not be introduced for NTN.  And we disagree with Huawei about the text should not mention NPN. We think that it is common practice to not exclude things that have not been discussed. If there is a problem found with NPN and NTN, then it can can be mentioned in either RRC or Stage-2 that they should not be configured together. |
| ZTE | Either is fine |  |
|  |  |  |
|  |  |  |

**Rapporteur’s summary**

8 companies indicated their preference over option 1 and option 2. 6 companies prefer option 2 with some further updates to align with IOT NTN and also to cover the case when cellBarredNTN is not broadcast.

Thus, the following proposal is given:

**Proposal 1: Option 2 is taken as baseline with further updates to align with IOT NTN and also to cover the case when cellBarredNTN is not broadcast.**

**For option 1, it has been raised during [AT118-e][111][NTN] Idle mode (ZTE) - 38.304 CR discussion that we need to consider whether to introduce *intraFreqReselectionNTN* in SIB1 for NTN UEs as we did for RedCap UEs and follow the similar handling.**

**If we introduce this new bit, the text would be updated as follows:**

When *cellBarredNTN* is indicated as “barred” for NTN UEs,

- The NTN UE is not permitted to select/reselect this cell for NTN access, not even for emergency calls.

- The NTN UE shall select another cell for NTN access according to the following rule:

- If the field *intraFreqReselectionNTN* in *SIB1* message is set to "allowed":

- the UE may select another cell on the same frequency if re-selection criteria are fulfilled;

- the UE shall exclude the barred cell as a candidate for cell selection/reselection for 300 seconds.

- If the field *intraFreqReselectionNTN* in *SIB1* message is set to "not allowed":

- If the cell operates in licensed spectrum, or if this cell belongs to a PLMN which is indicated as being equivalent to the registered PLMN or the selected PLMN of the UE, or if this cell belongs to the registered SNPN or the selected SNPN of the UE:

- the UE shall not re-select to another cell on the same frequency as the barred cell and exclude such cell(s) as candidate(s) for cell selection/reselection for 300 seconds;

- else:

- the UE may select to another cell on the same frequency if the reselection criteria are fulfilled.

- the UE shall exclude the barred cell as a candidate for cell selection/reselection for 300 seconds.

When *cellBarredNTN* is not broadcast for NTN UEs,

- The NTN UE is not permitted to select/reselect this cell for NTN access, not even for emergency calls.

- The NTN UE shall select another cell for NTN access according to the following rule:

- If the field *intraFreqReselectionNTN* in *SIB1* message is set to "allowed":

- the UE may select another cell on the same frequency if re-selection criteria are fulfilled;

- If the field *intraFreqReselectionNTN* in *SIB1* message is set to "not allowed":

- If the cell operates in licensed spectrum, or if this cell belongs to a PLMN which is indicated as being equivalent to the registered PLMN or the selected PLMN of the UE, or if this cell belongs to the registered SNPN or the selected SNPN of the UE:

- the UE shall not re-select to another cell on the same frequency as the barred cell;

- else:

- the UE may select to another cell on the same frequency if the reselection criteria are fulfilled.

**Question 2.1) For option 1, do companies support to introduce *intraFreqReselectionNTN* in SIB1 for NTN UEs, and NTN UE intended for NTN access would follow such indication in cell reselection？**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Samsung | Yes | We support introducing intraFreqReselectionNTN in SIB1 for NTN UEs, similar as intraFreqReselectionRedCap introduced for Redcap UEs, so that a complete independent cell barring procedure can be specified for NTN UEs. |
| Qualcomm | Yes | When legacy or TN UEs comes to select this cell (frequency can be overlapped or adjacent to the TN) and sees cell barred in TN, they should follow the intraFreqReselection in MIB. However, network may need to set intraFreqReselection differently for NTN access. |
| OPPO | Yes | Introducing intraFreqReselectionNTN in SIB1 for NTN UEs is necessary. TN UE may follow the legacy intraFreqReselection in MIB, and NTN UE follows the new intraFreqReselectionNTN in SIB1. |
| Huawei, HiSilicon | Yes | If there are only NTN cells on a certain frequency, the legacy *intraFreReselection* will be set to *notAllowed* so that legacy UEs can save some effort. However, in this case, the NW should still be able to set *intraFreReselection* to *allowed* for NTN UEs, thus a separate field is needed. |
| Xiaomi | Yes | For both options, intraFreqReselectionNTN introduced in SIB1 for NTN UEs is more flexible for network. |
| CATT | No | We don’t see the necessity to introduce NTN specific IFR indication.  This is very different from Redcap case. For Redcap UE, there indeed are some cells not supporting Redcap UE access. So there can be cell with the same frequency that support normal UE access, but does not support Redcap UE access, so Redcap specific IFR may be useful. And the most important is, Recap UE and normal UE are accesing the network with the same RAT.  But for NTN UE, we think anyway, NTN UE can access TN cell as TN UE. So   * For NTN cell: there is no TN UE camping in the cell, so the current IFRI can be reused, and only valid for NTN UE. * For TN cell: the current IFRI can also be reused for both TN and NTN UE (which is camping as TN UE). And the network before Rel-17 can not support the new defined IFRI-NTN. |
| Ericsson | No | Agree with CATT. It was introduced in Redcap for a condition that does not really apply to NTN. |
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**Rapporteur’s summary**

7 companies indicated their preference on whether to introduce intraFreqReselectionNTN in SIB1 for NTN UEs in option 1. Since option 2 is taken as a baseline, there is no need to introduce such indication. Thus no proposal is given.

**Question 2.2) If the answer to Q2.1 is “Yes”, do companies agree with the changes above on introduction of the *intraFreqReselectionNTN* in SIB1?**

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| **Company** | **Yes/No** | **Comments** |
| Samsung | Yes with comments | We support introducing intraFreqReselectionNTN in SIB1.  However, we think there is no different UE behavior required for two cases (cellBarredNTN is indicated as “barred” and cellBarredNTN is not broadcast so it is implicitly considered as barred), so it would be good to combine two cases into a same graph.”. Note in the current draft, it seems “the UE shall exclude the barred cell as a candidate for cell selection/reselection for 300 seconds.” is only applied to the case (cellBarredNTN is indicated as “barred”), but it not applied to the case (cellBarredNTN is not broadcast so it is implicitly considered as barred”, we don’t understand why there should be difference. |
| Qualcomm | No | For redcap UE, following is specified. We can do the same for NTN.  - If the UE is a RedCap UE, the UE shall acquire SIB1 and, in the remainder of this procedure, consider '*intraFreqReselection* in MIB' to be '*intraFreqReselectionRedCap* in SIB1', if available*.* |
| OPPO | No | Following the same way used for redcap UE, such as  - If the UE is NTN-capable and accesses an NTN cell, the UE shall acquire SIB1 and, in the remainder of this procedure, consider '*intraFreqReselection* in MIB' to be '*intraFreqReselectionNTN* in SIB1', if available*.* |
| Huawei, HiSilicon | No | The proposal from QC/Oppo looks simpler. |
| Xiaomi | No | Agree with QC and OPPO. |
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**Rapporteur’s summary**

Since option 2 is taken as a baseline, there is no need to introduce such indication. Thus no proposal is given.

# Conclusions

**Proposal 1: Option 2 is taken as baseline with further updates to align with IOT NTN and also to cover the case when cellBarredNTN is not broadcast.**

# References

1. R2-22xxxxx\_NTN corrections to 38.304\_v08\_Rapporteur