BROADBAND ELECTRIC-BULK EMITTERS FOR HIGH-RESOLUTION SEISMIC SURVEYS

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The features of seismic sources are examined for seismic exploration of aquatoriums on the basis of multigap electro-bit acoustic emitter middling and high-frequency seismic range with possibility of expansion of spectral closeness of acoustic radiation in a low-frequency area for the increase of depth researches at maintenance of high-frequency constituents of seismic signal. On the basis of the experimental data got at the direct measuring of the impulsive acoustic field in a near wavezone, well-proven possibility of forming of broadband acoustic signal (with the base of signal anymore than unit) in the range of frequencies of 1,5 kHz -7 kHz and by amplitude anymore at 10 MPa. On figure resulted oscillogram of bit current in the bit contour of capacity store of energy by the capacity of 200 μF at the size of inductance bit to the contour of electro-bit acoustic emitter of 20 μH (yellow curve) and registered by means of hydrophone with the stripe of the registered in a near wavezone in the distance a 1 m acoustic signal (blue curve). The linear scale of the module of spectrum of acoustic signal is there shown. Pressure wavesradiated by the explosively growing channel and by the resulting oscillating bubble were recorded using a broadband hydrophone. The hydrophone's usable frequency range extends from1Hz to 50 kHz with variation sin sensitivity within (+3dB, −11dB) with respect to the low frequency value, reducing to (+2dB,−6dB) for frequencies up to 50 kHz. The hydrophone was positioned at the same depth as the discharge electrodes with its main axis pointing towards the sparker gap. Commutation in a bit contour came true by the semiconductor high-voltage key with the diode connected in parallel to the channel of spark discharges. Such schematic allowed to change the form of impulse of current on pulled-in multi exponential impulse. The spectrum of acoustic signal has a few smooth peak maximums in the range of frequencies of 2 kHz − 7,5 kHz, spectrum width at the level of a 0,5 peak value 3,5 kHz at duration of signal 2,2 ms.