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Trusted mobile e-document framework — Requirements, functionality and criteria for ensuring reliable and safe mobile e-business

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 154, *Processes, data elements and documents in commerce, industry and administration*.

Any feedback or questions on this document shall be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

Communication via mobile devices is essential in the modern world, so that most mobile devices are ever used as a passage for the connection of people, business and network. Electronic transactions, information processing and data transmission via the mobile device are common in business area. In addition, electronic documents utilized by mobile devices in the business world are rapidly increasing and its application area is growing also. Mobile electronic document exchange will be used in overall industrial areas including B2C and B2B; the effect will be enormous considering the characteristic of the mobile device.

However, communication using the mobile device always also involves a number of problems. First, the wireless channel could be disconnected unexpectedly even while transmitting data; in that case the data could be lost. This could be a fatal flaw in the transmission and reception of sensitive corporate data. Second, it is possible for anyone to steal easily the mobile device, causing data transmission by a fake user. Third, the mobile communication is relatively vulnerable compared with online communication in the respect of security and reliability. These problems have been an obstacle to the flow of electronic documents and electronic transactions diffusion through the mobile communication. Companies or individuals have increasing demand for data transmission to continue to be safe and reliable enough from the mobile communication. Thus, it is necessary to have a standard way to exchange data with the electronic document in a manner that is safe and reliable over a mobile device.

In the process to distribute electronic documents for electronic transactions using mobile networks, principles and standards different from those in the wired situation need to be suggested in order to maintain the reliability of distribution of electronic documents due to the negative characteristics of mobile network. As mobile networks give lower reliability generally and limit available computing resources, users of mobile electronic documents need to have wide range of options for ensuring the reliability in the distribution of mobile electronic documents. That is, a guide needs to be suggested to find out an appropriate way for distributing mobile electronic documents according to costs or the network environment.

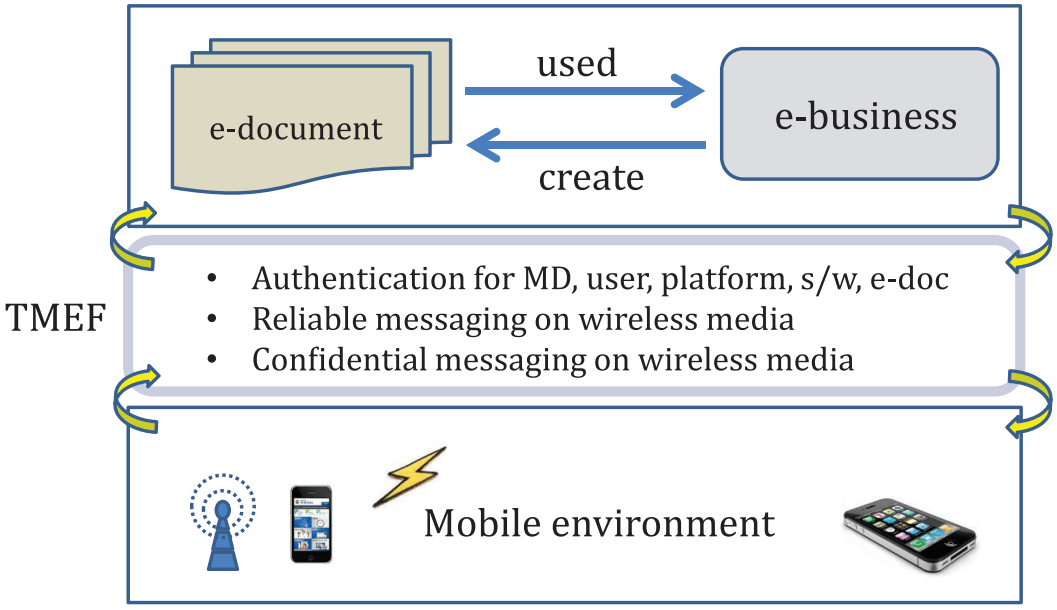

Figure 1 — Concept of a trusted mobile e-document framework (TMEF)

This document is intended to provide a framework standard for creating and transmitting electronic documents for B2B/B2C via a mobile device using a secure and trusted method in an unstable and unreliable mobile environment. The concept of TMEF is illustrated in Figure 1. Businesses or individuals are getting more dependent on mobile devices in terms of handling business as time passes by. Also, the situation is that the demand to handle important duties of businesses is increasing. Therefore, the

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demand for safe and reliable processing of electronic documents under mobile environment is also rapidly increasing.

However, a mobile environment is unable to apply all methods for maintaining highest security and reliability due to the limitations of computing resources and the limitations of wireless network. Therefore, trusted factors necessary for performing safe electronic transactions under the mobile environment need to be derived to apply them in reality.

Wireless network and the mobile device (MD) are exposed to risks and easiest to get attacked under the mobile environment. It is very difficult to identify strictly the MD and the user who owns the MD due to its portable nature. Also, the wireless network causes many problems with reliability and safety while performing electronic transactions since it can often be cut off suddenly and also can be tapped by a random user very easily.

Accordingly, in order to process electronic documents in a safe and reliable way under a mobile environment, authentication on the MD in use, platforms on the MD, and the users who use the software and MD need to precede. Also, detection on the disconnection of wireless network and fast recovering the network are necessary. In addition, maintaining confidentiality is also absolutely required to be ready for tapping. In some cases, verification of integrity or confirmation of authenticity on a document prepared in an MD can be required. If a mobile device is assumed to provide partly some of these functions, it cannot be considered safe or reliable. So, it is necessary to establish an overall mobile framework which can cover completely the vulnerability of the mobile environment: safety and reliability.

This document presents a framework standard, called TMEF, necessary for using and transmitting electronic documents in a safe and reliable way under a mobile electronic transaction environment. TMEF presents functional requirements and criteria for practical use and management factors necessary for performing mobile transactions.

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Trusted mobile e-document framework — Requirements, functionality and criteria for ensuring reliable and safe mobile e-business

1 Scope

This document provides a set of requirements, functionality and criteria for ensuring reliability and safety of mobile e-business.

The specification of this document covers overall use cases for mobile e-business including simple inquiry of electronic documents, exchange of electronic documents for general transaction and even exchange of contract and payment documents. This can be applied to the most wireless protocols such as 3G, 4G and Wi-Fi, etc. This could be also used in the general mobile e-business area such as logistics, electronic trades, financing, manufacturing and service, and can be referenced by system developers of electronic transaction using mobile devices, mobile network service providers and users. The scope of this document is shown in Figure 2.

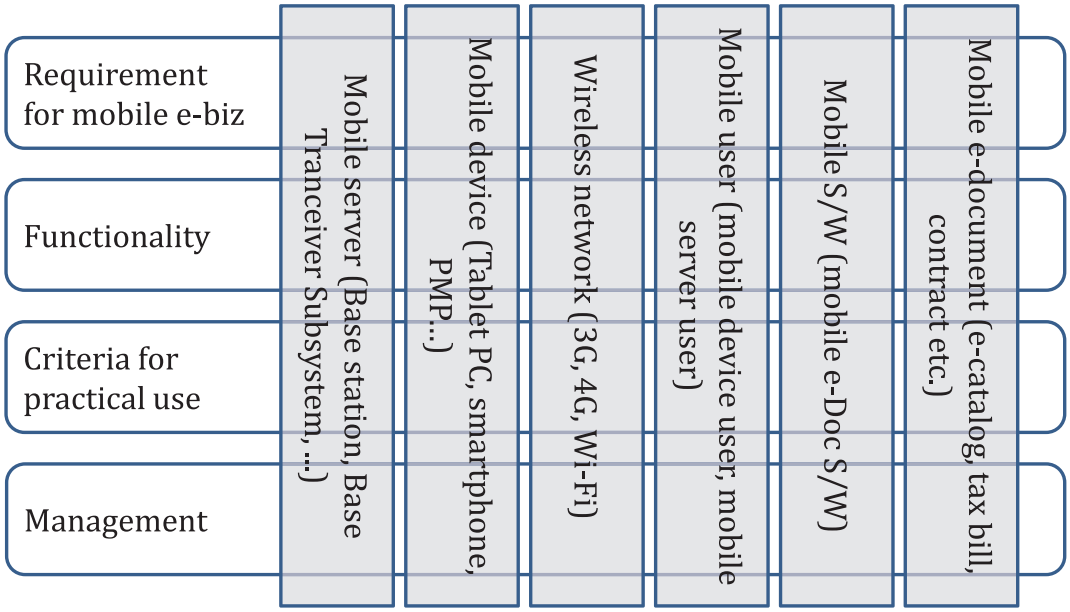

Figure 2 — Scope of this document

This document is intended for:

— mobile-based electronic document system development, operation and certification organization;

— mobile electronic document software development organization;

— mobile electronic document third-party service provider organization.

2 Normative references

There are no normative references in this document.

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