PRESENTATION OF SOFTWARE TOOL FOR EMBEDDING AND EXTRACTING HIDDEN MESSAGES IN AUDIO FILES

Zharkikh Aleksandr, Gorbunov Aleksei

DEFINITIONS

STEGANOGRAPHY IS THE PRACTICE OF CONCEALING MESSAGES OR INFORMATION WITHIN OTHER NONSECRET TEXT OR DATA.

STEGANALYSIS IS THE STUDY OF DETECTING MESSAGES HIDDEN USING STEGANOGRAPHY.

MESSAGE IS CONCEALED INFORMATION.

CONTAINER IS THE DATA USED FOR HIDING MESSAGES.

STEGO IS A CONTAINER CONTAINING A SECRET MESSAGE.

STEGANOGRAPHY APPLICATIONS

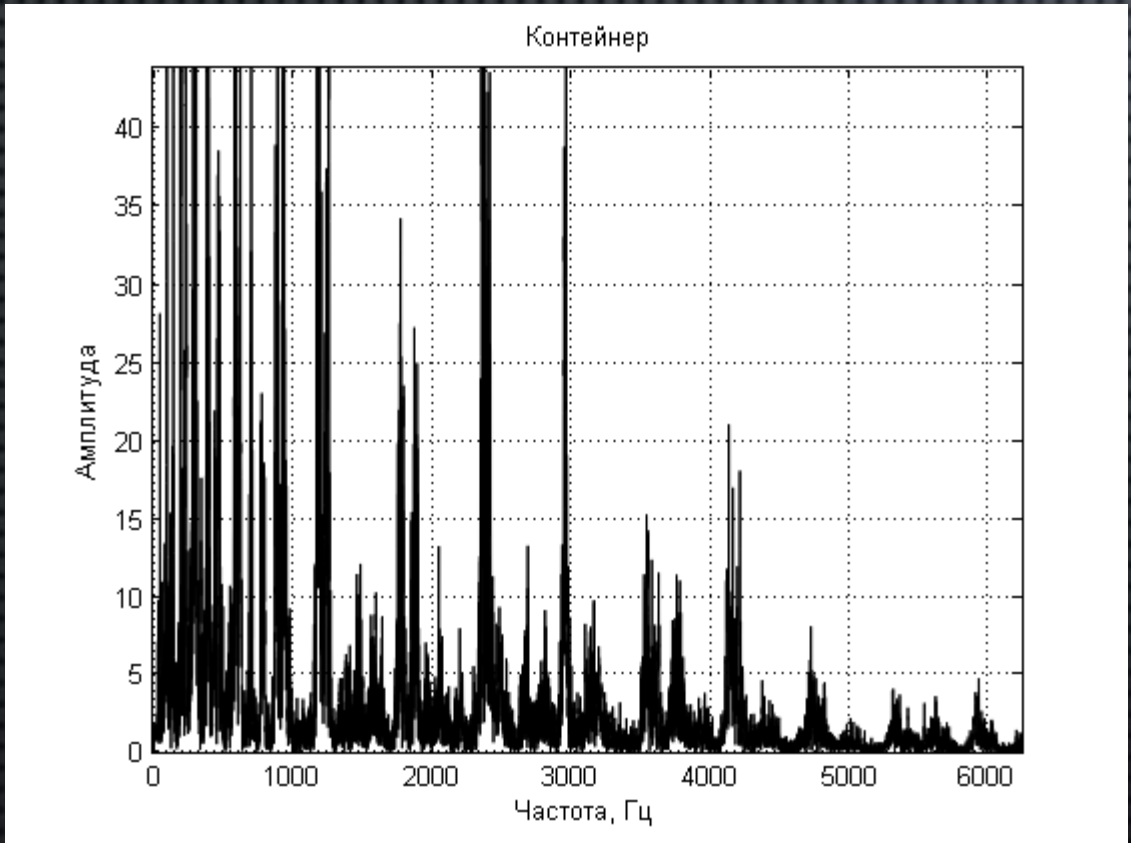
- WATERMARKING
- FINGERPRINTING
- CAPTIONING
- DATA HIDING

EMBEDDING ALGORITHM

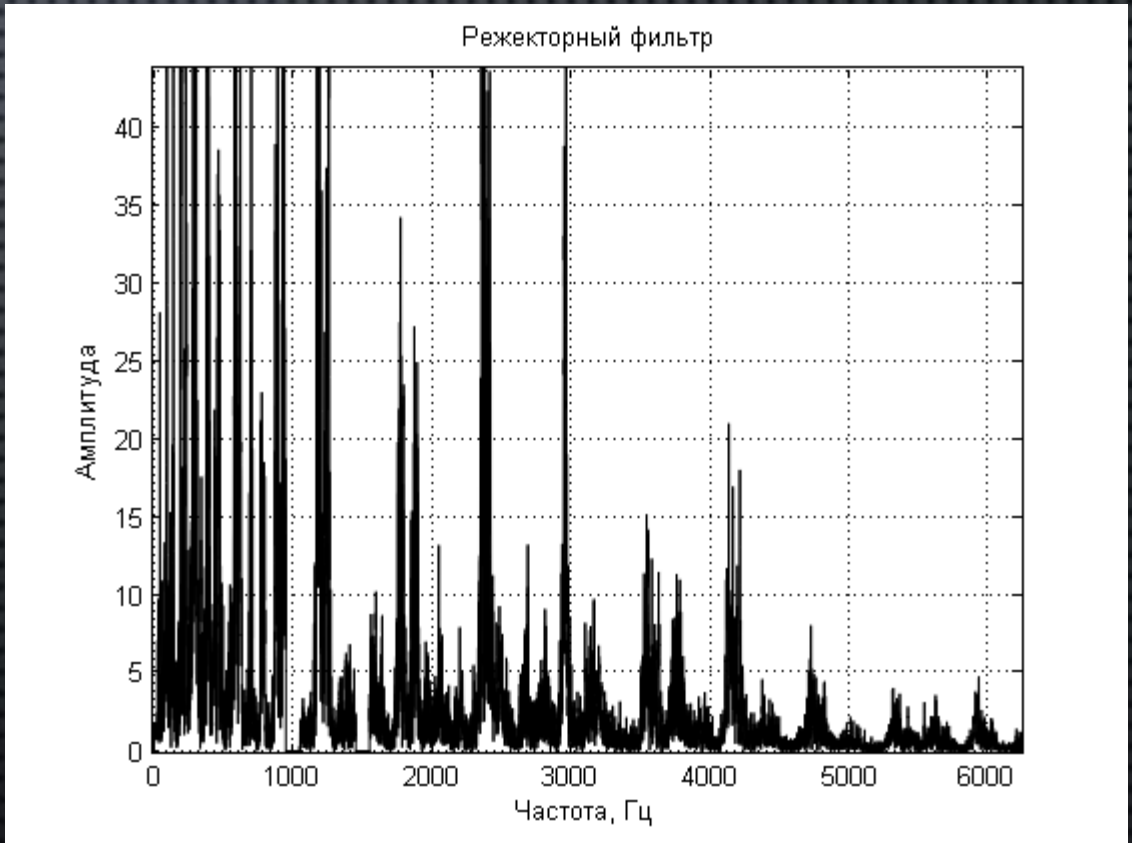
DIAGRAM

EMBEDDING ALGORITHM

NOTCH FILTER (950 – 1050 HZ, 1450 – 1550 HZ)



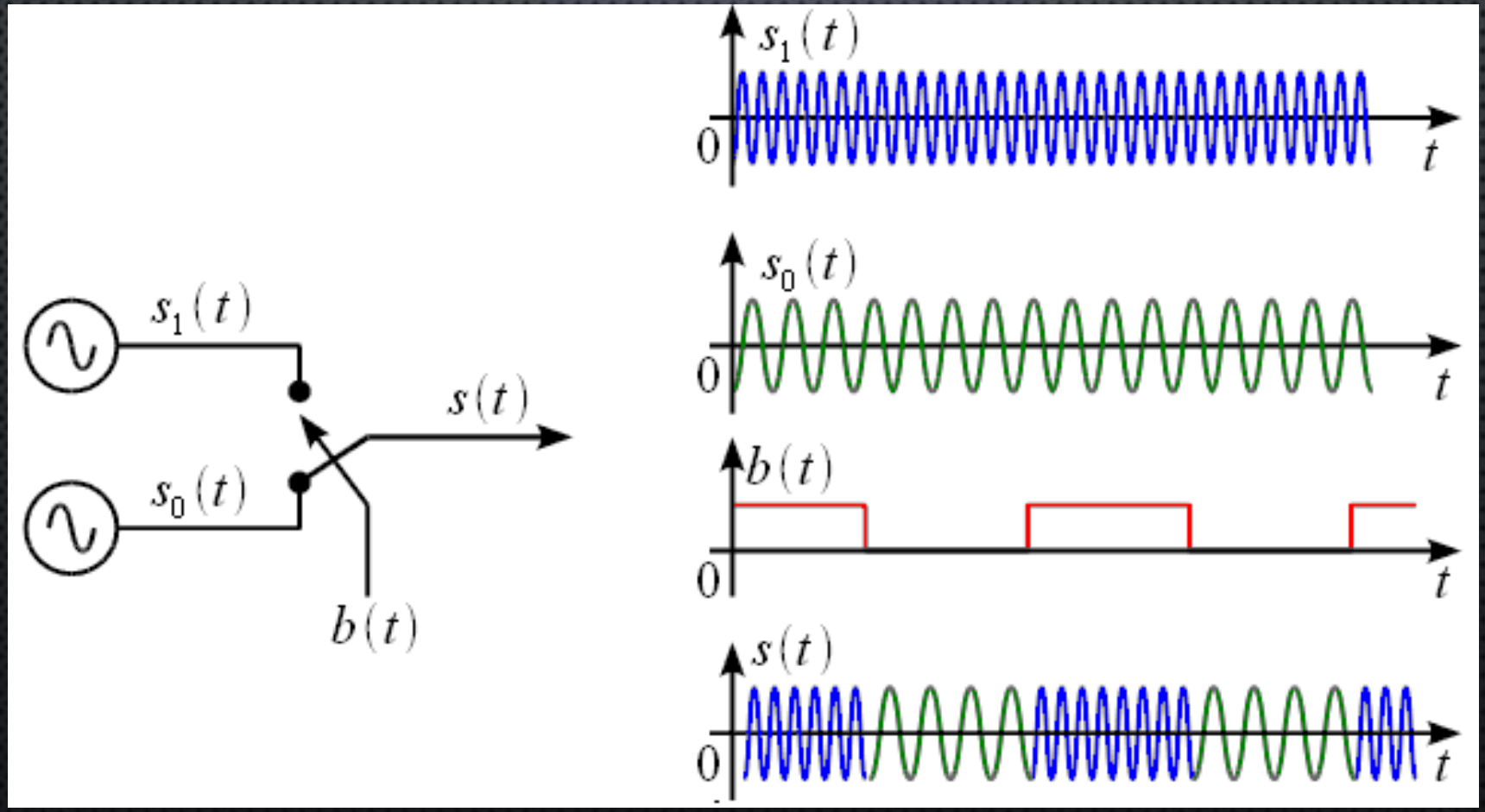
The spectrum of the original signal



The spectrum of the filtered signal

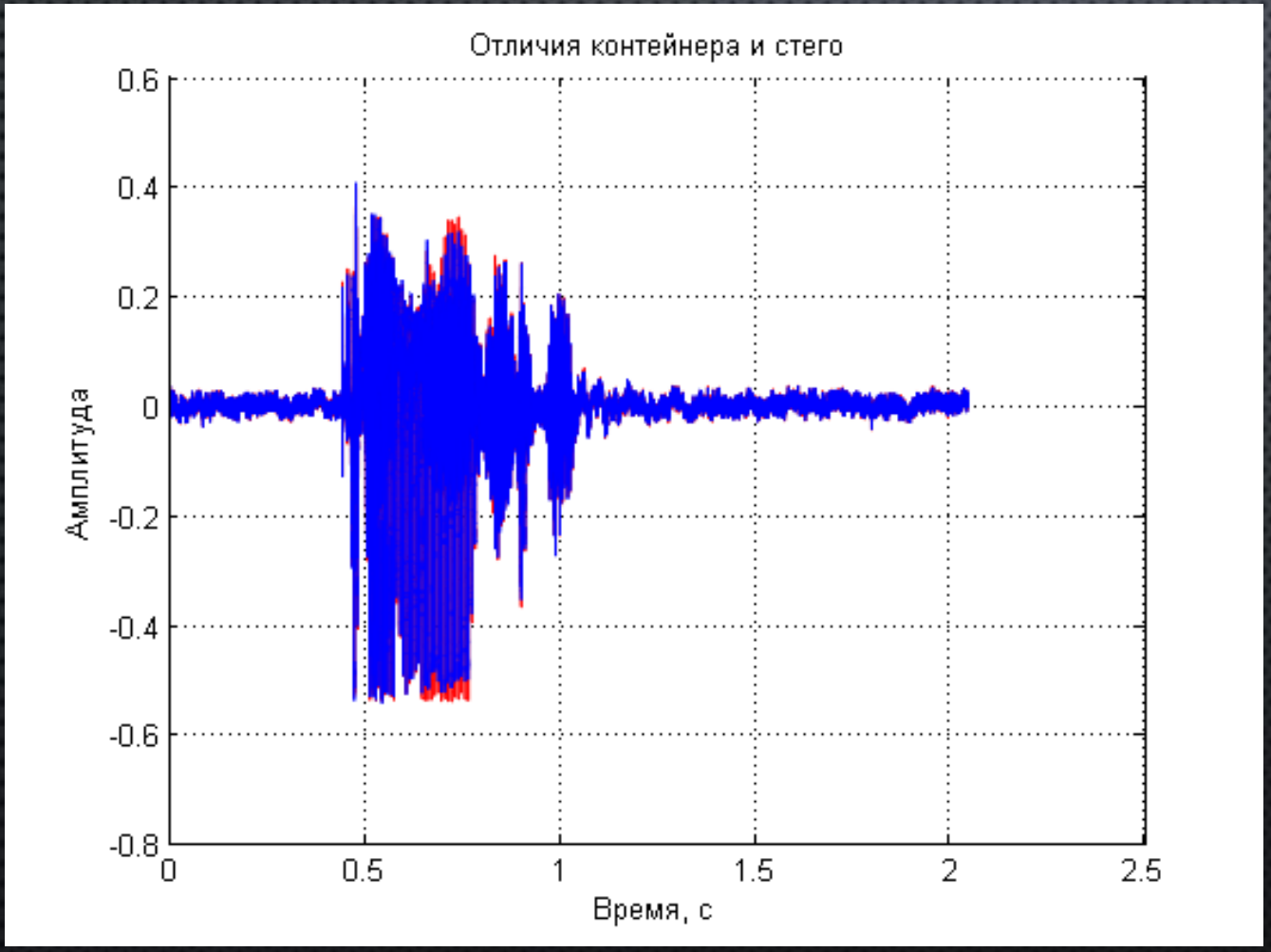
EMBEDDING ALGORITHM

BINARY FREQUENCY SHIFT KEYING



EMBEDDING ALGORITHM

RESULTING SIGNAL (950 – 1050 HZ, 1450 – 1550 HZ. SPEECH)

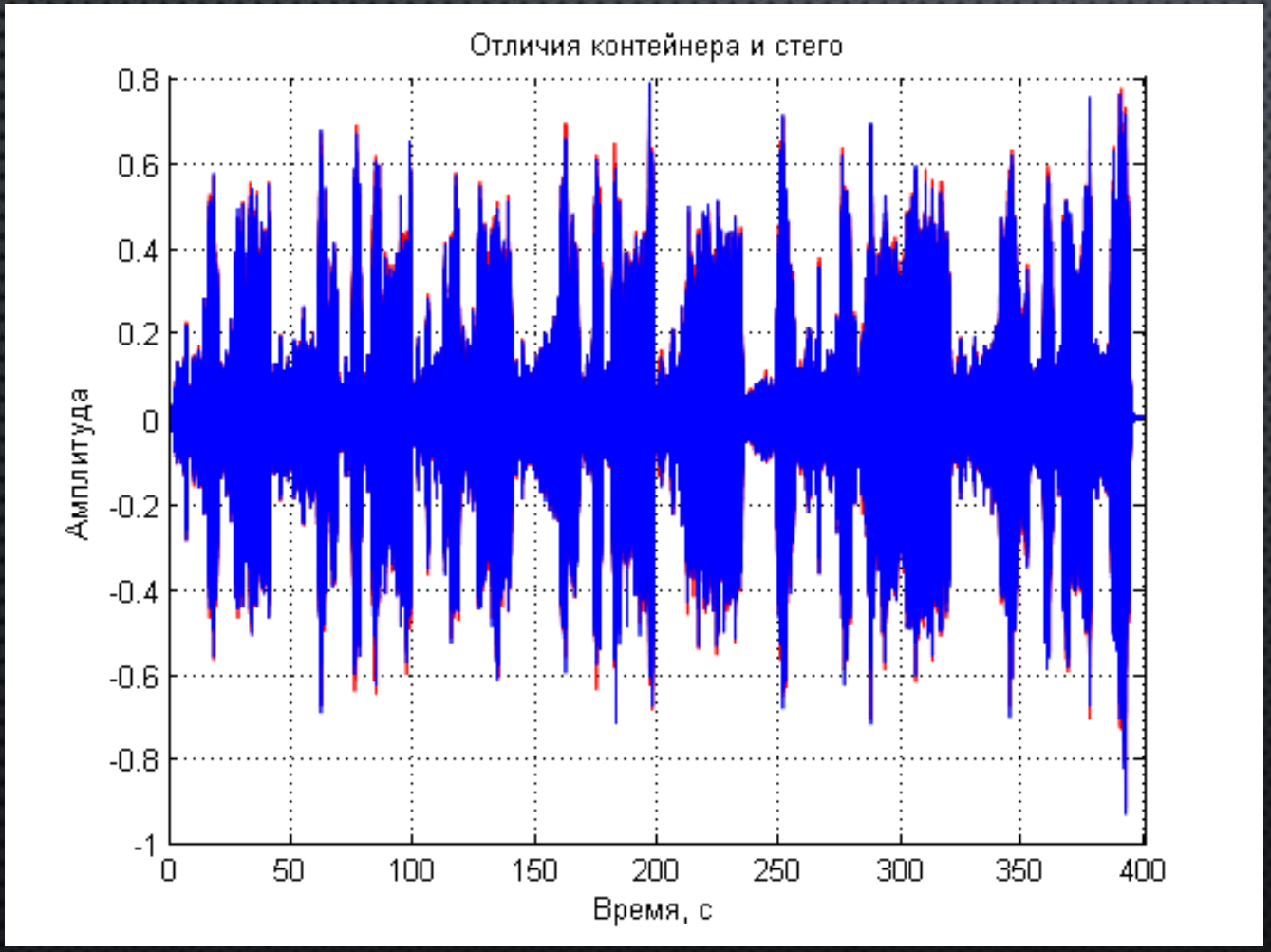


Original signal

Stego signal

EMBEDDING ALGORITHM

RESULTING SIGNAL (950 – 1050 HZ, 1450 – 1550 HZ. MUSIC)



Original signal

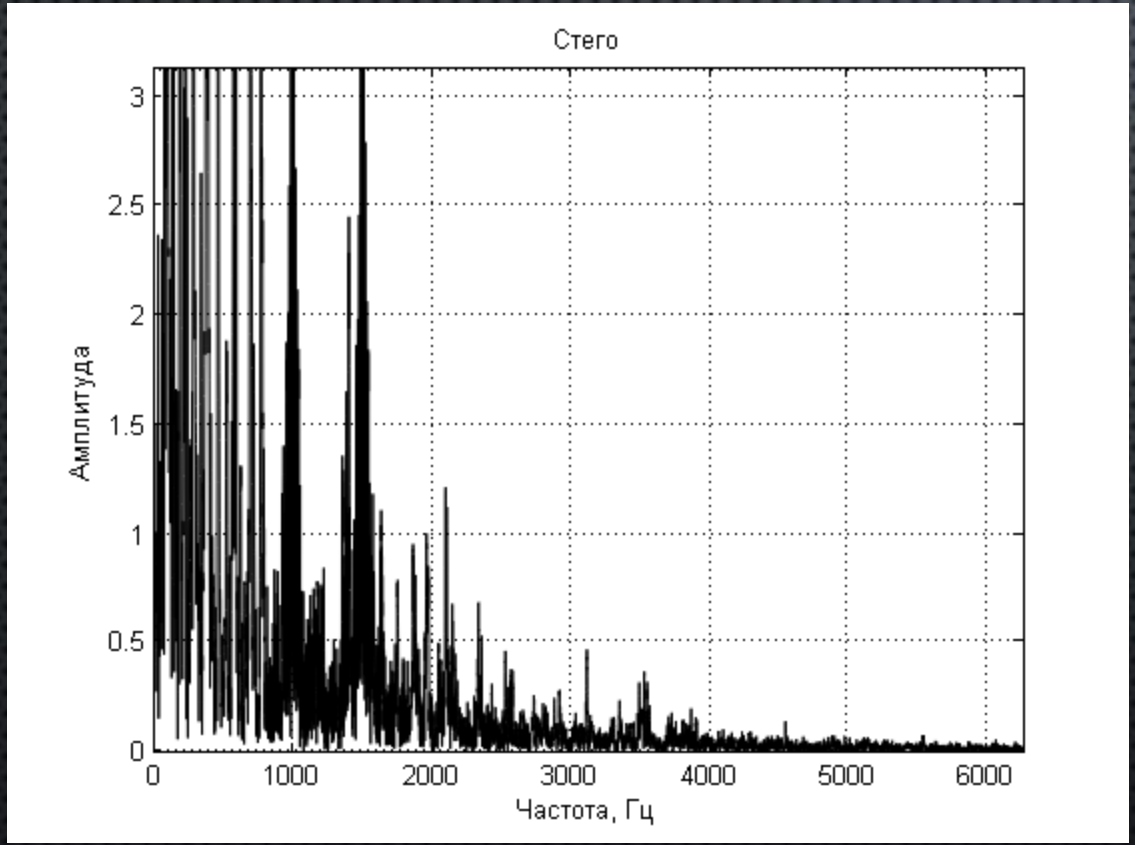
Stego signal

EXTRACTION ALGORITHM

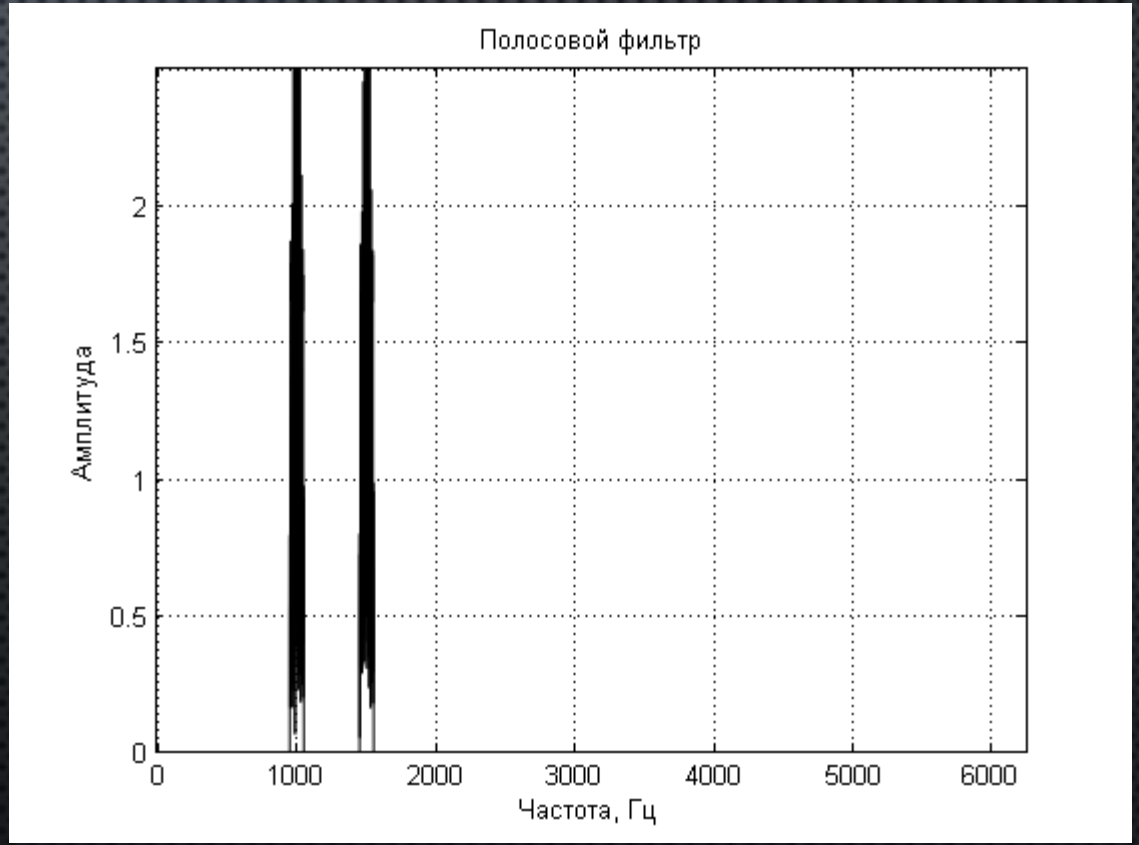
DIAGRAM

EXTRACTION ALGORITHM

BAND-PASS FILTER (950 – 1050 HZ, 1450 – 1550 HZ)



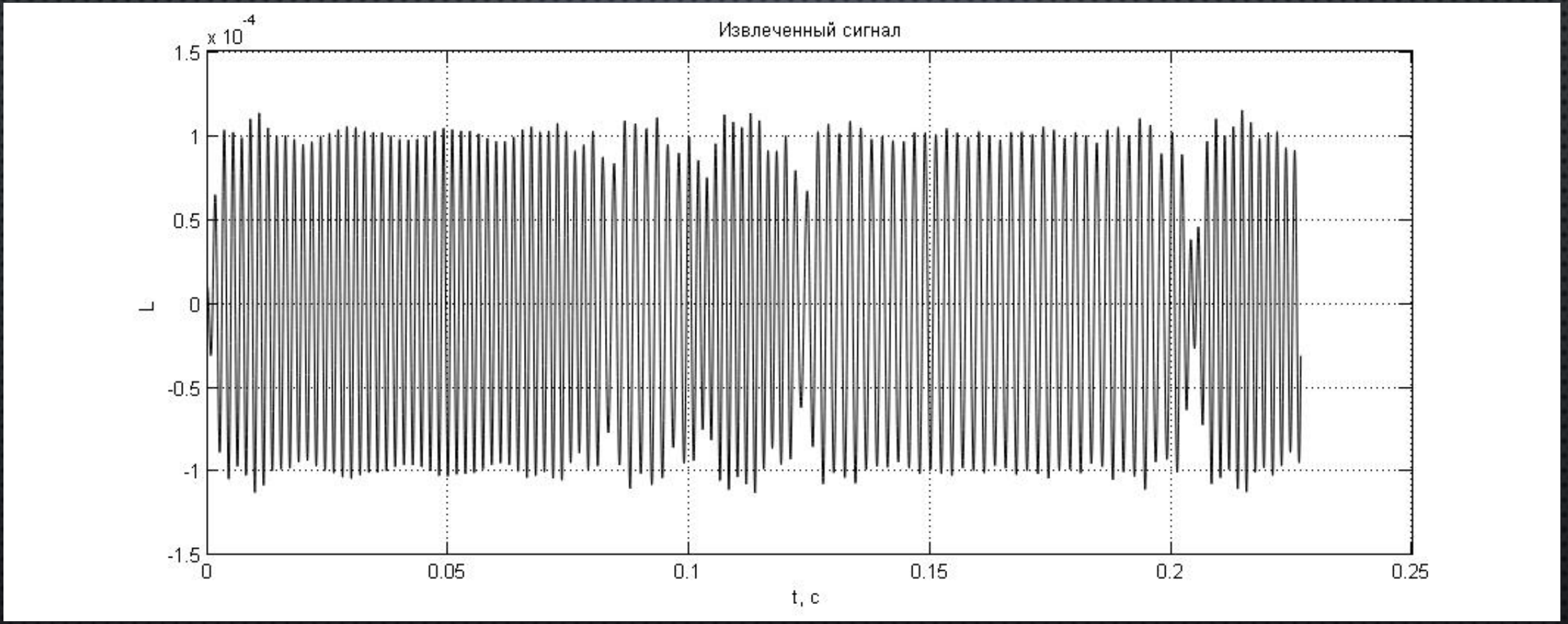
The spectrum of the stego signal



The spectrum of the filtered signal

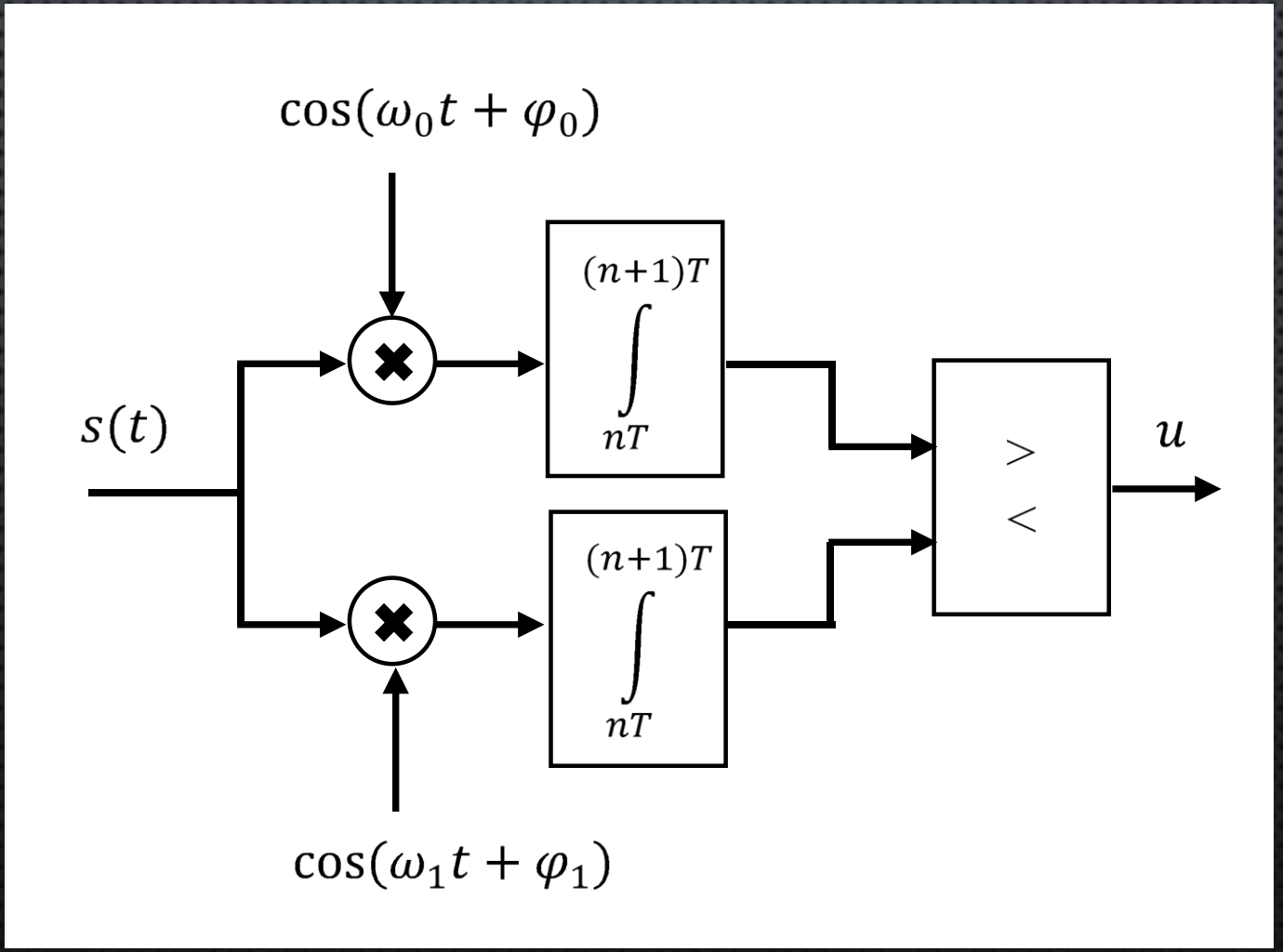
EXTRACTION ALGORITHM

EXTRACTED SIGNAL



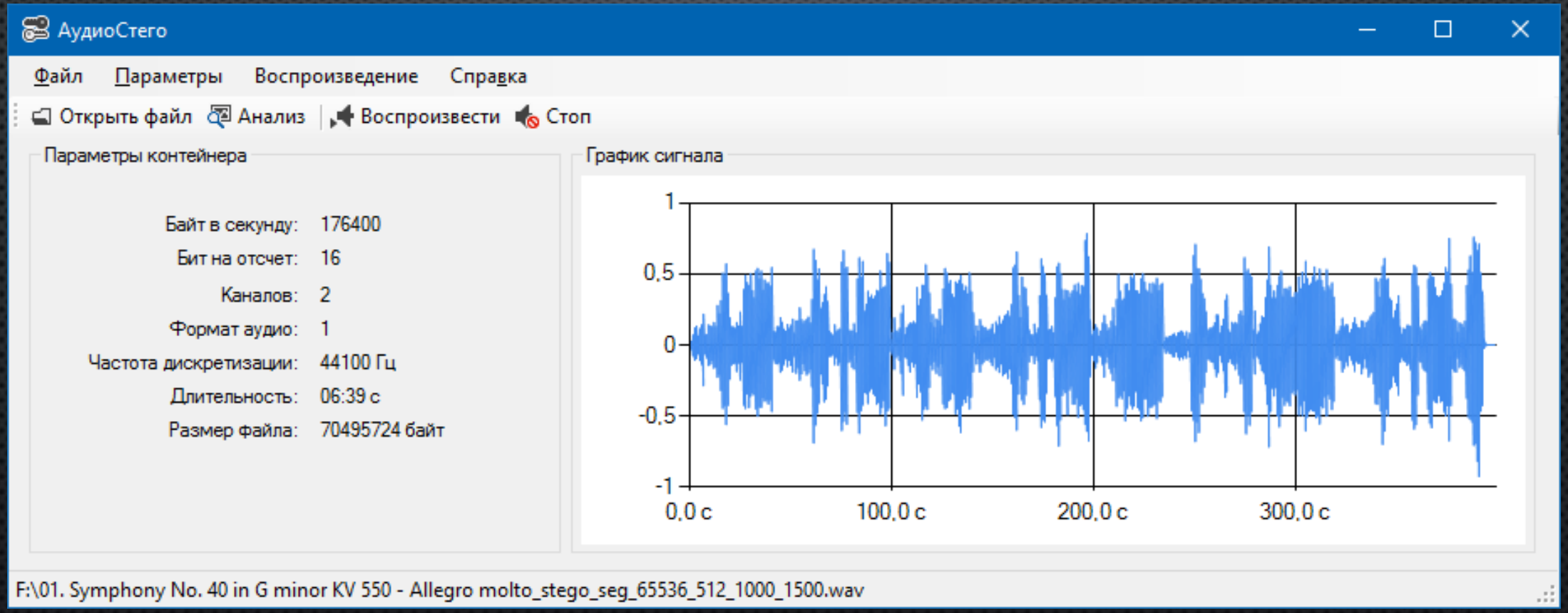
DETECTION AND READING

DEMODULATION



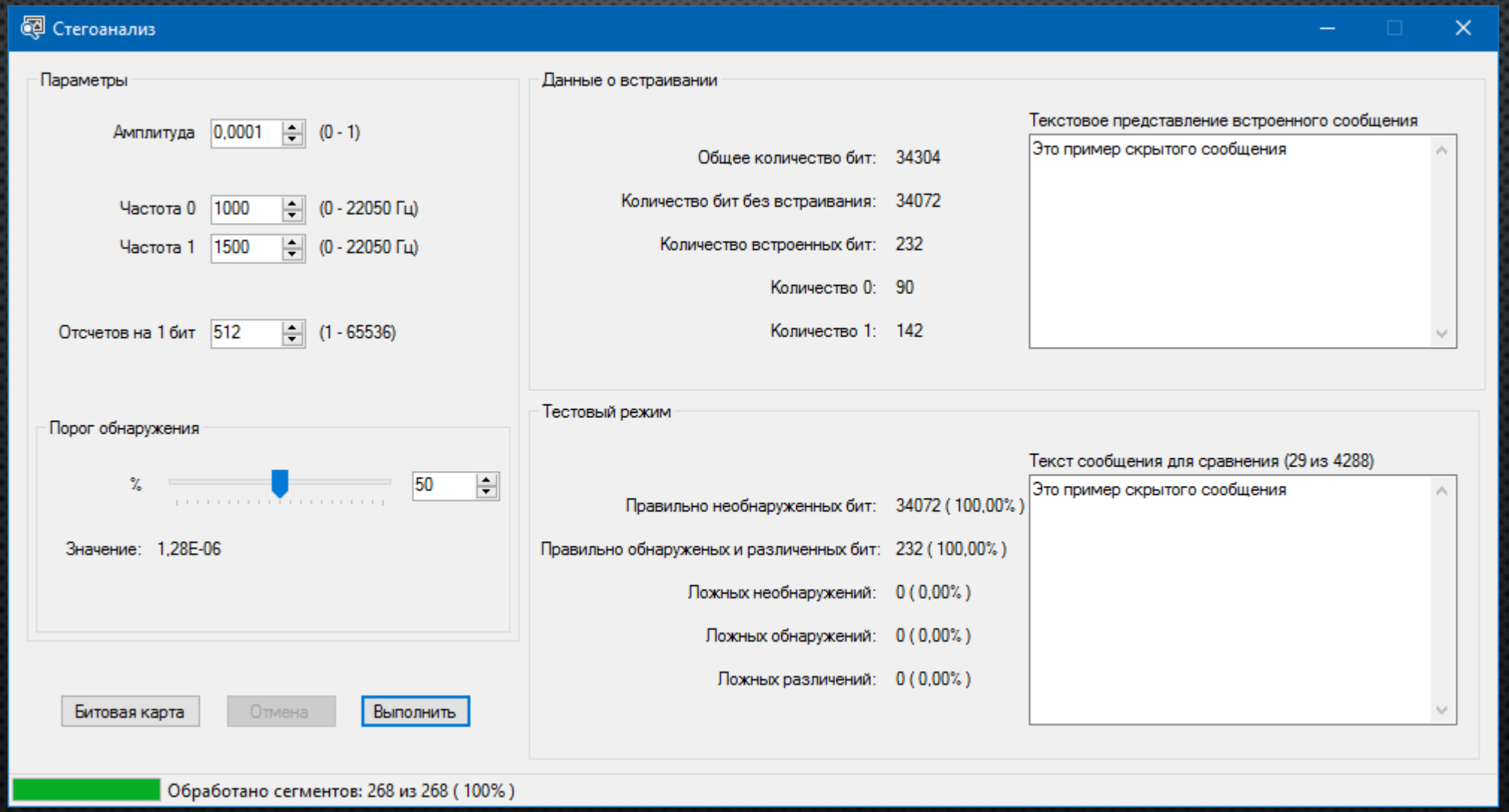
SOFTWARE TOOL

CONTAINER



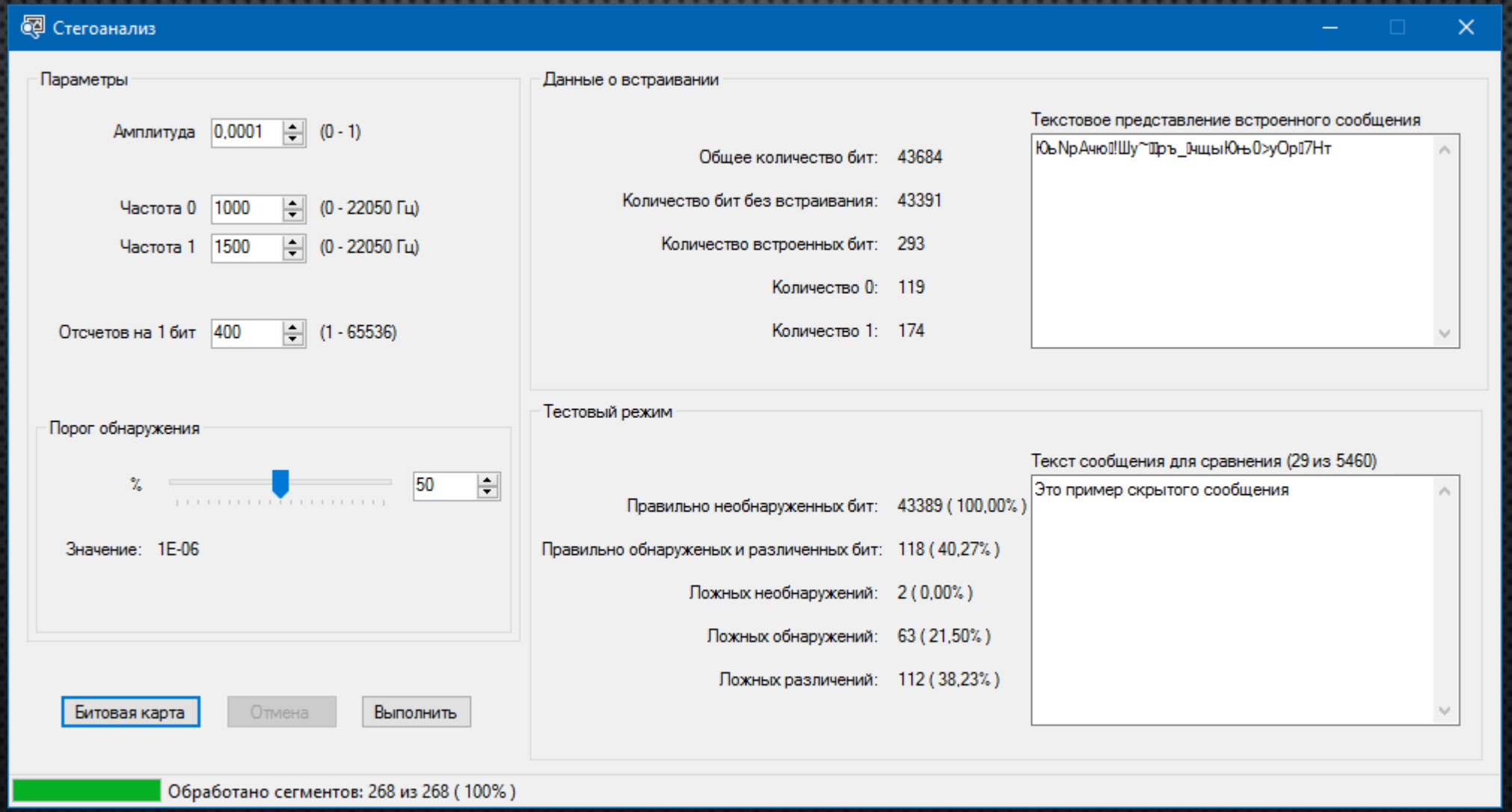
SOFTWARE TOOL

ANALYSIS



SOFTWARE TOOL

ANALYSIS



CONCLUSIONS

In work results of development of a software for embedding, extraction, detection and reading of messages in audiofiles are provided. The methodology of work and program implementation belong to a steganography - one of the main directions of information security.

The methodology and software are a basis for steganography systems with frequency hopping (FH) and with a variation of prosodic parameters of the speech creation.

MONOGRAPH

TECHNOLOGY OF EMBEDDING DIGITAL WATERMARKS IN AUDIO

In our work developing the ideas presented in the book "Technology of embedding digital watermarks in audio" (Gurin A.V., Zharkikh A.A. Plastunov V.Y.).

Various aspects of technologies of embedding of digital watermarks in an audiosignal are presented in the monograph. The general principles of embedding of digital watermarks are given. Embedding in audiosignals is considered. Therefore physics of a sound, physiology of perception of a sound by the human, the principles of digital-analog and analog-digital transformation of signals and some formats of audiofiles are presented. Technologies of embedding are presented by known and new methods. Feature of the monograph is that the majority of the given methods are based on scientific publications of authors.

THANK YOU FOR YOUR ATTENTION.