

Principle of Formation of a Redundancy Parameter of the Information Stream from Analogue Sensors of Slowly Changing Parameters and the Algorithm of its Implementation

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Abstract. The article justifies and sets the task to develop the algorithms of information processing in onboard radio telemetry systems (RTS), which will define:

- Presence of redundancy of information from the sensors and its reduction;
- Redistribution of information packets from the sensors in transfer frames of onboard RTS in case of emergency.

Based on the earlier offered adaptive difference algorithm (ADA) [1, 2], which allows one to eliminate redundancy appeared due to the incorrectly chosen measurement scale, an adaptive difference algorithm with decimation (ADAD) is developed. This algorithm makes it possible to reduce redundancy caused by the increased sampling frequency. A cumulative maximum factor of elimination of redundancy of ADAD is formed by multiplication of the factor of compression of the ADA and the maximum factor of decimation.

ADAD allows you to change the number of measurements transmitted in the package depending on the behavior of the monitored signal, and creates a reserve of information in the frame due to low-information sensors. Compression of the data occurs at the expense of transfer differences between measurements. Thus in the course of algorithm operation the sign Δ (the greatest number of bits which occupies a difference between adjacent measurements within one packet) is formed. The sign Δ is the redundancy indicator of the information stream in onboard RTS.

Keywords: onboard processing of measurement results, reduction of data redundancy, information packet, onboard radio telemetry system