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«Conference on Applied Physics,
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«Research of vibroacoustic signals in diagnostics of technical condition
of engines of beet harvesters combines»

Authors:

I L Rogovskii, O S Zapadlovskij, S A Voinash, K Y Maksimovich, V A Sokolova, S V Alekseeva
and M V Taraban



Problem statement

- The use of modern compact measuring modules with low energy costs enables designing and manufacturing of diagnostic devices in mobile version for installation directly on the tool during testing. Thereby, research aimed at developing a methodology for diagnosing mechanisms and systems based on the evaluation of vibroacoustic signals generated in the internal-combustion engine during operation, as a method of control is quite relevant for agriculture. To develop a virtual device for input, generation, simulation, and digital processing of vibroacoustic signals during vibrodiagnosis of internal-combustion engine of beet harvesters combines.



Solution methods

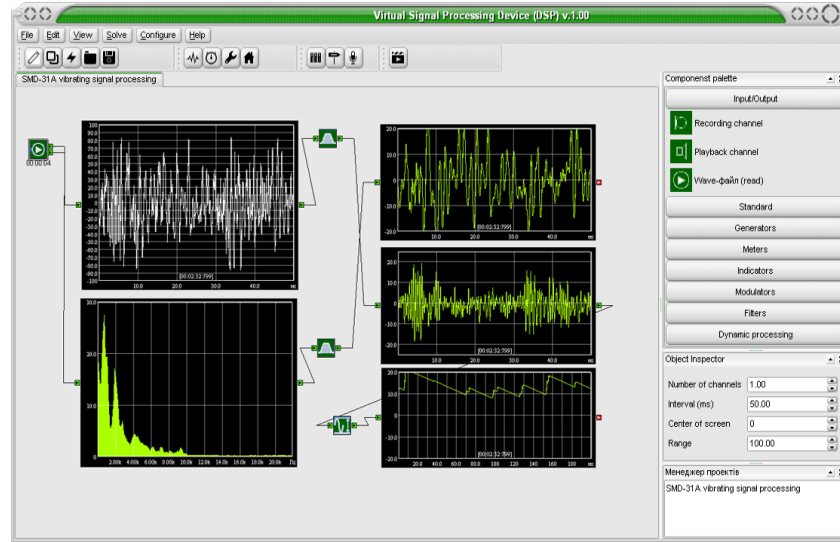


Figure 2. DSP Virtual Device Main Window.

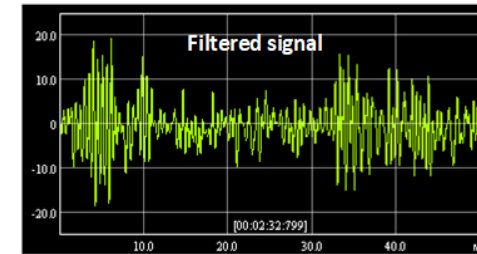
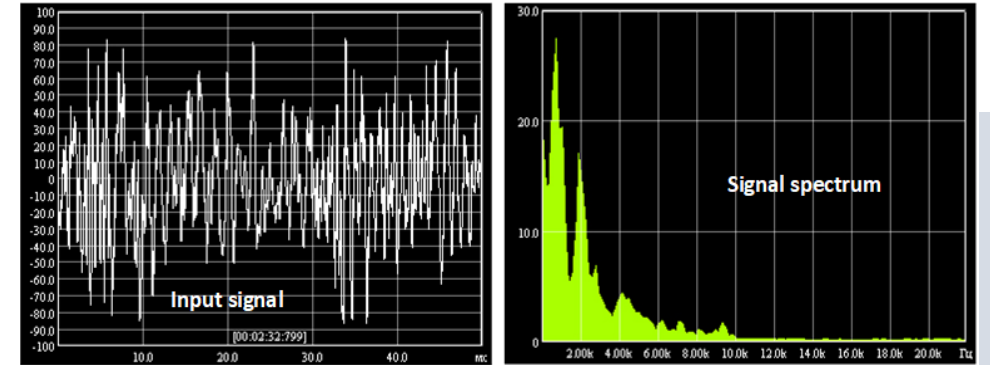


Figure 3. Processing implementation (spectral density, filtration).

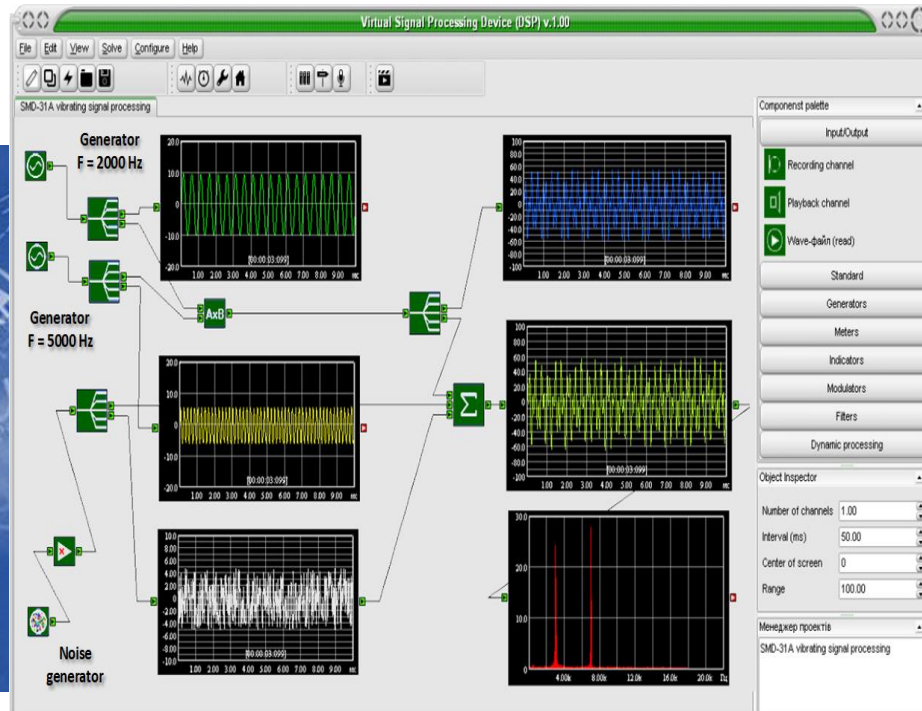


Figure 5. Simulation of the total signal from generators and their processing.

Conclusions

Results, implementation

- Virtual gadget technology is a method that has already proven itself for developing and building test systems. This unique approach offers enormous opportunities for design engineers who need the only one tooling environment for designing, testing and implementing ready-made solutions.
- The virtual instrument for the introduction and digital processing of measurement information for the system of vibration diagnostics of diesel engines of beet harvesters combines offered in this article can be used in different scientific and industrial activities.

Contacts

Authors name Sergey Voinash

- Novosibirsk State Agrarian University, 160 Dobrolyubova str., Novosibirsk, 630039, Russian Federation

E-mail: sergey_voi@mail.ru

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