

88 年度國家標準實驗室計畫執行成果摘要表 論文

計畫名稱	中文	建立及維持我國時間與頻率國家標準		
計畫編號	英文	The Maintenance and New Technology Establishment of National standard for Time and frequency		
計畫編號	TL-001-P201(88)			
執行單位	中華電信研究所		執行期間	87 年 7 月至 88 年 6 月
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成果名稱	中文			
	英文	Frequency Synchronization Using GPS Carrier Phase Measurement		
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撰寫日期	中華民國 88 年 5 月 10 日		撰寫語言及頁數	英文 15 頁
解密期限	中華民國 年 月底解密		機密級	
關鍵詞	Frequency synchronization; GPS carrier phase; Frequency stability; PD controller;			
	Fuzzy controller.			
內容摘要：				
<p>Frequency synchronization using GPS carrier phase measurements is presented. The frequency offset of the remote low-cost OCXO (Oven-Controlled Crystal Oscillator) with respect to the primary atomic clock is precisely estimated in real time by performing the double differences on the GPS carrier phase observables. The fuzzy controller and the PD (Proportional-Derivative) controller are employed to implement the controller of our system, respectively. Through the D/A converter, the remote clock is then steered to synchronize with the master clock. The accuracy of the remote clock can be improved from about 5×10^{-9} to about a few parts in 10^{13} for averaging times of one day over a 30-meter baseline. Moreover, the zero-baseline tests with the common high-performance cesium clock show that our system has a frequency stability of a few parts in 10^{16} for averaging times of one day.</p>				