Conception of H3 rocket ground facilities

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ABSTRACT

The next flagship launch system of Japan, the H3 launch vehicle is under development with the aim of making a debut test flight in FY2020. The purposes of the H3 are to ensure Japan’s sustainable access to space and to be competitive in the satellite launch market.

The main requirements of the H3 are as follows:
- Launch capability: sufficient to support a wide variety of payloads ranging from Japanese national payloads to commercial ones,
- Launch price: a half of those of H-IIA/HIIB launch vehicles,
- Maintenance cost: a half of current expense,
- Minimum turnaround time: a half of current period.

Although operability and maintainability of the ground segments become important criteria to achieve these requirements, plenty of existing “aging” facilities remain H3 rocket phase because they are common among H-IIA/H-II B and H3.

Under these conditions, the key items of improvement are reduction of facilities and equipment to be maintained by optimizing allocation of function between vehicle and ground facilities, and reduction of workload by distant control and automation.

This paper provides conception and development plan of H3 rocket ground facilities with demonstrating how to harmonise brand-new rocket and facilities with existing infrastructure, and how to realise shortening operation period and reducing maintenance cost.