

High-Altitude Balloon Design System based on Open-Source

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Abstract

As a new-style platform, There are some characteristics at the platform of High-Altitude Balloon. The flight altitude is lower than the satellite's but the covering area is sizeable. And the cost is cheaper. So it is meaning for the scientific research and national defence.

Many High-Altitude Balloon Design Institutions are constituted in many countries. For example, The NSBF runs the plan of high-altitude balloon design. And the Ultra-Long Duration Balloon Project of NASA takes the research to a new times.

The software of balloon is designed at fifties years last century firstly. But it has some restricts and lacks. The High-Altitude Balloon Design System (HABD) which is developed by the author has some obvious characteristics.

1. Integration.
2. open-source
3. Multi-object contrasting

It is used the Object-oriented method to conformity the data. The user can design the project using the open-source function of user-defined developing and baseline comparing of multi-agents. It is proved by the examples that the High-Altitude Balloon Design System can synthetically estimate the analyzing results of model establishing, capability and charge evaluation. And the system can combine the project designing and applications of numeric cutting machining and flying simulation together. We offer a integration design system which is more effective for the science research of high altitude balloon

Keyword: High-Altitude balloon; integration; Open-source; Synthesis Design System;