

Colosseum 27
7521 PV Enschede

www.tno.nl

T +31 88 866 24 50
F +31 88 866 21 47
info-ict@tno.nl

STOSAG standard

Stuurgroep Open Standaarden Afval en Grondstoffen – www.stosag.nl

Part 1 – Card Identification

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Author(s)	Jasper Roes, Erwin Folmer
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1 Introduction

STOSAG is the Dutch acronym for ‘Stuurgroep Open Standaarden Afval en Grondstoffen’, which translates to ‘Organisation for Open Standards for Waste and Base Material’. This document presents the standard for the identification of cards.

1.1 Scope & reading guide

This part of the STOSAG standard is targeted at the following process in the waste processing industry:

- The processing of relevant information for the deposit of garbage between cards with chips and the collection container systems

This standard takes ISO 14443 (Part 1, 2 and 3) as basis. ISO 14443 Part 4 is explicitly not part of the basis of this standard. It further defines the technical specification for the use of the ISO 14443 (Part 1, 2 and 3) in the Netherlands.

This document consists of two chapters. Chapter 1 contains the introduction. Chapter 2 contains the technical specification of the standard. Chapter two only presents the restrictions that are defined on top of the ISO 14443 (Part 1, 2 and 3) standard.

1.2 Structure of the standard

The STOSAG standard consists of five parts:

- Part 0 - Overview
- Part 1 - Card Identification (this document)
- Part 2 - Wheelie Bin Identification
- Part 3 - Collection Container Information
- Part 4 - Wheelie Bin Information

These five parts are the starting point of the standard. New parts may be added at a later stage.

1.3 Conformance

This document, together with the ‘STOSAG – Part 0 – Overview’ part of the standard, serves as a formal and strict specification for the STOSAG implementation of reading the identification of a card. Any implementation that conforms to this specific part of the standard shall use the guidelines provided in this part and the guidelines provided in the ‘STOSAG – Part 0 – Overview’ part in the Netherlands.

As this specific part of the standard takes the ISO 14443 (Part 1, 2 and 3) as basis, it is necessary to conform to the ISO 14443 (Part 1, 2 and 3) standard to be able to conform to the standard defined in this document.

1.4 Version history

Table 1: Version history

Version	Date	Description
1.0	2010-12-03	First release of the STOSAG – Part 1 – Card Identification standard

2 Technical requirements

This chapter defines the technical requirements for the identification of cards. This standard takes ISO 14443 (Part 1, 2 and 3) as basis. In the case this standard and the ISO 14443 (Part 1, 2 and 3) are in conflict, this standard prevails.

The requirements defined in this chapter must be regarded as requirements on top of the ISO 14443 (Part 1, 2 and 3) standard, to be able to conform to this standard it is therefore necessary to conform to the ISO 14443 (Part 1, 2 and 3) standard.

2.1 Frequency

As the ISO 14443 standard defines, the frequency to be used is 13.56 MHz

2.2 Type of the card

The ISO 14443 standard defines two types of cards; type A and type B. This standard restricts this choice and defines that the type of card to be used is type A as this is the type of card that is most widely available and in use.

2.3 Unique number

Each card that abides to the ISO 14443 standard contains a unique number. This unique number is used to identify the card at the collection container. The uniqueness of the card number is guaranteed due to the fact that the manufacturers of the chips are give a set of numbers they can use, which are not provided to any other manufacturer. Furthermore the manufacturers have to abide to the rule that they can give out each number they receive only once.

2.4 Length of unique number

Current implementations of the ISO 14443 standard include chips that contain a unique number with a length of 4 bytes, with a length of 7 bytes and chips that contain a unique number with a length of 10 bytes. For use in the Netherlands this standard restricts these options by defining that the length of the unique number of the card may be either 4 bytes or 7 bytes. Readers and systems must be able to read and process cards that contain a unique number with a length of 4 bytes and cards containing a unique number with al length of 7 bytes.

2.5 Information on chip

The ISO 14443 standard not only defines that each card must have a unique number, it also defines other sectors on the chip that can be used to contain information. This standard does not define or restrict the use of the other sectors on the card. It is therefore possible to use the card to for instance get access to buildings or pools, without the card being not conformant to this standard.

In the case extra information is stored in the available sectors on the chip, the MAD writing method must be used to prevent two applications using the same sector and therefore causing problems. The MAD method uses an index to define in which sector

of the chip the information for a specific application can be found, thereby optimising the use of the chip.

2.6 Information required to open the collection container

The unique number on the card must be the only element of information that is necessary to determine whether the collection container should be opened. If any other information that is stored on the card is necessary to determine whether the container should be opened, the container does not conform to this standard.

2.7 Reading the unique number

The ISO 14443 standard defines that each card that conforms to the standard must have a unique number (the so-called 'UID') stored on the chip that can be read by every reader. This number should be stored unsecured. Based on the specification of a specific card, the reader must be able to read the unique number. To ensure that every reader reads the same number, the byte order that should be used to represent the number when supplying this to the other systems, should be the big-endian order.

2.8 Writing to the card

Writing the card for waste collection purposes is not allowed. Other applications may of course write information to the chip; this is out of the scope of this standard.

In the case extra information is stored in the available sectors on the chip, the MAD writing method must be used.

2.9 Security

The unique number on the card has to be unsecured to ensure that every reader can read this number. Any type of security to prevent the reading of the unique number is therefore prohibited.

For the other parts of the chips, that contain information that is not used for the collection of waste (but for instance for access control) this standard does not define whether or not security measures are allowed.