

88 年度下半年暨 89 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-P301(89)			
執行單位	中華電信研究所		執行期間	88 年 7 月至 89 年 12 月
主持人	廖嘉旭		協同主持人	
分項主持人			連絡電話	(03)424-4441
成果名稱	中文	GPS/GLONASS 載波相位頻率同步		
	英文	Clock Synchronization Using GPS/GLONASS Carrier Phase		
撰寫人	涂昆源		彭新民	
			廖嘉旭	
撰寫日期	中華民國 89 年 10 月 1 日		撰寫語言及頁數	英文 6 頁
解密期限	中華民國 年 月底解密		機密級	
關鍵詞				
	GPS carrier phase, GLONASS carrier phase, Frequency stability, Frequency accuracy			
內容摘要：				
<p>The clock synchronization by using GPS/GLONASS carrier phase measurements is proposed in this paper. The GPS/GLONASS receivers with the external frequency input interface are used in our system. While the remote OCXO (Oven-Controlled Crystal Oscillator) clock and the primary H-maser clock are connected to the receivers, the frequency offset of the remote clock with respect to the primary clock can be estimated by performing the linear-least-square fit on carrier-phase single-difference observables. The proportional controller is adopted in our system for tuning the remote clock in real time. Through the D/A converter, the remote clock is then steered to synchronize with the primary clock. For averaging times of one day under the configuration of about a 30-meter baseline, our experimental results show that the accuracy of the remote clock can be improved from about 2×10^{-9} to about 6×10^{-14}, and the stability of the remote clock can be improved from about 2×10^{-10} to about a few parts in 10^{14}. Based on the proposed architecture, the frequency traceability can be achieved. The potential applications include the frequency sources system for calibration laboratories, telecommunication networks and power transmission system.</p>				