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Description and Characterization of a New 400 MHz Bandwidth Chirp Transform Spectrometer

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We have developed a new Chirp Transform Spectrometer (CTS) with a bandwidth of 400 MHz and a spectral resolution of 100 KHz. This CTS is using a digital chirp generator and a preprocessing unit based on a CMOS-ASIC. A build in PC 104 computer handles the process control and the communication with the microwave heterodyne system via ethernet and a TTL interface. The CTS has been applied to atmospheric science, i.e. a 25 K noise temperature 22 GHz water vapour- and a 142 GHz ozone system and to the HHSMT submillimeter telescope. In this talk we will provide a description and characterization of the new 400 MHz CTS. Furthermore we will present an intercomparison with other spectrometers derived from the atmospheric as well as the radioastronomical observations.