

Discussion on Handling of multiple TAIs for a PLMN

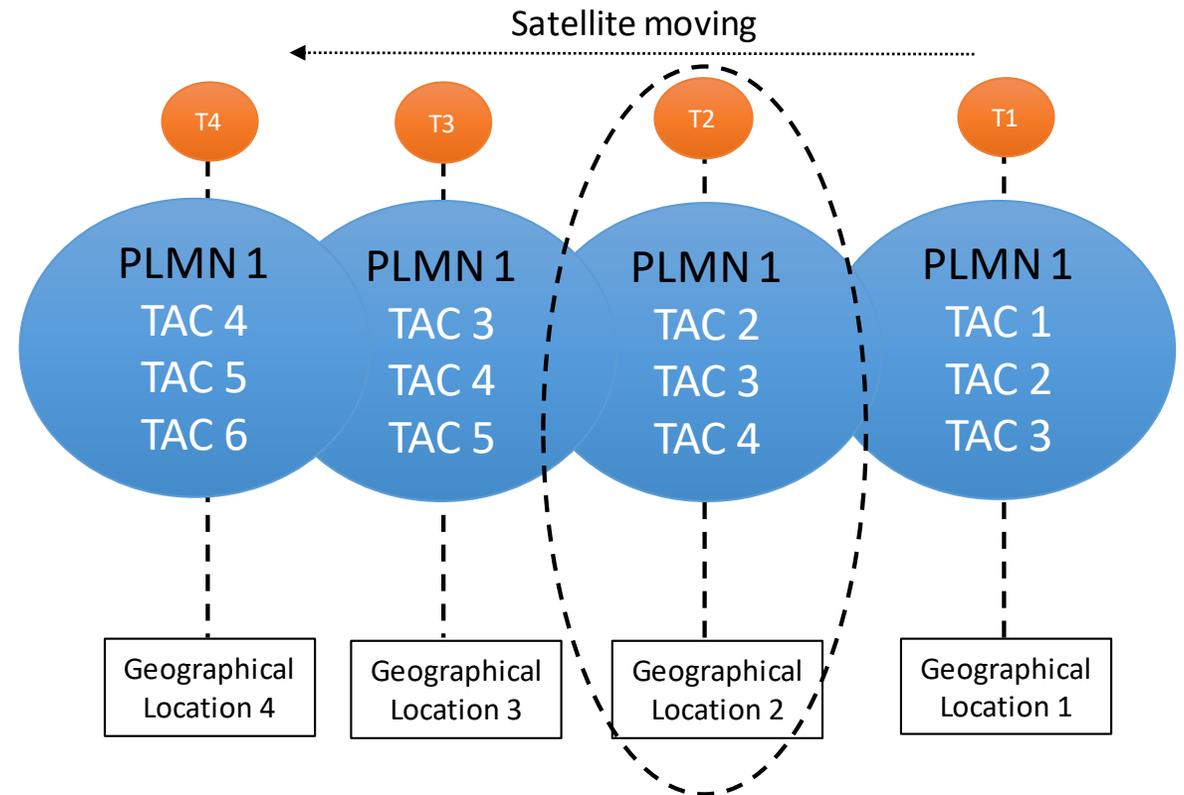
Source: MediaTek Inc., Vodafone

Agenda item: 17.2.4

Document for: Discussion/Agreement

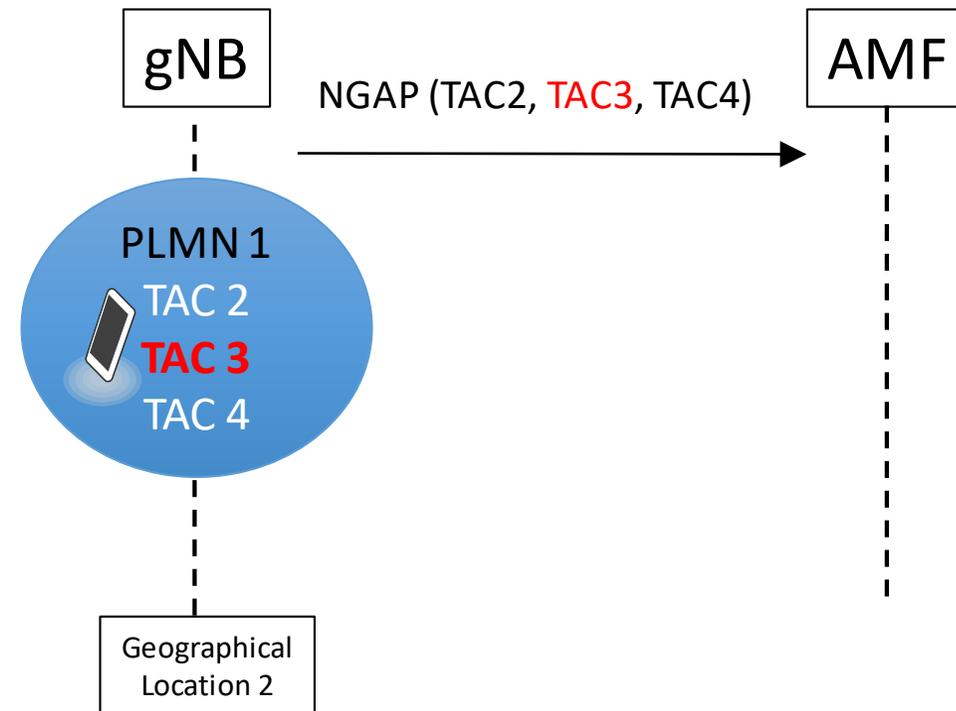
Use case: moving satellite NG-RAN cell broadcasting multiple TACs per PLMN

- In certain geographical location the moving cell is broadcasting certain list of TACs per PLMN
 - e.g. at time T2 (on Geo location 2) the cell broadcasts TAC2, 3 and 4.
- One of the broadcast TACs indicates the current tracking area which further on indicates the geographical location of the satellite NG-RAN cell (and the UE selecting the cell) while other broadcast TACs are indicating neighbor tracking areas.



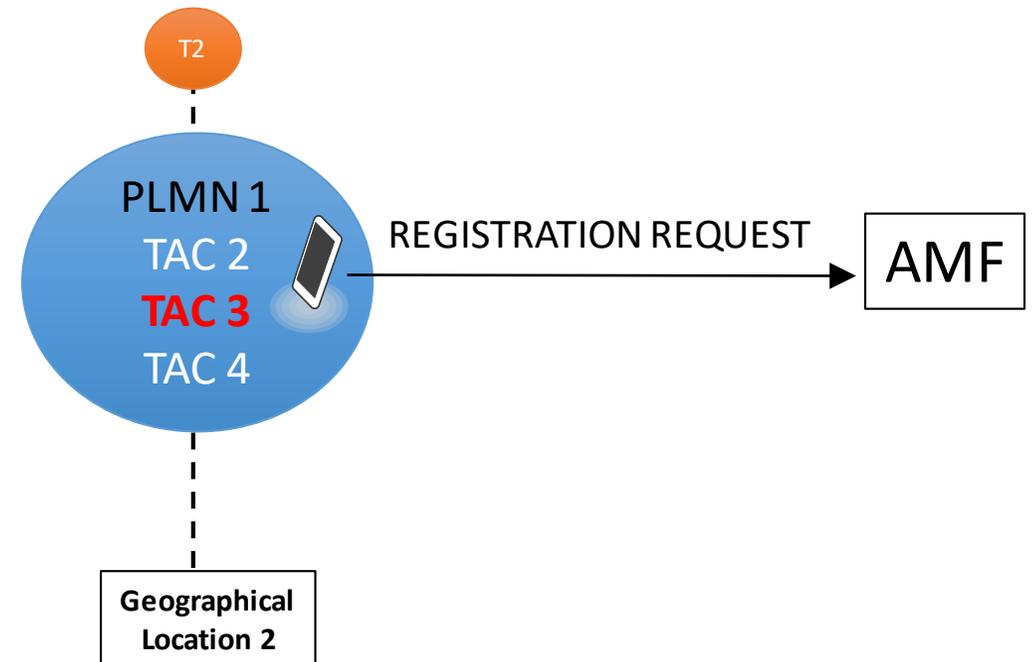
NGAP information when UE is registering in a cell broadcasting multiple TACs per PLMN

- TS 23.501 5.4.11.6
 - *The NG-RAN provides all broadcast TAIs to the AMF as part of the ULI, whenever the ULI is included in the NGAP message. The NG-RAN indicates, if known, also the TAI where the UE is geographically located.*
- If the UE initiates registration, the cell on Geo Location 2 provides TAC2,3 and 4 to AMF. In this example **TAC3** is the TAC of the current TA.



UE sending REGISTRATION REQUEST

- At initiating registration procedure the UE constructs TAI2,3 and 4 from TAC2,3 and 4 if none of them is in the TAI list nor forbidden.
- **Proposal#1:** At sending REGISTRATION REQUEST the UE considers all broadcast non-forbidden TAIs as current TAIs and creates list of current TAIs.



Registration accepted by the network

- If network accepts the registration and determines by UE subscription that all broadcast TAIs are non-forbidden, the AMF sends REGISTRATION ACCEPT including TAI2, 3, 4 in TAI list.
- **Proposal#2:** The network may indicate explicitly the current TAI if indicated by NG-RAN.
- **Proposal#3:** The UE considers all of these TAIs as current TAIs if the network does not explicitly indicate the current TAI.
- **Proposal#4:** The UE considers one of these current TAIs or the one indicated by the network as the last visited registered TAI.
- **Proposal#5:** While accepting the registration the network indicates explicitly if one or more broadcast TAIs are forbidden (rejected).

Registration not accepted by the network

- If network must reject the registration (no allowed TAIs in the cell), the AMF sends REGISTRATION REJECT and the UE must consider all current TAIs as forbidden and add them into suitable forbidden list (according to received cause value).