POSTER

VR2 – A general purpose sampler and wave analyzer

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A new wave analyzer system has been developed at the BL-Electronics Ltd. for ground based VLF wave measurement network. The instrument is widely used in the AWDA Network in several countries from Finland to the Antarctica. The measurement is synchronized to the GPS time with better than 80 ns accuracy. Detailed wave propagation analysis can be performed using precise time correlated data collected in different regions of the Earth.

The VR2 equipment has a built-in two channel 16bit A/D converter for data sampling. Programmable sampling speed can vary from few ksps up to 200 ksps. The input bandwidth is controlled mainly by the internal FIR filter of the sigma-delta ADC, so there is no problem with the aliases.

The internal data processing unit is based on an ADSP- BF532 DSP from Analog Devices. A Linux operating system is running on the hardware. The unit can work either in stand alone mode or as an intelligent data server unit connected to the PC. Other units and peripherial devices (hard disk, pen drive) can be attached to the instrument using USB master and slave ports and a 100Mbit/s Ethernet interface. In sampler mode the measured data is organized in frames with precise time data and sent to another PC for analysis and storage. The VR2 can run internal data processing too, as more than 70% of processing power is free in sampler mode. Knowing the Linux OS is quite standard, custom data processing software modules can be integrated easily into the system.