



SIC43S1

NFC-Forum Type 2 tag with 816-byte user memory and AES128 security
REV 1.4

Features Summary

SIC43S1 is a passive NFC-Forum Type 2 tag, which is fully compliance with ISO14443A. It is equipped with 816-byte user memory, which is configured to be compatible with dynamic NDEF format. It is also equipped with AES-128 (Advanced Encryption Standard) for secure authentication and data encryption. The chip is suitable for a smart label application that requires product authentication.

Highlight Features

- NFC forum type 2 tag
- Dynamic NDEF message which contains UID and a secure rolling code called Smart Authenticated Code (SAC)
- Three modes of AES128-based security
 - NDEF authentication – CMAC or OCB mode
 - Mutual Authentication
 - Encrypted communication

Memory

- 816-byte user memory
- EEPROM organization enabling NDEF TLV messages
- EEPROM erase/write cycle up to 100,000 times
- EEPROM memory retention up to 10 years

Operating Conditions

- 13.56MHz operating radio frequency
- Operating temperature from -40 to 85°C

Applications

- Sticker and label
- Smart packaging
- Vouchers and coupons
- Product authentication

Interfaces and Peripherals

- RF interface based on ISO14443A, 106 kbps data rate
- True anti-collision
- On-chip capacitance 50 pF

Packages

- Die-On-Wafer with Au-Bump



Revision History

Revision	Date	Description	Change/Update/Comment
1.2	1 Apr 2020	Content Update	• Change template • Add detail about each mode of AES-128
1.3	24 Feb 2022	Content Update	• Remove tamper content • Update Product part No.
1.4	16 Nov 2023	Content Update	• Update new product code



Ordering Information

Part No.	NDEF authen mode	Description	Remark
PS1BDC60A30UTS102R6	CMAC	SIC43S1-01, NFC-Forum Type 2 tag with 816-byte and AES128 security, CMAC mode DOWTB, Wafer ring, Dice	Wafer ring 380mm with UV sheet, 6mils, Au Bump
PS1BDC60A30UTS1P1R6	CMAC	SIC43S1-01, NFC-Forum Type 2 tag with 816-byte, AES128 security, CMAC mode Personalization memory	Wafer ring 380mm with UV sheet, 6mils, Au Bump

Remark

OCB Mode in NDEF Authentication is also available upon request.

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General Description

SIC43S1 is a passive NFC-Forum type 2 tag with 3 main features.

1. Dynamic NDEF Authentication

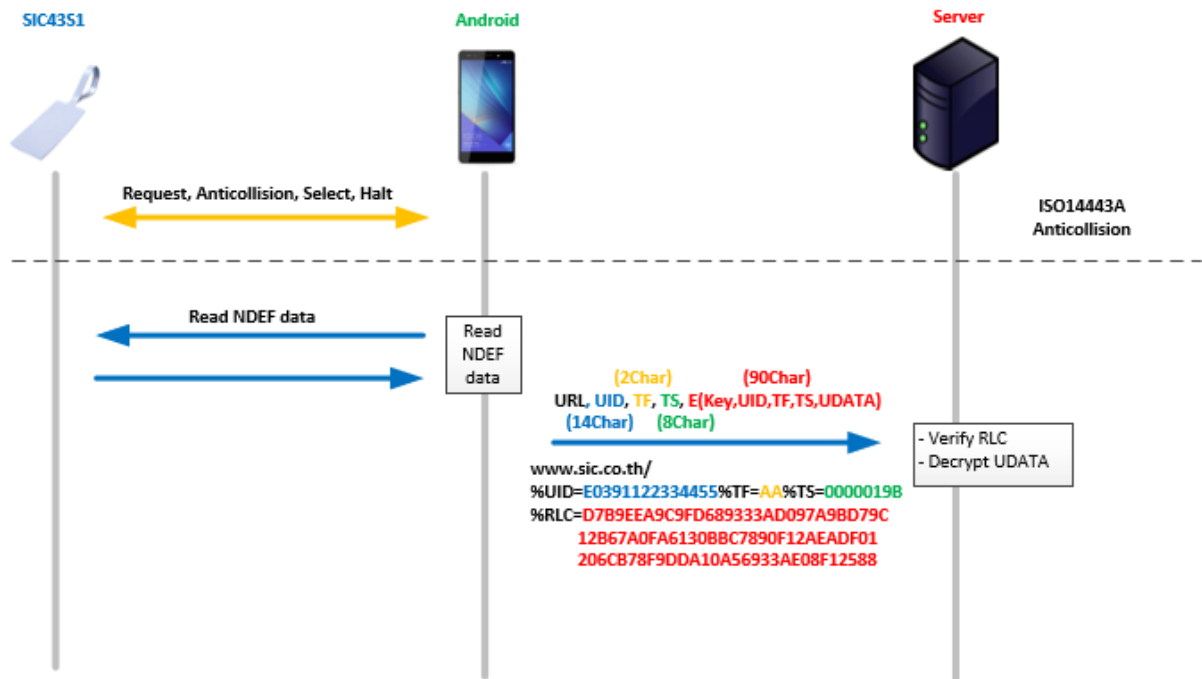


Figure 1-A SIC43S1 Dynamic NDEF Authentication process in OCB mode

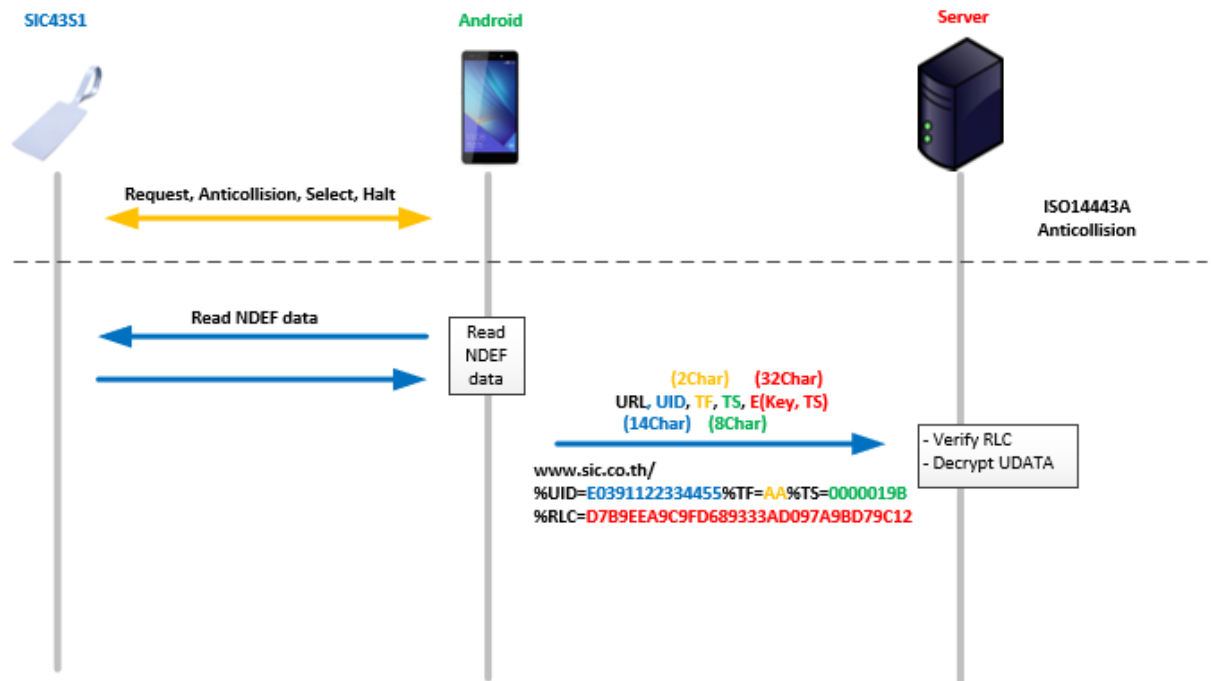


Figure 2-B SIC43S1 Dynamic NDEF Authentication process in CMAC mode

2. Mutual Authentication

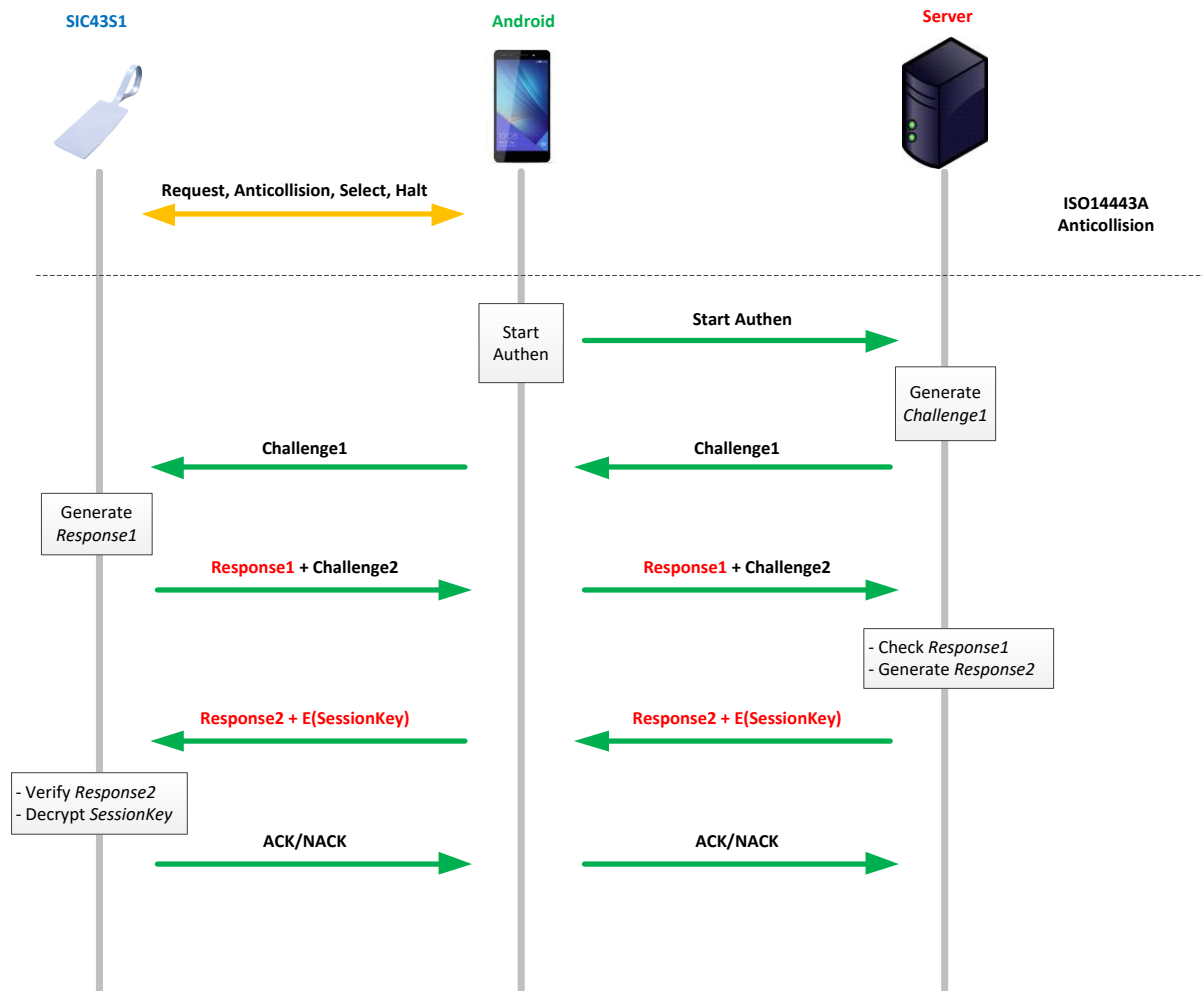


Figure 3 SIC43S1 Mutual Authentication process

3. Encrypted Communication

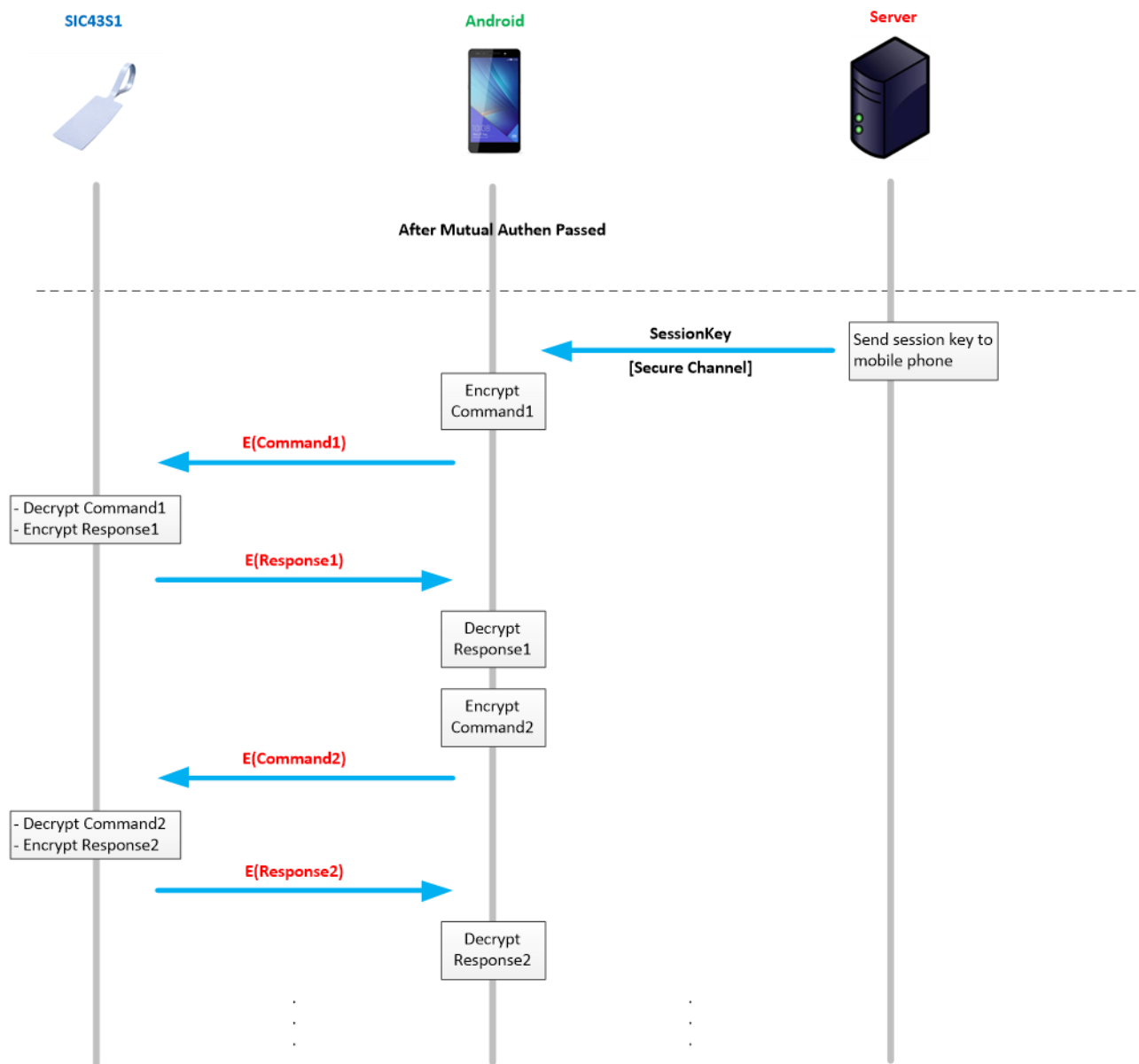


Figure 4 SIC43S1 Encrypted communication process