A combined flexible and programmable single channel receiver system for interferometer applications.

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A high-performance low power advanced digital TV tuner recently have advanced natural phenomena exploration for decades. The combination of TV tuner with digital demodulator can be realized into a flexible and programmable planetary atmospheric phenomena monitoring system such as USB dongle single channel receiver. This instrument is capable of responding to a wide enough radio wave signal (e.q. 52 –2200 MHz) and generate 8-bit digital data output. This instrument has also been tested from laboratory measurement on Doppler shift response and is now being developed in the construction of a multi-channel receiver system in order to support interferometer observation technique this year. Through this paper, we report on the development of a multi-channel receiver system that can be implemented in an interferometer observation technique. This designed and developed system could be expected to be used for early study of phenomena in the Earth atmosphere using RF signals. In addition, the initial test results of multi-channel system from laboratory measurements using modified open source radio software for receiver function are also shown and discussed in this paper.

Keywords: multi-channel receiver, phase difference, synchronization, GNU Radio, Interferometer

