3GPP TSG-RAN WG3 #112-e R3-212701

E-meeting, May 17th - May 28th, 2021

Agenda Item: 20.2.6

Source: Rakuten Mobile (moderator)

Title: Summary of offline discussion on NTN Others

Document for: Discussion and Decision

# Introduction

**CB: # 82\_NTN\_Others**

**- (Rak)**

**NTN specific information such as doppler shift value, delay value, etc. should be conveyed from gNB-DU to gNB-CU over F1-U and between gNBs over Xn-U interface**

**- (E///)**

**Cell reconfigurations (including for energy saving purposes) can be handled via OAM configuration, including interaction aspects between terrestrial and NTN cells, with no need for Xn signaling.**

**Current Xn resource coordination functionality is not applicable for NTN in Rel-17.**

**Given the different geographical scales of Xn scope and NTN, exchanging traffic information between terrestrial and NTN is probably best done at a higher level, e.g. involving OAM.**

**Xn support for SON is not used in Rel-17 NTN.**

**Given the above, as no specific information so far has been identified as necessary to exchange between terrestrial and NTN over Xn, Xn interface management functionality between terrestrial and NTN does not seem needed.**

**Xn between a HAPS and local terrestrial neighbors may be beneficial and is not precluded.**

**- Chair: discuss 1) Whether to use UP to convey doppler shift and fixed delay values through F1-U and Xn-U – Are scenarios acknowledged? 2) whether to capture further observations w.r.t. Xn functions and NTN**

(Rak - moderator)

Summary of offline disc R3-212701

The deadline for comments is Thursday, May 20th 8h00 UTC (10h00 CEST).

# Discussion

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| 20.2.6. Others Xn mobility between NTN gNBs and terrestrial gNBs is treated with low priority in Rel-17  *NTN specific adaptations in Rel-17 for Xn Setup, Load Management and Energy Saving related function are FFS*  *To be continued...*  MR-DC has low priority for Rel-17  Secondary RAT Data Volume Reporting has low priority for Rel-17  Trace has low priority for Rel-17  *Whether Resource coordination over Xn and SON functions are applicable for NTN in Rel-17, at least for some scenarios only (like HAPS) is FFS, as well as NTN specific adaptations for Rel-17.*  *To be continued...* | | |
| R3-211920 | NR-U plane protocol enhancement for NTN (Rakuten Mobile, Inc) | discussion |
| R3-211921 | Non-Terrestrial Networks support for NR-U plane protocol (Rakuten Mobile, Inc) | CR0117r, TS 38.425 v16.3.0, Rel-17, Cat. B |
| R3-212111 | Continuing Discussion on Xn Functions and NTN (Ericsson) | discussion |

R3-211920 proposes to discuss and agree on NTN specific information such as doppler shift value, delay value, etc. to be conveyed from gNB-DU to gNB-CU over F1-U and between gNBs over Xn-U interface. Thus, R3-211921 provides CR towards TS 38.425.

***Proposal 1 (1920): NTN specific information such as doppler shift value, delay value, etc. should be conveyed from gNB-DU to gNB-CU over F1 interface and between gNBs over Xn interface.***

**Question#1: Do you agree with the proposal 1 (1920) above?**

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| Company | YES/NO | Comment |
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R3-212111 proposes to discuss the remaining two open points below.

* NTN specific adaptations in Rel-17 for Xn Setup, Load Management and Energy Saving related function are FFS
* Whether Resource coordination over Xn and SON functions are applicable for NTN in Rel-17, at least for some scenarios only (like HAPS) is FFS, as well as NTN specific adaptations for Rel-17

## *Energy Saving*

***Proposal 1 (2111): Cell reconfigurations (including for energy saving purposes) can be handled via OAM configuration, including interaction aspects between terrestrial and NTN cells, with no need for Xn signaling.***

**Question#2: Do you agree with the proposal 1 (2111) above?**

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| Company | YES/NO | Comment |
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## Resource Coordination

***Proposal 2 (2111): Current Xn resource coordination functionality is not applicable for NTN in Rel-17.***

**Question#3: Do you agree with the proposal 2 (2111) above?**

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| Company | YES/NO | Comment |
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## *Load Management*

***Proposal 3 (2111): Given the different geographical scales of Xn scope and NTN, exchanging traffic information between terrestrial and NTN is probably best done at a higher level, e.g. involving OAM.***

**Question#4: Do you agree with the proposal 3 (2111) above?**

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| Company | YES/NO | Comment |
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## *Data Exchange for SON*

***Proposal 4 (2111): Xn support for SON is not used in Rel-17 NTN.***

**Question#5: Do you agree with the proposal 4 (2111) above?**

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| Company | YES/NO | Comment |
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## *Interface Management*

***Proposal 5: Given the above, as no specific information so far has been identified as necessary to exchange between terrestrial and NTN over Xn, Xn interface management functionality between terrestrial and NTN does not seem needed.***

**Question#6: Do you agree with the proposal 5 (2111) above?**

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| Company | YES/NO | Comment |
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## *Further Observations on HAPS*

***Proposal 6: Xn between a HAPS and local terrestrial neighbors may be beneficial, and is not precluded.***

**Question#7: Do you agree with the proposal 6 (2111) above?**

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| Company | YES/NO | Comment |
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# Conclusion and Recommendations

TBD

# References

1. R3-211920, NR-U plane protocol enhancement for NTN, Rakuten Mobile, Inc
2. R3-211921, Non-Terrestrial Networks support for NR-U plane protocol, Rakuten Mobile, Inc
3. R3-212111, Continuing Discussion on Xn Functions and NTN, Ericsson