ESTIMATION OF CARDIAC FLOW IN CHILDREN BY MEANS OF IMAGING GATED PULSE DOPPLER
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Moving Target Indicator Cardiac Doppler /4MHz/ described and applied previously /3/ in vessels and coronary grafts imaging was modified to investigate the pediatric hearts with congenital diseases.

The children with ventricular septal defects, atrial septal defects, coarctation of aorta and pulmonary stenosis were examined.

The device used in the investigation enables measurements of blood flow in the small sample volume - transmission duration of 4 μs corresponds to ~3 mm in the tissue and the diameter of the ultrasonic beam in the zone of weak focusing is not greater than 5 mm.

Simultaneously the depth variable blood velocity distribution is displayed on the screen by means of so called Imaging Gated Pulse Doppler /IGPD/. The last one offers a great help in proper positioning of the sample volume within the region of the heart chamber under investigation. In order to minimize the aliasing problem due to the range-velocity ambiguity in pulse Doppler systems, the new type of alias tracking technique was implemented on the basis of Hartley approach /1/, extending the workable range up to $1/2$PRF to PRF and with some limitation even to $3/2$PRF. In terms of velocity it is equal to 2.5 m/s and 5 m/s /angle 60°/ for PRF 6.7 kHz and

13.4 kHz respectively.

1. Hartley C.J., Extending the velocity limits of pulsed Doppler ultrasound, Proc. 32nd ACEMB Denver 6-10 October 1979