**Issue 2-1-1-1: Cell re-selection mechanism**

*Candidate options:*

* Option 1: Introduce distance-based triggering as an additional condition for intra- and inter-frequency cell measurement as NTN, whether and how to configure the feature is up to network implementation. (CMCC, LGE, CATT, Nokia (If distance threshold is available), ZTE (open to discuss))
  + If Srxlev > S(non)IntraSearchP and Squal > S(non)IntraSearchQ, **and the distance between UE and serving cell reference location is smaller than distanceThresh** if distanceThresh is configured and UE has location information, then the **UE shall search for inter/intra-frequency layers of higher priority**.
  + If Srxlev ≤ S(non)IntraSearchP or Squal ≤ S(non)IntraSearchQ, **or the distance between UE and serving cell reference location is larger than distanceThresh** if distanceThresh is configured and UE has location information, then the **UE shall search for and measure inter/intra-frequency layers of higher, equal or lower priority in preparation for possible reselection.**
* Option 2: (Ericsson)
  + The UE is allowed to **not perform neighbour cell measurements based on the distance** between the aircraft and a reference location
* Option 3: For cell reselection mechanism, following distance-based mechanism shall be considered together with legacy RSRP based reselection since the near-far effect is not clearly observed in blind area ATG BS. (LGE)
  + If the distance between UE and BS location is **smaller than threshold for blind area**, UE shall search for and measure inter/intra-frequency layers of higher, equal or lower priority in preparation for possible reselection in preparation for possible reselection
  + If the distance between UE and BS location is **larger than threshold for blind area and smaller than distanceThresh**, the UE shall search for inter/intra-frequency layers of higher priority.
  + If the distance between UE and serving cell reference location is **larger than distanceThresh**, UE shall search for and measure inter/intra-frequency layers of higher, equal or lower priority in preparation for possible reselection
* Option 4: (LGE)
  + If ATG UE **altitude** higher than certain threshold, ATG UE perform measurement
  + If ATG UE **altitude** lower than certain threshold, ATG UE may not perform measurement
* Option 5: No need to specify distance, altitude or speed-based enhancements to cell re-selection mechanism during Release 18. (QC, HW, ZTE, CATT, Nokia)
  + If needed, such mechanisms may be discussed in future releases.

*Discussion:*

*CMCC: No need to skip measurement for ATG. Do not support option2 and option 4. There is no blind area in real deployment for ATG. First preference is option 1.*

*LGE: Option 3 is similar as option 1. Blind area is from RF discussion. Option 3 can compromised to option 1. Option 4 can improve energy efficiency of ATG UE.*

*Qualcomm: Power saving should not a key issue for ATG. ATG UE in idle mode is not common case. Optimization in idle mode should not be considered. Option 5.*

*Ericsson: Can compromise to option 1. Signaling should be open to discuss. Support option 4.*

*ZTE: Option 5. For other options, option 1 is more reliable. 3km is the assumption in RF session.*

*LGE: Option4 consider interference from TN network.*

*ZTE: For lower than 3km, is any enhancement necessary?*

*Ericsson: Protecting interference to TN network.*

*CMCC: Do not support option 4*

*CATT: Option 1+ option4, does it mean threshold and altitude should meet at the same time?*

*Huawei: Do not support option 4. Power saving is not critical for ATG*

*Qualcomm: Do not support option 4. Lower than 3km should not be considered*

*ZTE: To avoid interference, ATG network should not send any signals, not UE. Option4 is not feasible.*

*CMCC: In idle mode, no measurement reporting, interference should not be an issue.*

*LGE: ATG UE is victim*

*ZTE: Option 4 is not feasible for interference avoidance.*

*Option 1: CMCC, ZTE, CATT, HW, Ericsson*

*Option 1+Option 4:*

*Support: Ericsson, LGE*

*Object: CMCC, HW*

*Option 5: QC, ZTE, HW*

Agreement:

Candidate options:

* Option 1
* Option 1+4
* Option 5

~~Reuse conclusion of connected mode for option 4 in idle mode.~~

**Issue 2-1-1-4: Cell re-selection measurement requirements**

*Candidate options:*

* Option 1: (QC)
  + Apply **legacy cell reselection requirements for intra -frequency** neighbour cell measurement/detection/evaluation, (Nokia)
  + UE shall be capable of monitoring at least, depending on UE capability, **[3] NR inter-frequency carriers** for idle mode cell re-selection. (Nokia open to discuss)
  + Apply **legacy cell reselection requirements for inter -frequency** neighbour cell measurement/detection/evaluation. (Nokia)
* Option 2: In set 2 cell reselection measurement requirements, no need to meet the neighbour cell measurement requirements (Ericsson)
* Option 3: Follow the agreements in last meeting (CMCC, Ericsson, HW)
  + Agreement in last meeting:
    - Define two set of requirements for ATG
      * Set 1: legacy R15 cell-reselection requirement
      * Set 2: R16 HST cell-reselection requirement
      * Details of signalling, associated UE capabilities and how to switch between the two sets of requirements are FFS

*Discussion:*

*CMCC: Based on our calculation, UE will trigger measurement when serving cell quality is not good. We prefer 7 carriers is legacy.*

*Qualcomm: Less than 20km is too short for deriving requirements. Reducing the number can also help measurement.*

*Ericsson: Even reducing number of carriers, UE still need to perform measurements based on certain condition.*

*Qualcomm: Reducing carriers can automatically provides power saving.*

*CMCC: For number of carriers, we should not reduce the number. If other companies are fine, we are open to not consider HST requirements for intra-frequency. For inter-frequency, legacy requirements is not enough.*

*Ericsson: To Qualcomm, is the reduced carrier applicable for set 2 requirements?*

*Qualcomm: The intention is to reduce the number of carriers to be monitored. Set 2 is not needed for ATG. Legacy requirements should apply.*

*Ericsson: We have proposal in connected mode to stop inter-frequency measurement under certain condition.*

*Agreement:*

*[Keep previous agreements for number of carriers to be monitored.]*

* *Note: remove the [] after check the previous agreements*

*For intra-frequency measurement, apply legacy R15 cell-reselection requirement*

*For inter-frequency measurement, if legacy number of monitored carriers is kept*

* + - Define two set of requirements for ATG
      * Set 1: legacy R15 cell-reselection requirement
      * Set 2: R16 HST cell-reselection requirement
      * Details of signalling, associated UE capabilities and how to switch between the two sets of requirements are FFS

**Issue 3-1-2: GNSS error assumption for initial transmit timing requirements Te\_ATG**

*Candidate options:*

* Option 1: For the GNSS accuracy, 30m for ATG UE (CATT, CMCC, ZTE, Ericsson)
* Option 2: Allowed UE position error is 50m

(Ericsson, HW, QC, Nokia)

*Discussion:*

*Ericsson: We are OK with both 30 and 50m. 30m is not automatically means 60KHz UL can support*

*Qualcomm: Prefer 50 to align with NTN*

*CMCC: Option1 .GNSS on ATG CPE can achieve better performance. No need to align assumption with NTN*

*ZTE: Option1. ATG terminal is CPE type, which is more powerful than NTN UE.*

*Huawei: Option2.*

*Nokia: Both Option1 and Option2 are OK. ATG UE is moving fast. We do not support 60KHz UL*

*CATT: Same view and CMCC and ZTE.*

*Huawei: We can discuss Te directly.*

*CMCC: 40m is OK for us.*

*Qualcomm:40m is OK. Do not define 60Khz UL timing*

*CATT: If 40m is assumed, 60KHz can be supported.*

*Ericsson: Based on analysis in our paper, 60KHz cannot be supported.*

*Agreement:*

*40m for GNSS accuracy assumption*

*Do not define 60KHz UL Te requirements*

**Issue 5-3: Scheduling restriction**

*Candidate options:*

* Option 1: (CATT, CMCC, HW, ZTE)
  + The legacy scheduling restriction requirement can be reused for ATG.
    - When it is enabled, the restriction is on SSB symbols and 1 data symbol before and after.
    - When it is disabled, the restriction is on all symbols in SMTC.
* Option 2: (Ericsson)
  + When NW enables the deriveSSB-IndexFromCell, the UE is allowed to not transmit or receive data more than 1 symbols before and after SSB symbols to be measured. The dedicated symbol value can be indicated by NW.
  + When NW disables the deriveSSB-IndexFromCell, the UE is allowed to not transmit or receive data more than 1 symbols before and after SMTC to be measured. The dedicated symbol value can be indicated by NW.
* Option 3: (LGE)
  + Legacy scheduling restriction to measure neighbor cell is not suitable, so RAN4 needs to decide how to define scheduling restriction considering
    - Alt 1: define scheduling restriction based on maximum ISD in ATG
    - Alt 2: define scheduling restriction based on the difference of propagation delay from serving cell and neighbor cells

*Discussion:*

*Ericsson: We propose to consider larger cell impact in general. 1 symbol cannot work in most scenarios, most likely whole SMTC will be impacted. For ATG, throughput is key issue.*

*LGE: We have similar view as Ericsson. Due to the large propagation delay difference from different cells, 1 symbol is not enough. Our proposal option 3 is to provide examples and open to discuss.*

*Qualcomm: when driveSSB-IndexFromCell is enabled, why 1 symbol is not enough?*

*Ericsson: Due to propagation delay.*

*ZTE: Option 1. 1 symbol may not enough for some cases. If we want to change requirements, the discussion is complicated. We prefer to leave this to network control.*

*Agreement:*

**Issue 2-2-1: location-based CHO mechanism**

*Candidate options:*

* Option 1: For the location-based CHO, reusing the procedure in R17 NTN for R18 ATG (combines RSRP and location based triggering condition) (Nokia, CMCC, ZTE, HW), (CATT, ZTE (if the reference location is available))
* Option 2: Location based CHO is supported for A2G in Rel-18, and details of requirements are FFS (Ericsson)
* Option 3: Using BS location information and UE location information, CHO can be used for UE located on the blind area of ATG BS. (LGE)
* Option 4: Not to specify location-based CHO, such mechanism can be specified in future releases (QC)

*Discussion:*

*Agreement:*