**3GPP TSG-RAN WG2 #127 *R2-24XXXXX***

**Maastricht Netherlands August 19th – 23th, 2024**

Agenda Item: 8.3.2.1

Source: OPPO

Title: Draft Summary of [POST127][030][AI mobility] RRM simulation assumptions-phase 2(OPPO)

Document for: Discussion, Decision

# Introduction

This short post email discussion intends to discuss the left issue from offline [1].

After the phase 1 of [POST127][030][AI mobility], it is agreed to continue discuss the definition of temporal domain case B and corresponding observation window and prediction window.

# Discussion

## The definition of intra-frequency temporal domain case A and case B

After phase 1 discussion, there are two examples of case B:



Figure 2.1-1 temporal domain case example 1



Figure 2.1-2 temporal domain case example 2

Majority company support example 2 as illustrated in Figure 2.1-2 and some company think example 1 illustrated in Figure 2.1-1 is still valuable. For non-sliding L1/L3 approach, the minimum timing granularity is one measurement period i.e. 200ms for FR1 (400ms for FR2). Assuming the MRRT is 80% then the observation window will become 1200ms for FR1 if there are two actual measurement results are contained within the observation window as illustrated in Figure 2.1-3:



Figure 2.1-3 example2 assuming MRRT=80%

This is one example of FR1. For FR2 the observation window will be simply doubled i.e., 2400ms, which is not necessary long technically in temporal domain. In order to leave some flexibility for non-sliding L1/L3 approach, example 1 as illustrated in Figure 2.1-1 should be allowed in order to simulate some short observation window. There are few more example MRRT, OW and PW in table 1 in Annex\_1 for non-sliding L1/L3 filtering approach for your information.

**Q1: Do you agree to use both example 1 in Figure 2.1-1 and example 2 in Figure 2.1-2 for temporal domain case B?**

|  |  |  |
| --- | --- | --- |
| Company | Yes or no? | comments |
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There is a key word in definition of temporal domain case B :

**Intra-frequency temporal domain case B-To be discussed in Phase 2:**

In case B, measurement results in prediction window are predicted by historical measurement result(s) in observation window. Then observation window and prediction window slide forward with either sampling period(s) (with sliding L1/L3 filtering option) or measurement period(s) (with non-sliding L1/L3 filtering option) after measurement result(s) in previous prediction window is/are skipped.

In the example illustrated in Figure 2.1-2, the “grey” block is previous predicted measurement result(s) but in OW. The issue is whether those predicted measurement results should be input to model. At this stage majority company who already use this example pattern doesn’t take predicted measurement result into account. Maybe we can assume those predicted measurement results are not used. But company can also report if they use it.

**Q2: The historical measurement results in OW are actual measurement results. And company can report it, if they use predicted measurement results (if any) in OW as input of model also. Do you agree with this proposal?**

|  |  |  |
| --- | --- | --- |
| Company | Yes or no? | comments |
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## Observation and predication window

For temporal domain case B, even for the example 2 as illustrated in Figure 2.1-2 there could be more variable way to interpret it e.g. whether prediction window can be prolonged further. So, it becomes very difficult to list all the possible patterns and their combinations for company to select. The simulation results submitted to RAN2#127 meeting show what matters for prediction accuracy of temporal domain case B are following key parameters:

1, MRRT

2, Observation window length

3, Prediction window length

So, a relatively simple way to align these 3 parameters is to set up a value range for them, and here are recommended value ranges from rapporteur:

* MRRT: {50%~80%}
* OW: {200ms ~ 2000ms}
* PW: {40ms~800ms}

Company can report their MRRT and corresponding OW and PW when providing simulation result. In addition, in order to show the potential impact by detail pattern, company can also report their detail pattern.

**Question 4: Please provide your comment on the way to align the simulation assumption for temporal domain case B for FR1:**

|  |  |
| --- | --- |
| Company | comments |
|  |  |
|  |  |

# Conclusion

# Reference

[1] R2-2407781 Summary of [AT127][026][AI Mob] Simulation assumptions (OPPO) OPPO discussion

[2] R2-2497849 Summary of [POST127][030][AI mobility] RRM simulation assumptions (OPPO)-Phase 1

# Annex\_1

|  |  |  |  |
| --- | --- | --- | --- |
| MRRT | OW1 | OW2 | PW |
| 50% | 200 | 1000 | 200 |
| 67% | 200 | 800 | 400 |
| 75% | 200 | 1000 | 600 |
| 80% | 200 | 1200 | 800 |

Table 1 examples of OW, PW for FR1 for non-sliding L1/L3 filtering approach

In table 1, the OW and PW is calculated by repeating a pattern few times by following the way illustrated in Figure 2.1-2. For example, a pattern is one measurement result is predicted/skipped after one actual measurement result and it is repeated 3 times. The MRRT is thus 50% and OW=1000ms, PW=200ms i.e., the green row in Table 1 and illustrated in Figure 2.1-3.