**3GPP TSG RAN WG1 Meeting #105-e R1-2106201**

**e-Meeting, May 10th – May 27th, 2021**

**Title:** DraftLS on support of UL-AOA/ZOA assistance information signalling for NR positioning

**Response to:**

**Release:** Rel-17

**Work Item:** [NR\_pos\_enh-Core](http://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=900160)

**Source:** Intel, [RAN1]

**To:** RAN3

**Cc:** [RAN2]

**Contact Person:**

#### Name: Alexey Khoryaev

E-mail Address: [alexey.khoryaev@intel.com](mailto:alexey.khoryaev@intel.com)

**1. Overall Description:**

RAN1 discussed support UL-AOA/ZOA assistance information signalling from LMF to gNB and made the following agreements.

**RAN1 #104-e Meeting**

Agreement:

* NR supports at least the following additional assistance signaling from LMF to gNB/TRP to facilitate UL measurements of UL-AOA
  + Indication of expected AoA/ZoA value and uncertainty (of the expected AoA/ZoA value) range(s)
  + FFS: Details of procedure for providing the assistance
  + FFS: Reference angle of expected AoA/ZoA

**RAN1 #104-bis-e Meeting**

Agreement:

* Uncertainty range for expected UL AoA/ZoA is defined as follows
  + Expected azimuth angle of arrival as (φAOA - ΔφAOA/2, φAOA + ΔφAOA/2)
    - φAOA - expected azimuth angle of arrival, ΔφAOA – uncertainty range for expected azimuth angle of arrival
  + Expected zenith angle of arrival as (θZOA – ΔθZOA/2, θZOA + ΔθZOA/2)
    - θZOA - expected zenith angle of arrival, ΔθZOA – uncertainty range for expected zenith angle of arrival
* Select one of the following coordinate system alternatives for signaling UL AoA/ZoA assistance information
  + Alt.1: Only GCS is supported for AoA/ZoA assistance information indication
  + Alt.2: Both GCS and LCS are supported for AoA/ZoA assistance information indication
* FFS: Additional signaling for AoA/ZoA assistance information (expected value and uncertainty range)

**RAN1 #105-e Meeting**

Agreement:

* Both GCS and LCS are supported for UL AoA/ZoA assistance information indication.

Note: Existing signaling can be used for obtaining LCS to GCS translation information

Agreement:

* Granularity of 0.1 degrees is applied for the expected AoA (φAOA), expected ZoA (θZOA) and the corresponding uncertainty values

Agreement:

* LMF to gNB signaling of UL AoA/ZoA assistance information (expected value and uncertainty range) is supported for UL-TDOA and Multi-RTT positioning methods

**2. Actions:**

**To: RAN3**

**ACTION:** RAN1 respectfully asks RAN3 to define UL-AOA/ZOA assistance signalling for NR positioning enhancements.

**3. Date of Next TSG-RAN WG1 Meetings:**

TSG RAN WG1 Meeting #106-e 16th – 27th August, 2021 E-meeting

TSG RAN WG1 Meeting #106-bis-e 11th – 19th October, 2021 E-meeting