

## 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	
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成果名稱	中文	時鐘穩定度參數 TDEV 及 MDEV 之快速演算法		
	英文	Fast Computation of Time Deviation and Modified Allan Deviation for Telecommunications Clock Stability Characterization		
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解密期限	中華民國 年 月底解密		機密級	
關鍵詞	Time and Frequency, ,			
	Time Deviation			
	Modified Allan Deviation			
	Clock Stability Characterization			
<p>內容摘要：Time and frequency characterization of precision clocks and oscillators is an important task in the maintenance of time and frequency standards. Recently, time domain signal characterization of clocks is generally preferred and several performance measures of clocks and oscillators are defined in ITU-T Recommendation G.810. Among these measures, Maximum Time Interval Error (MTIE), Time Deviation (TDEV) and Modified Allan Deviation (MDEV) are frequently used, especially in telecommunications measurement. However, the direct computation of MTIE, TDEV and MDEV, defined in ITU-T Recommendation G.810, tends to be unmanageable when the number of samples becomes large. In this paper, we propose a fast computation approach for TDEV and MDEV. The approach is based on the recursive algorithm and the computation exactly conforms to the ITU-T G.810 definition. As compared with the direct computation approach, the time complexity of the proposed approach is reduced by a factor of N, the number of samples. It reveals that the real-time measurement or monitoring will be feasible by employing the proposed computation approach.</p>				