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On the COMS Data Product Timeliness

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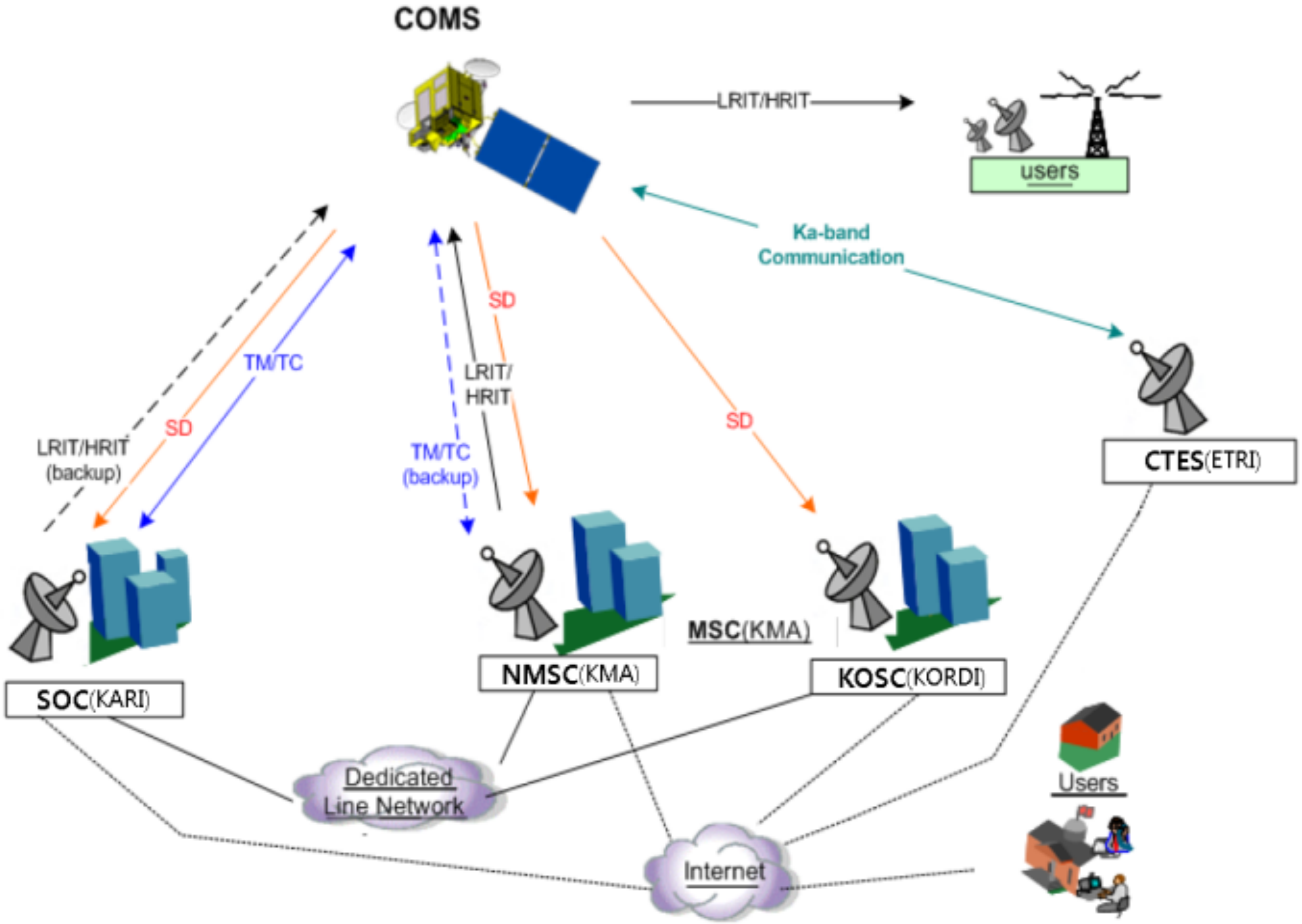
Contents

- Introduction
  - COMS System Operational Architecture
  - COMS INR and the 'timeliness'
- Status
  - Current Operational Status
    (the issue of 'timeliness')
- Actions for Resolution
  - Efforts for Resolution/Improvement
- Progress and Expectations
  - Some Key Results
  - Expected Implementations and Performances
- Conclusion and Discussions

Introduction (1)

- **COMS System Operational Architecture**



Introduction (2)

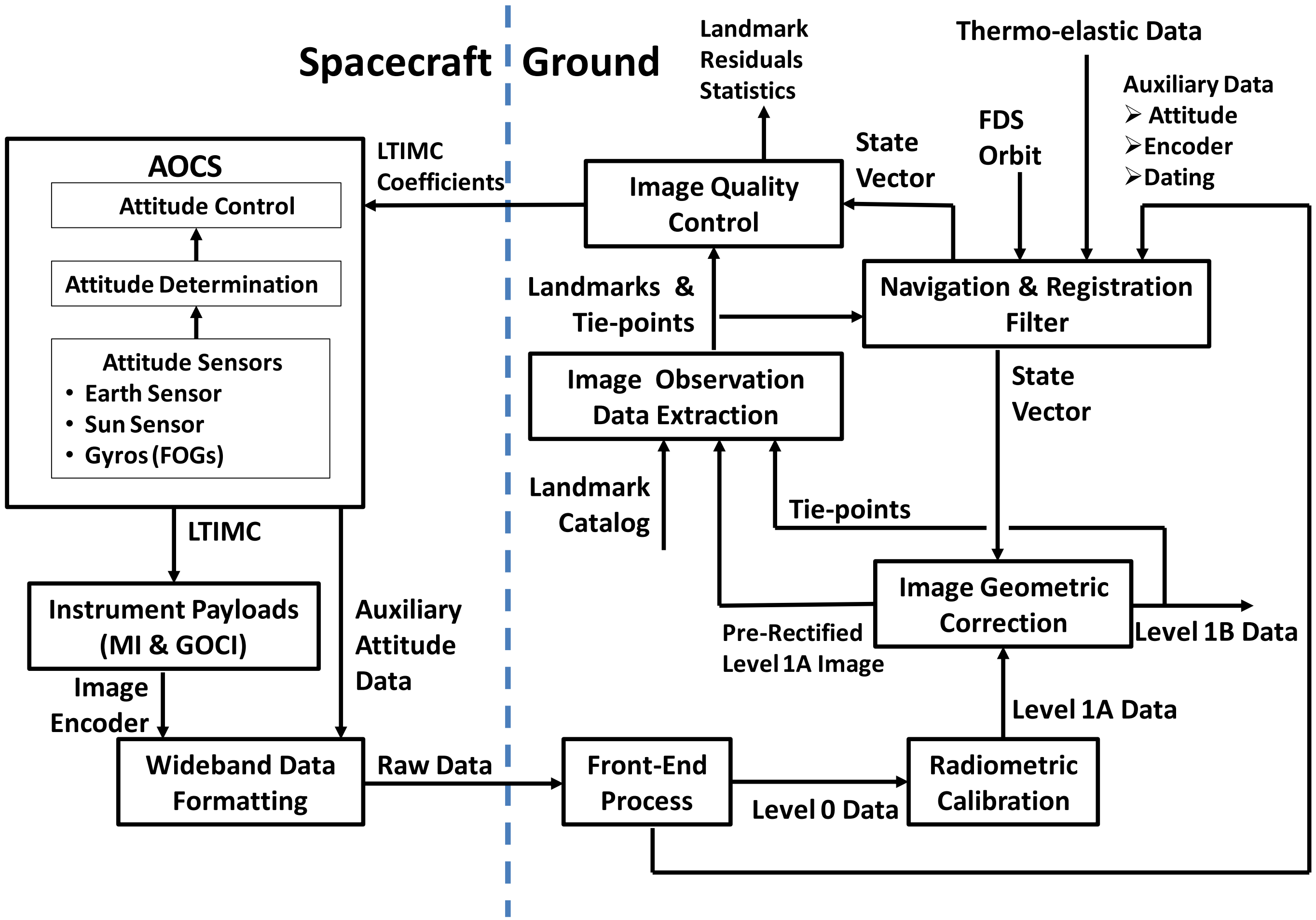
- **COMS INR (Image Navigation and Registration)**

A noble approach based on

"A Posteriori" Least Square processing algorithm

- high dependence on the 'landmark measurements'
- executed in 'batch' type data processing

- **COMS INR, overall architecture**



Introduction (4)

- **'Timeliness'**

  - A dictionary definition :
    "the state of happening or appearing
    at the right or an opportune time"

  - Interchangeably used in almost the same meaning/way
    as the product 'latency' or the processing time delay

  - A key parameter for a meteorological sensing system,
    mainly because of the urgency associated with the
    management of severe weather events, among others

Status (1)

- **Current Operational Status**

All within spec., with very good Nav. & Reg. performances, but in terms of the timeliness …

* Origin of the Issue

Ref: (COMS System Req. Spec.)

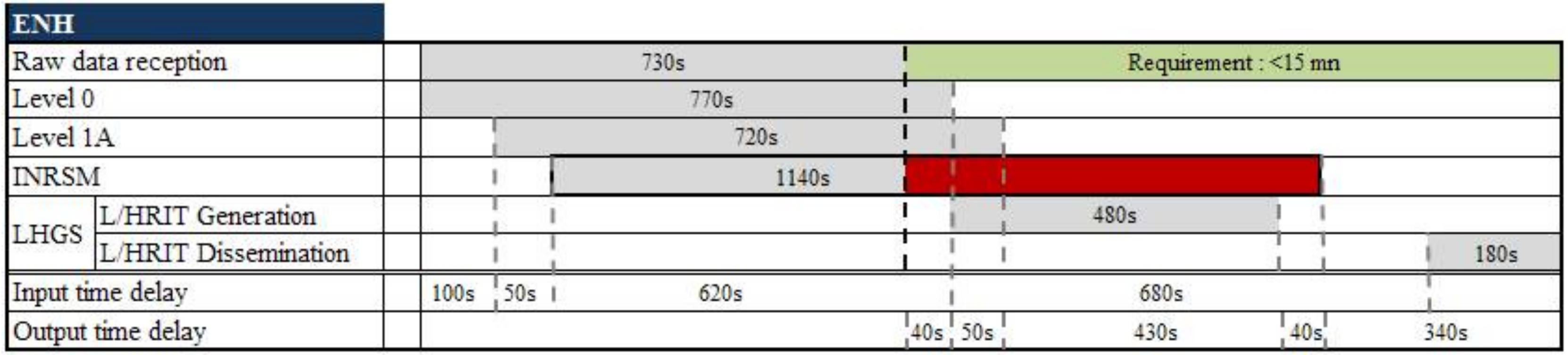
3.7 Timeliness and Coverage of Meteorological Data Delivery

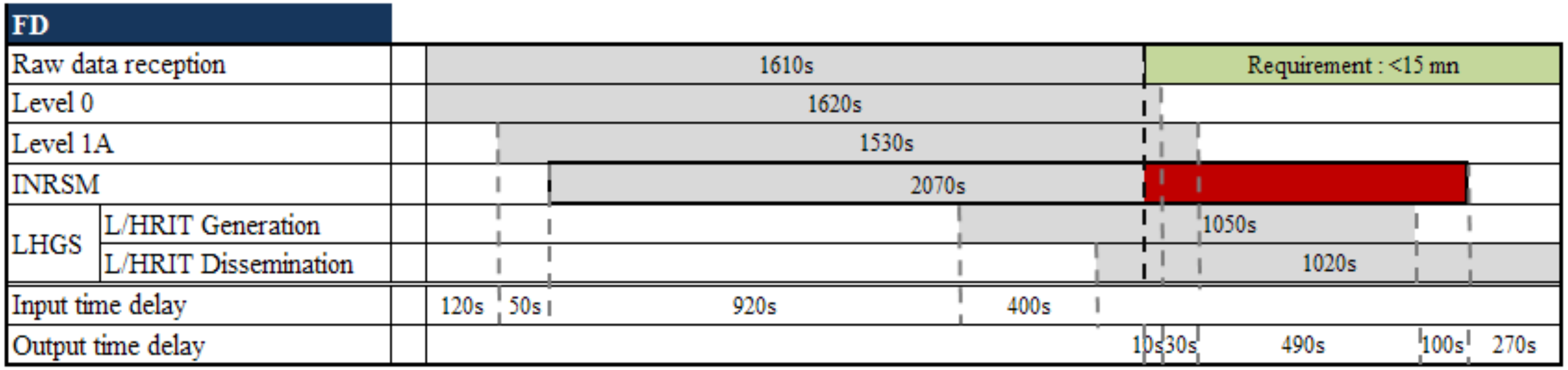
(SR - 128/)

"***For the meteorological mission, the HRIT and LRIT data shall be delivered to end users within 15 minutes after the end of image acquisition.***"

Status (2)

- **Current Operational Status**





Actions for Resolutions

- **Efforts for Resolution/Improvement**

(A) Approach on the Hardware

- Improvement on INR processing machines, using a single multi-core system

(B) Approach on the Existing Algorithm

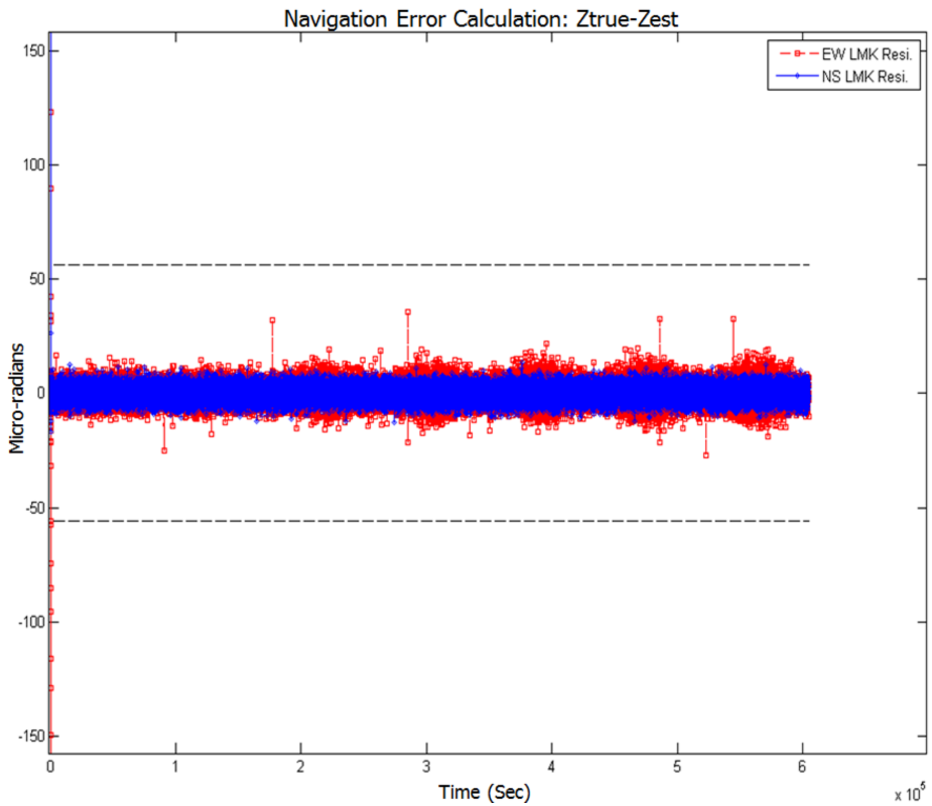
- Enhancement of the existing algorithm efficiency and the overall integrity of the operational software

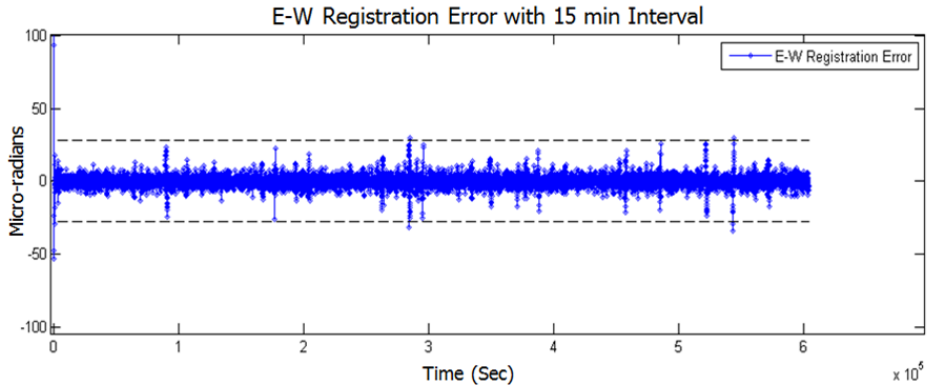
(C) Approach with a New Algorithm

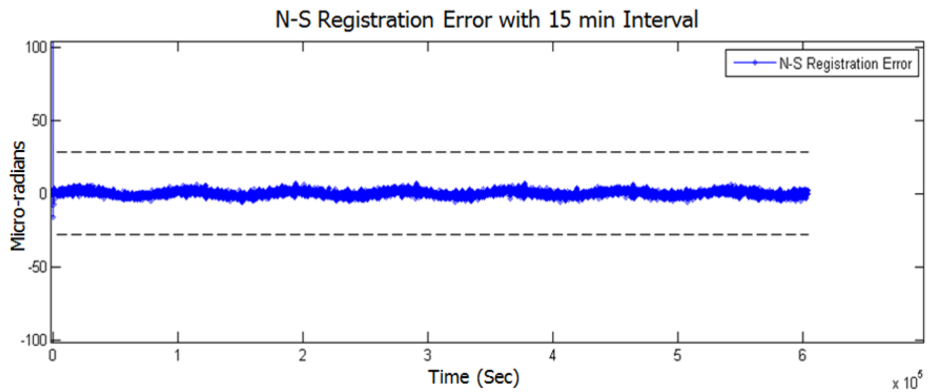
- Partial replacement of the “a posteriori” least square algorithm with a real-time Kalman filter algorithm

Progress and Expectations (1)

- **Some Key Results (in approach (C))**

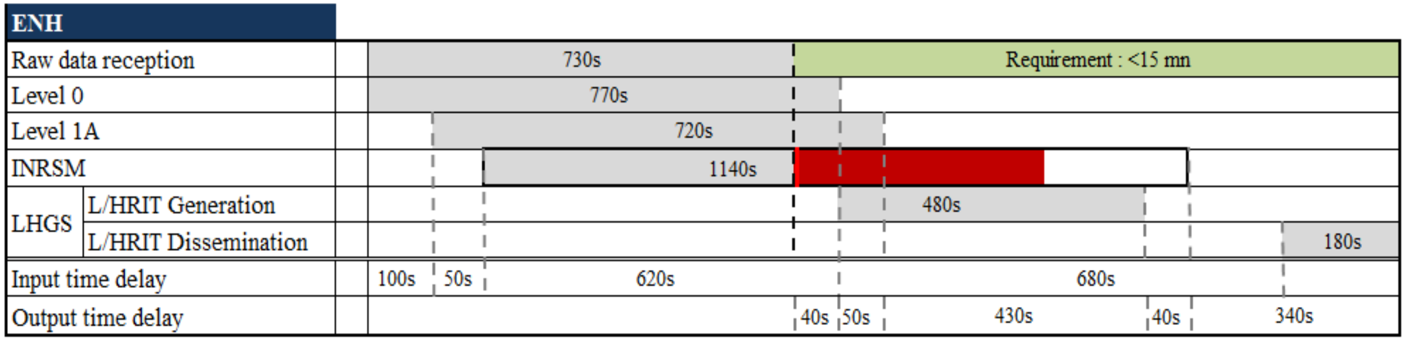


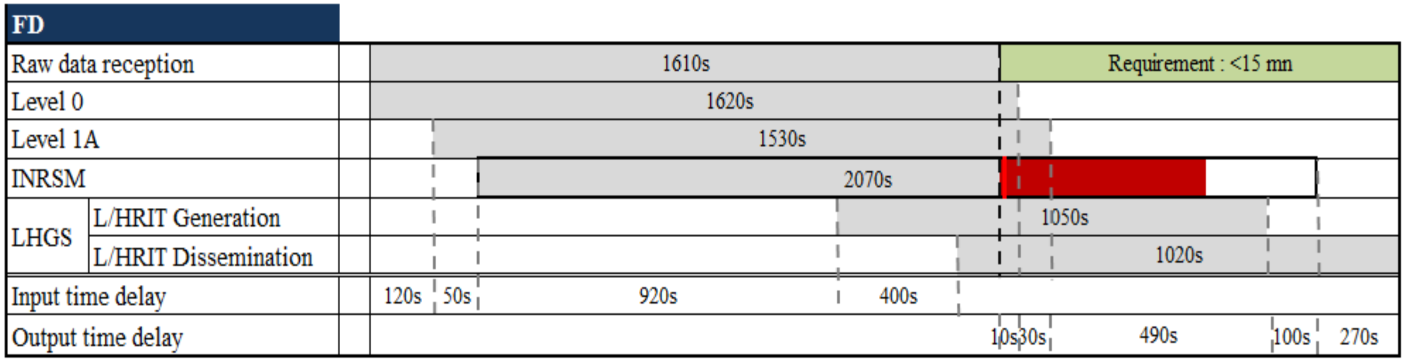




- **Expected Implementation and Performances**

(I) In Approaches (A) and (B)





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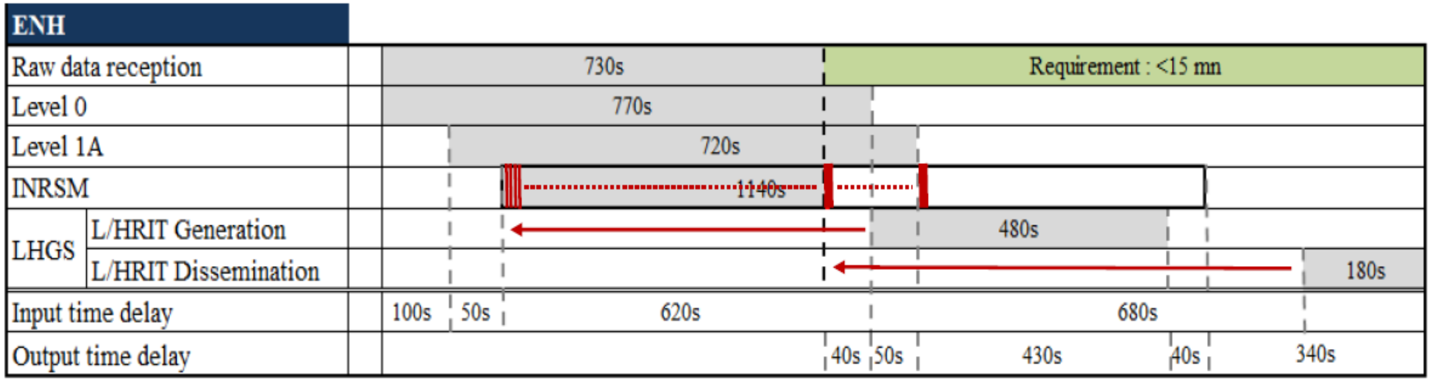
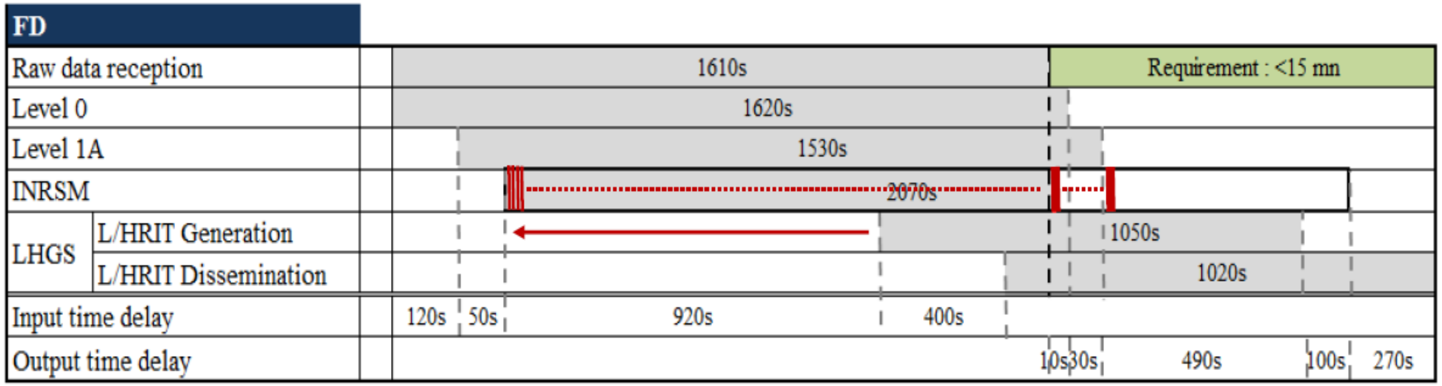
- **Expected Implementation and Performances**

(II) In Approaches (C)





Conclusion and Discussions (1)

- With the completed implementation of the current efforts tar geted in 2014, it is anticipated that COMS data product timeli ness will be in the comparable range with that of MTSAT2 an d other similar meteorological satellites.

- It is anticipated that the value of COMS data products then will be accordingly enhanced for the benefit of user communi ty in this region, with the comparison and in conjunction wit h other similar data products.

- The lessons-learned herein exemplify and signify that the us er-developer interface/interaction is critical, and especially in the early program definition phase. It can impact the whole course of satellite development, ground/in-orbit validation an d the final use and application of the satellite end products, i n terms of cost, schedule and final utility of the data.

Conclusion and Discussions (2)

- Close dialogue and efficient discussion should be in place between user and developer to minimize or eliminate in advance this nature of negative impact.

- System engineering in the large scale should be able to compensate this impact due to the potential mis-specification in the program definition phase, by interactive and flexible adjustment, modification and/or reconfiguration of both specification and development concept, through the entire course of satellite development and in the final application.

- It is anticipated from here on that more active dialogue and information share in the user community in this region will help to prevent the recurrence of similar issues of this nature in advance and lessen the burden of resolving them.

Conclusion and Discussions (3)

- "In our increasingly inter-dependent world, winning requires more than just delivering on your own promises. It means en suring that a host of partners – some visible, some hidden – deliver on their promises, too."

  - Ron Adner, 'The Wide Lens'