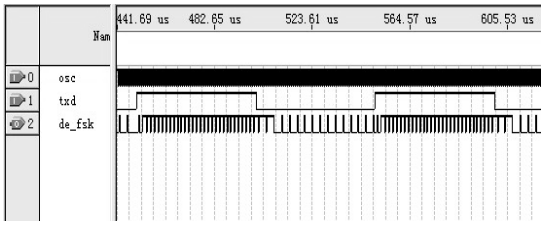

Fig.7 Simulation of FSK demodulation module

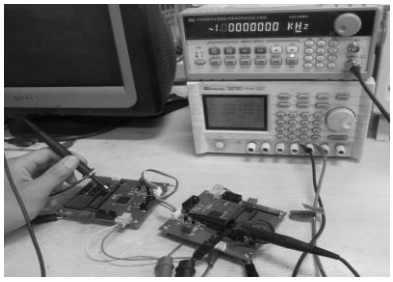

Fig.8 Fabricated circuit of FSK modulation and demodulation based on CPLD

A multi-function signal generator creates a square wave with the frequency of 10 kHz, the peak-to-peak amplitude of 3.3V, the DC bias of 1.65V, which is introduced into the base-band input port of CPLD. The test results about FSK modulation and demodulation are observed by oscilloscope as shown in Fig.9, where the waveform of the first channel is FSK modulation signal and that of the second channel is the signal via demodulation and filter based on CPLD. The RC-type filter with cut-off frequency of 40kHz can smooth the demodulation signal. The data via demodulation and filter is the same with the modulation signal. Experimental tests prove that the highest frequency of modulation signal based on CPLD can arrive at 15kHz. It means that its baud rate with 30kbit/s can come true, whose speed is determined by exchange rate between SPI port of single-chip and USART.

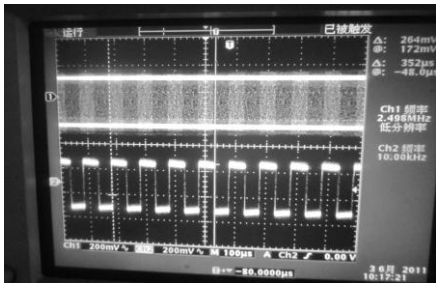

Fig.9 Experimental results of FSK modulation and demodulation

V . Conclusion

Two kinds of schemes of FSK modulation and demodulation based on single-chip and CPLD are compared and analyzed. The whole project FSK modulation and demodulation based on CPLD based on is put forward. A full-digital circuit of FSK modulation and demodulation based on MAXII serial CPLD is designed, and the program of each module is written and validated by simulation. The experimental tests on the circuit show that it can work in order with these advantages of simple structure, good reliability and strong capability of anti-jamming.

VI . Acknowledgment

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