



Questioned Documents Section – 2006

J11 A Total Solution of Chinese Seal Registration and Management System in Taiwan

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This presentation will impact the forensic community by demonstrating the current method of seal's authentication and its deficiencies. The solution will be building up a standard procedure of stamping with a uniquely specified seal. With a unique coded RFID cemented to a registered seal, each time a seal is needed a special designed stamping machine will check the validity of the seal online or in the administrative areas' database. After the seal has been recognized by the system it will initiate the stamp machine. The stamp machine will stamp the seal in a standard procedure with specified inks, pressure and substrate incorporated with the registration number, date and time of stamping, code of the stamp machine, and serial number. Then there will be no need for the seal's authentication.

The traditional Chinese seal was a piece of metal, stone, bone or wood on which special characters were engraved. Since it was engraved by hand, every seal was unique and different from one another, and thus it was representative of honor, dignity, and nobility in Chinese society. The using of the Chinese seal involves staining the engraved side with red ink paste from an inkpad, then stamping (transferring the red ink) the specially engraved characters on paper.

The Ministry of Interior of Taiwan is holding a 'SEAL REGISTRATION SYSTEM' which keeps only the stamped seal - engraved characters' images of the registered seals in the administrative areas. But since the computer aided seal engraving system has been in wide use, anyone can duplicate a computer engraved seal.

The current methods of authentication only check the engraved characters' images - stamped seal. Not only the image of the engraved characters, but also the materials, the engraving methods, the shapes, the pressure used to stamp the substrate under the paper, and anything concerning the seal will be a factor. First of all, a standard stamping procedure is needed and then a three dimensional inspection would be meaningful.

The author devised a method making use of a RFID chip to resolve registration and management. The registered seals contain a fragile uniquely coded RFID with unbreakable cement to prevent the RFID chip from being transferred. Each time the seals are needed, a specially designed stamping machine will check the validity of the seal online in real time, or offline in the administrative areas' database. After the seal been recognized by the system the stamping machine will initialize, stamp the seal in combination with a string of alphanumeric characters containing the registration number, date and time of stamping, code of the stamping machine and its location, and the serial number of the stamping. This combination of data will change with every stamping.

Chinese Seal Registration and Management System, Computer Aided Seal Engraving System, Standard Stamping Procedure