

Development of a software wave receiver onboard spacecraft

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We propose a novel software wave receiver which can make multi-function and high-efficiency observations by performing onboard data processing. It has two different functions, data compression on waveform observation and digital sweep frequency analysis on spectral observation. The software wave receiver was actually used on the SS-520-2 rocket experiment and has successfully provided high time and frequency resolution data over the frequency range to 3 MHz. The success of the rocket experiment evidences the practicality of the software wave receiver. Furthermore we have improved the data compression technique. As a result, it was confirmed the improved technique can achieve a higher compression ratio with higher quality.