



計畫名稱：非游離輻射檢測方法建立-無線電波發射設施周遭環境中電磁波檢測方法建立 (I)

計畫編號：EPA-91-E3S2-02-01

計畫執行單位：工研院量測技術發展中心

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計畫期程：91年3月1日起至91年12月31日止

成 果 摘 要

近年來，由於射頻無線通訊應用技術的快速發展，加速了人們對高品質、高容量資訊傳輸的需求，同時也造就資訊傳播業、行動通訊業的興盛。在無線電廣播電台及行動電話基地台快速地在人們生活環境周遭架設起來的同時，這些設施所產生的電磁波輻射對人體生物組織的影響也開始成為民眾關切的課題。為能保障民眾的安全，如何對這些電磁波輻射設施所產生的電磁場強度進行評估便成為一個重要的工作。

本計畫主要目的在於對於由各類電磁波輻射設施諸如 AM/FM廣播電台、VHF/UHF電視廣播電台及行動電話基地台所產生的電磁波輻射強度的量測提出一份檢測程序草案。計畫中蒐集了國際上主要的相關規範，包括ICNIRP、IEEE C95.1、NCRP report no. 86、FCC OET bulletin 65及 NCRP report no. 119等規範。同時也參考這些規範以及依據電磁理論提出一份檢測程序草案。為驗證所提出草案的適用性，計畫中也針對不同的電磁波輻射設施包括2台 AM廣播電台、2台FM廣播電台、1台VHF電視廣播電台、1台UHF電視廣播電台及2台行動電話基地台進行環境電磁波輻射強度的實測。由執行實測的過程及結果初步顯示了草案所擬檢測程序的適用性。

The rapid progress in radio frequency applications accelerates the demand of high quality and high capability information transmission in recent years. Due to the rapid increase of broadcast and mobile base stations around the residential district, there is a public concern about possible biological interactions of radio waves from these stations. The evaluation of electromagnetic field intensity in the residential area around these stations becomes an important task for the safety of people who lives in that area.

The main objective of this project is to draft guidelines for the measurement of electromagnetic wave intensity radiated from radio transmitting stations including AM/FM radio, VHF/UHF television broadcast stations, and cellular telephone base stations. In this project, international recommendations such as ICNIRP guidelines, IEEE C95.1, NCRP report no. 86, FCC OET bulletin 65, and NCRP report no. 119 have been surveyed. A measurement guideline was drafted base on the electromagnetic theory and these recommendations. In order to identify the applicability of this drafted guideline, practical measurements were carried out with eight transmitting stations. These stations include two AM radio stations, two FM radio stations, one VHF TV stations, one UHF TV stations, and two GSM (900/1800) mobile base stations. The successful in practical measurement progression and the results shows the applicability of the guideline preliminarily.

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