

RFID

(Draft)

(Interoperability Test Specification for Mobile RFID Reader and Tag)

RFID

RFID

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1.

1.1

(Interoperability) RFID (Reader, Interrogator) (Tag) 가

1.2

RFID , RFID , ,

1.3

RFID

1.4

- [1] MRFS-1-01-R1, “ RFID “ RFID ”, 2006 3
- [2] MRFS-3-01-R1, “ RFID ”, 2006 5
- [3] MRFS-3-02-R1, “ RFID ”, 2006 6
- [4] MRFS-4-01, “ RFID ”, 2006 3
- [5] , “RFID/USN ”, 2004 12
- [6] ISO/IEC 18000-6:2004/FPDAM 1, “Information technology-Radio frequency identification for item management-Part 6: Parameters for air interface communications at 860 MHz to 960 MHz”, July 2005
- [7] ISO/IEC 15962, “Information technology -Radio frequency identification(RFID) for item management – Data protocol: data encoding rules and logical memory functions, October 2004
- [8] EPCglobal, Inc., Hardware Interoperability Test Result, <http://www.epcglobalinc.org>

1.5

1.5.1

[(Reader, Interrogator)]

RFID 908.5 ~ 914 MHz(FHSS 910 ~ 914 MHz) ,
RFID RFID ,
CDMA, WCDMA, , ,

[(Tag)]

RFID ,
(Backscattering) .
RF

[UII(Unique Item Identification)]

RFID mCode micro-mCode, EPC , ISO mCode
micro-mCode

[(Application data)]

RFID 가 . ,
" " , ISO 18000-6C 6B
" (user memory)()" " " , "AD(application data)
" {P+OID+O} . " RFID
(MRFS-3-02)" , , , 가 , ,
, , , : , : , ,
, URL, URN,

[Access Password]

ISO 18000-6C Open state Secured state ACCESS
, Secured (Write) 가 locking
UII set AD set Access Password

[DUT: Device Under Test]

[Kill Password]

ISO 18000-6C (Kill) Kill
, Kill password killing 가

[mCode]

mCode RFID RFID , 가
가 . 48 , 64 , 96 ,
128 mCode (ISO 18000-6C UII , ISO 18000-6B User)
{P+OID+O} UII set

[micro-mCode]

2 32
micro-mCode {P+OID+O}

[OID(Object Identifier)]

RFID mCode, micro-mCode “

RFID (MRFS-3-01)" OID mCode OID
 {0 2 450 1} micro-mCode OID {0 2 450 2} , OID {0 2 450 3}

[UII (UII set)]

UII , ISO , mCode, micro-mCode가 UII
 "P(Precursor) + OID(Object Identifier) + O(object)" "UII " , "O"가 UII
 RFID 가 ISO , mCode, micro-mCode . ,
 UII가 EPC "UII " , EPC 가 . ISO/IEC
 18000-6C "UII " "UII " EPC 가 , ISO/IEC
 18000-6B " " , , "Byte No. 18"
 "UII " EPC . UII
 EPC , EPC UII "UII " , EPC
 EPC

1.5.2

AD: Application data

AFI: Application Family Identifier

ASK: Amplitude Shift Keying

BLF(=DR/TRcal): Backscatter-Link Frequency

CC: Company Code for mCode

DR: Divide ratio for Query in ISO 18000-6C

DSB-ASK: Double Side Band ASK

DSFID: Data Storage Format Identifier

DUT: Device Under Test

EPC: Electronic Product Code

fc: center frequency of each mRFID RF channel

FHSS: Frequency Hopping Spread Spectrum

FQDN: Fully Qualified Domain Name

IC: Item Code for mCode & micro-mCode

ICC: Item Category Code for mCode

M: cycles per symbol for Query in ISO 18000-6C

mCode: Mobile RFID code

micro-mCode: micro-Mobile RFID code

mRFID : Mobile RFID

N/A : Non-Applicable

O: Object (refer to ISO 15962)

OID: Object Identifier (refer to ISO 15962)

P: Precursor (refer to ISO 15962)

PC: Protocol Control

PR-ASK: Phase Reversal ASK

RF: Radio Frequency

RFID: Radio Frequency Identification

SC: Sereal Code for mCode

SSB-ASK: Single Side Band ASK

TID: Tag ID for ISO 18000-6C

TLC: Top Level Code for mCode & micro-mCode

TRcal: Tag-to-Reader calibration

UII: Unique Item Identifier

utf-8: Unicode Transformation Format-8

2.

2.1

908.5-914MHz RFID/USN RFID
 가 (DUT)가

2.2

RFID (reference Reader) (reference Tag)

- 가 (reference Tag)
- 가
- 가 (reference Reader)
- 가 RFID Air Interface

2.3

RFID (Anechoic Chamber)

2.4

RFID RFID mCode(48/64/96/128 bit) micro-mCode
 (32bit) , {P+OID
 +O} UII(mCode micro-mCode) “ RFID
 (MRFS-03-01) RFID (MRFS-03-02)”
 (compaction rule) . UII “Application defined(000)”
 UII set (write) , RFID UII set AD set
 locked

- RFID

[2-1] mCode

mCode											
TLC (12 bits)	Class (4 bits)	CC+ICC+IC+SC							(bits)	Class	
		16 bits	16 bits	16 bits	16 bits	16 bits	16 bits	16 bits			
000 _H	Reserved								N/A		
001 _H ~ EFF _H	0 _H	IC								48	A
	1 _H	CC	IC						64	B	
	2 _H	Reserved							64	C	
	3 _H	CC		IC					96	D	
	4 _H	CC	ICC	IC					96	E	
	5 _H ~7 _H	Reserved for 96 bits code							96	F,G,H	
	8 _H	CC		IC					128	I	
	9 _H	CC			IC				128	J	
	A _H	CC	ICC		IC				128	K	
B _H	CC		ICC		IC			128	L		

	C _H	CC	ICC	IC	SC	128	M
	D _H	CC	ICC	IC	SC	128	N
	E _H	Reserved for 128 bits code				128	O
	F _H	Reserved for class extension				N/A	
F00 _H ~ FFF _H	Reserved for other code structure					N/A	

[2-2] micro-mCode

micro-mCode	
TLC (3 bits)	IC (29 bits)
000 ₂	Reserved
001 ₂ ~ 110 ₂	IC
111 ₂	Reserved

▪ RFID

- ISO 18000-6C

[2-3] mCode micro-mCode ISO 18000-6C

Bank	Byte No.	Field Name	Data for mRFID
00 ₂		Reserved	· 00 _H ~1F _H : Kill Password · 20 _H ~2F _H : Access Password
01 ₂	0 ~ 1	CRC-16	
	2	PC(Protocol Control) bits	10~14 _H =Length of (PC+UII), 15 _H =1 ₂ (User Bank) /0 ₂ (No User Bank), 16 _H =0 ₂ , 17 _H =1 ₂
	3		18 _H ~1F _H : 01 _H (AFI)
	4 ~	UII	· 00 _H ~07 _H : 01 _H (DSFID) · 08 _H ~: UII set (P+OID+O)
10 ₂		TID	
11 ₂		USER	· 00 _H ~07 _H : 01 _H (DSFID) · 08 _H ~: 1 st AD set (P+OID+O),... n th AD set

· () PC
 , PC 15_H User 1₂, User Bank
 0₂
 · ACK PC UII , UII
 , PC 15_H=1₂ Read 가
 · Reserved, UII User locked

- ISO 18000-6B

[2-4] mCode micro-mCode ISO 18000-6B

Byte No.	Field Name	Data for mRFID
0 ~ 7	Tag ID	Written by Manufacturer
8 ~ 9	Tag Manufacturer	Written by Manufacturer
10 ~ 11	Tag Hardware Type	Written by Manufacturer
12	Embedded Application Code	0A _H
13	Application Family ID (AFI)	01 _H
14	Storage Data Format	01 _H
15	Size of UII set	UII set (byte)
16	Size of AD sets	(1 st AD set, ..., n th AD set) (byte)

17	N/A	
18 ~	User Data	UII set (P+OID+O), 1 st AD set (P+OID+O), ... n th AD set

() 12~16 byte
 15 UII set , 16 AD set ()
 12~16 byte , UII
 locked

RFID OID

[2-5] RFID Object Identifier

Registration Hierarchy Name Tree	Object Identifier	OID in MRF
itu-t(0) member-body(2) KOR(450) mCode(1)	{0 2 450 1}	mCode
itu-t(0) administration(2) KOR(450) micro-mCode(2)	{0 2 450 2}	micro-mCode
itu-t(0) administration(2) KOR(450) appData(3)	{0 2 450 3}	Application Data

RFID {P+OID+O}

/	P(Precursor)	Length of OID + OID
mCode	0F _H	C3 02 83 42 01 _H
micro-mCode	0F _H	C3 02 83 42 02 _H
Application Data	String type	C3 02 83 42 03 _H
	Integer type	

- RFID set
 mCode micro-mCode set()

	Class		
32bit micro-mCode	-	100 : 10110 10010001 11111010 01010111 ₂	TLC[3bit]+IC[29bit]
48bit mCode	A(0 _H)	0A2 : 0 : EF018894 _H	TLC[12bit]+Class[4bit]+IC[32 bit]
64bit mCode	B(1 _H)	E12 : 1 : B012 : A0001234 _H	TLC[12bit]+Class[4bit]+CC[16bit]+IC[32bit]
96bit mCode	D(3 _H)	90C : 3 : 0ACC9067 DF87B012 : F1094321 AB091277 _H	TLC[12bit]+Class[4bit]+CC[32bit]+IC[32bit]
	E(4 _H)	C0C : 4 : BCFF9067 : CD01A014 : 0156AB2 A88123737 _H	TLC[12bit]+Class[4bit]+CC[16bit]+ICC[16bit]+IC[32bit]
128bit mCode	I(8 _H)	BBC : 8 : FFBB9067 0103A014 : AB998800 0156AB 2 A 01AB3347 2369CCDD 88123737 _H	TLC[12bit]+Class[4bit]+CC[32bit]+IC[80bit]
	J(9 _H)	023 : 9 : 809CC067 AC03A014 99CB8800 4856AB2B : CCAB3347 DC2C3CDD 88123737 _H	TLC[12bit]+Class[4bit]+CC[64bit]+IC[48bit]
	K(A _H)	823 : A : FF9067DB : 8C0FA014 76CBFD09 : 99A08629 013C47 FE2C3C11 76122337 _H	TLC[12bit]+Class[4bit]+CC[16bit]+IC[32 bit]+IC[64bit]
	L(B _H)	544 : B : CE9A53D0 C9AD8019 : 9900F807 87A086BC : A13B06D7 672C3CA1 ABCDA3F7 _H	TLC[12bit]+Class[4bit]+CC[32bit]+IC[32 bit]+IC[48bit]
	M(C _H)	F29 : C : 0F9A6BDB : 0C0FB015 : 88CB7D09 : 67A08620 B13C48 BC2C3C32 BC122637 _H	TLC[12bit]+Class[4bit]+CC[16bit]+IC[16 bit]+IC[16bit]+SC[64bit]
	N(D _H)	DDC : D : 679A43D8 : C9AD7039 : 8E04F806 A069868C : B14CD701 72553CA1 310D63D7 _H	TLC[12bit]+Class[4bit]+CC[16bit]+IC[16 bit]+IC[32bit]+SC[48bit]

* Resrved

set()

Type	UTF-8 String/ Decimal Numeric Character String	(“P+OID+O[legth of O+TLV]”) O[V]	“P+OID+O” (“DSFID+P+OID+legth of O+T+L” 10byte)
1()	UTF-8 String	2007 10 30	35byte
		2008/12/31 24:00:00	48byte
2()	UTF-8 String	350D	26byte
		RFID !	56byte
3()	UTF-8 String	1000	41byte
		:1 100 !	51byte
4(7†)	Numeric Character String	1000	14byte
		10000	16byte(1byte padding)
5()	UTF-8 String	2007 11 21	39byte
		2008 9 5	35byte
6()	UTF-8 String	2010 9 31	37byte
		2010/09/30 24:00:00	48byte
7()	UTF-8 String	2011 11 31 24:00:00	58byte
		2008/08/31 24:00:00	48byte
8()	UTF-8 String	1 1	56byte
			34byte
9()	UTF-8 String	RFID	29byte
			34byte
10 (-)	UTF-8 String	031-478-9801	34byte
		010-9443-7007	36byte
11 (-)	UTF-8 String	cannon@cannon.co.kr	46byte
		test@rfid.or.kr	40byte
12 ()	Numeric Character String	18	12byte
		12	12byte
13 ()	Numeric Character string	3	12byte(1byte padding)
		0	12byte(1byte padding)
14(URL)	UTF-8 String	urn:def://blue_laser	48byte
		urn:def://rfid	38byte
15(URN)	UTF-8 String	http://www.terms.co.kr/bluelaser.htm	82byte
		http://www.rfid.or.kr/mcode_example_10.htm	92byte
16()	UTF-8 String	1 182-7	55byte
		267	60byte

· “O[TLV]” , 가 UTF-8 String “O” TLV “V” UTF-8 compaction , 가 Decimal Numeric Character String “O” TLV “V” Numeric compaction

2.4.1

RFID Air Interface

- (Read) 50cm , (Write) Kill 30cm
 - ISO 18000-6C , ISO 18000-6B
 - 30dBm (6dBi) , FHSS 15 0.4 Anti-collision
 - 7,500mm² (size)
 - ISO 18000-6C Query (DR, M) Preamble (Tari, RTcal, TRcal) 200kHz (fc±100kHz) Backscattering 가

ISO 18000-6C

UII (Query→ACK)

FM0 ()

ASK /Tari	Query		
	DR	M	Session
○ DSB-ASK: 25us ○ SSB-ASK PR-ASK: 18~25us	8	1	S0/S1/S2/S3

* **RFID 가 Multi-Reader Spectrum Mask** (mRFID

, Miller subcarrier Multi-Reader Spectrum

Mask [FM0] Miller subcarrier

가)

Miller subcarrier

ASK /Tari	Query		
	DR	M	Session
○ DSB-ASK: 25us ○ SSB-ASK PR-ASK: 13.5~25us	8	2 & 4	S0/S1/S2/S3

Backscattering , Backscattering 가 fc±100kHz

Preamble

, DSB-ASK , Tari 25u BLF 50kHz

, SSB-ASK PR-ASK

Tari FM0 18~25us, Miller subcarrier 13.5~25us

. BLF가 50kHz FM0 Miller subcarrier

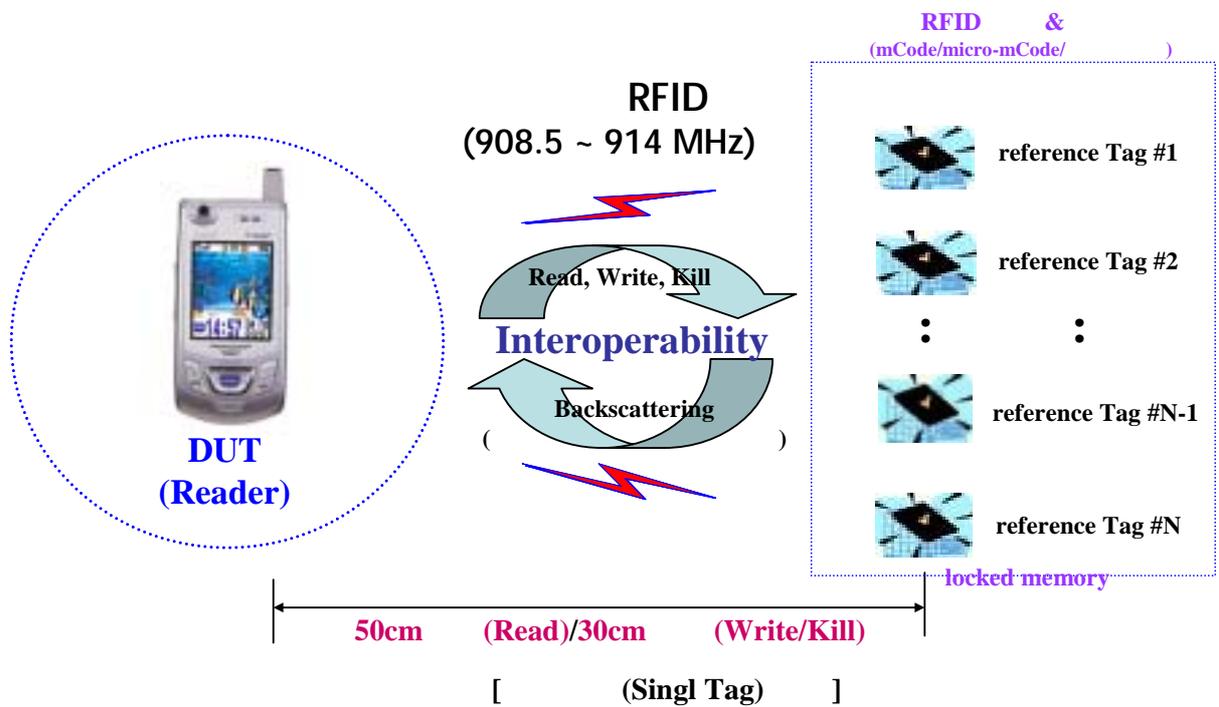
가 , BLF가 50kHz Miller subcarrier (:

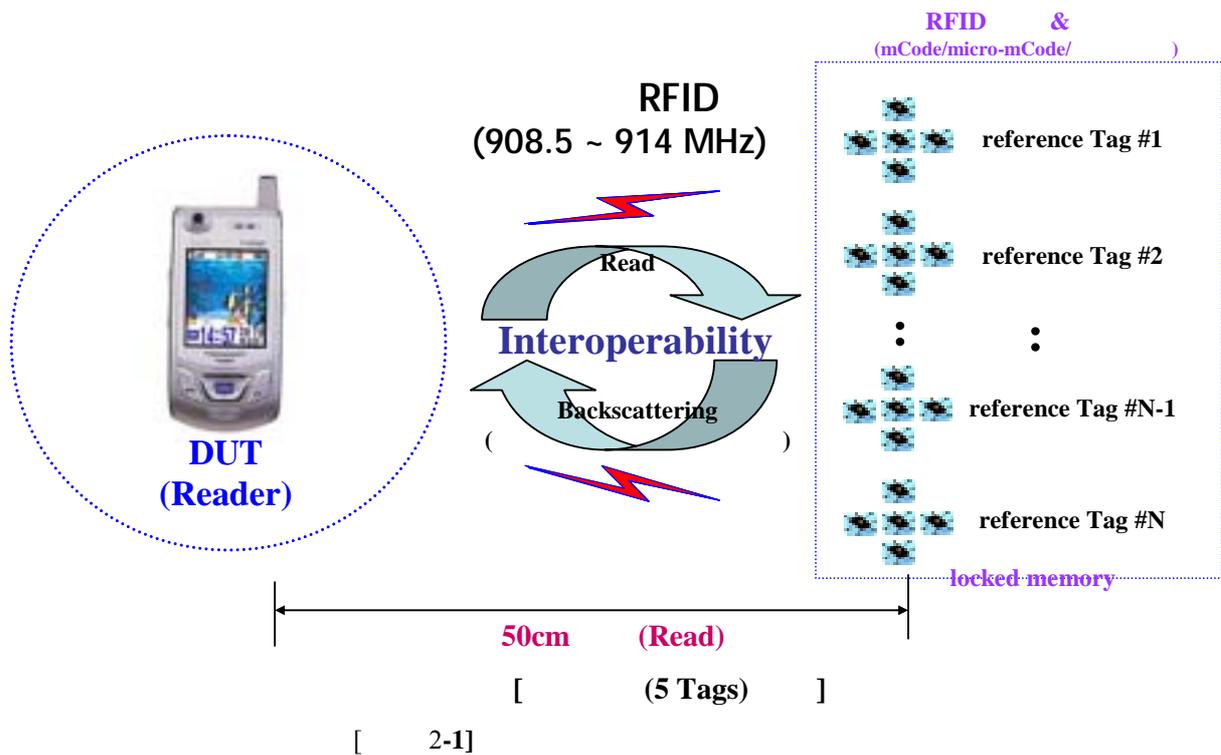
BLF=64kHz & M=4/8[M=1/2 가]) 가

, ISO 18000-6C , Query DR(8),

M(FM0 : M=1, Miller subcarrier : M=2/4)

- “ ” User ()
 (ISO 18000-6C : 32byte , ISO 18000-6B : 32byte)
- Air Interface (UI)
 (decompaction) , RFID FQDN (mCode : 4660(IC).
 18(CC).3(Class).3602(TLC).id.mcode.ods.or.kr, micro-mCode : 4660(IC).4(TLC).id.micromcode. ods.
 or.kr) 가 가 가 “
 Type= ”
- Invenroty (,
 Kill) 가
- (,)
- (1) (5)





2.4.2

RFID Air Interface

- 50cm , Kill
- 30cm
- 30dBm (6dBi) FHSS
15 0.4 Anti-collision
- 7,500mm² (size)
- ISO 18000-6C Query (DR, M) Preamble
(Tari, RTcal, TRcal) 200kHz (fc±100kHz) Backscattering 가
- ISO 18000-6C
UII (Query→ACK)
FM0 ()

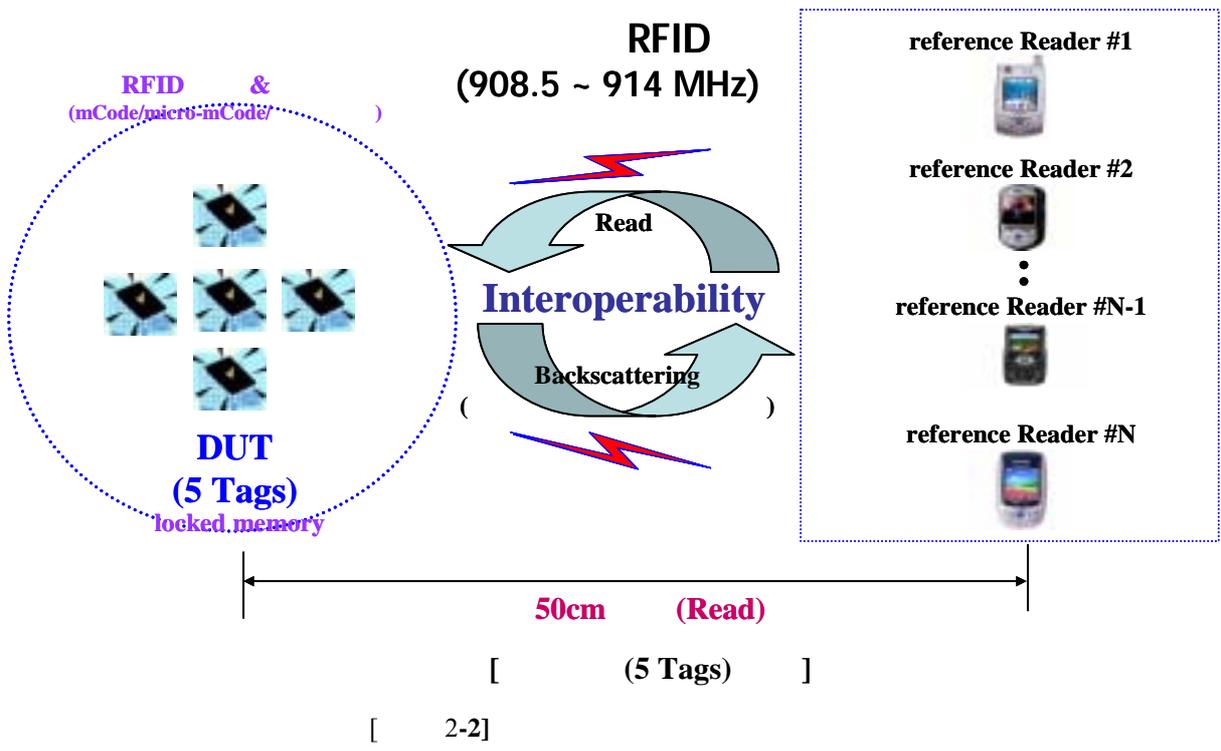
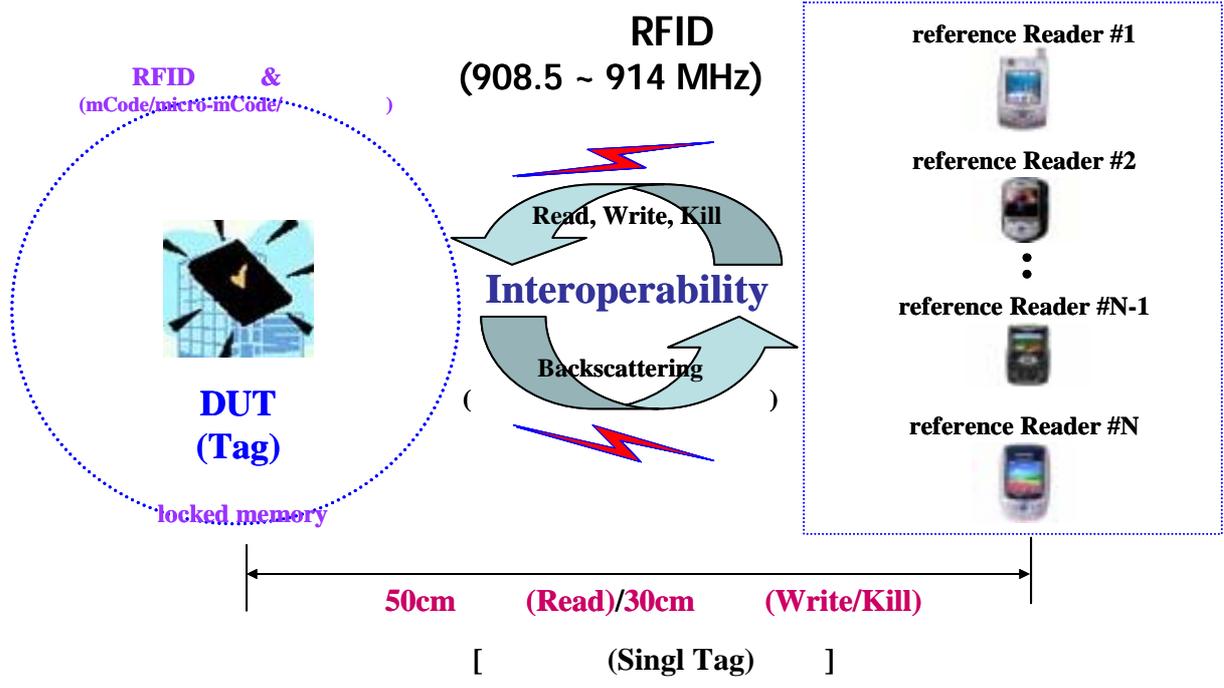
ASK /Tari	Query		
	DR	M	Session
○ DSB-ASK: 25us ○ SSB-ASK PR-ASK: 18~25us	8	1	S0/S1/S2/S3

Miller subcarrier

ASK /Tari	Query		
	DR	M	Session
○ DSB-ASK: 25us ○ SSB-ASK	8	2 & 4	S0/S1/S2/S3

PR-ASK:13.5~25us			
------------------	--	--	--

- Backscattering , Backscattering 가 $f_c \pm 100\text{kHz}$
- Preamble
- DSB-ASK , Tari 25u BLF가
- 50kHz , SSB-ASK PR-ASK
- Tari FM0 18~25us, Miller subcarrier
- 13.5~25us . BLF가 50kHz FM0 Miller subcarrier
- 가 , BLF가 50kHz Miller
- subcarrier (: BLF=64kHz & M=4[M=1/2 가]) 가 .
- , ISO 18000-6C , Query DR(8),
- M(FM0 : M= 1, Miller subcarrier :
- M=2/4)
- “ ” User ()
- (ISO 18000-6C : 32byte , ISO 18000-6B : 32byte)
- Air Interface (UII)
- (decompaction) , RFID FQDN (mCode : 4660(IC).
- 18(CC).3(Class).3602(TLC).id.mcode.ods.or.kr, micro-mCode : 4660(IC).4(TLC).id.micromcode.
- ods.or.kr) 가 가 가 “
- Type= ”
- Invenroty (,
- Kill) 가
-
-
-



3.

4.1	4.1.1	UII	
	4.1.2		
	4.1.3	UII	, Write
	4.1.4		, Write
	4.1.5	Kill	, ISO 18000-6C Kill
	4.1.6	UII	
	4.1.7		
4.2	4.2.1	UII	
	4.2.2		, User memory
	4.2.3	UII	
	4.2.4		, User memory
	4.2.5	Kill	, ISO 18000-6C
	4.2.6	UII	
	4.2.7		, User memory

4.

4.1

4.1.1 UII

4.1.1.1

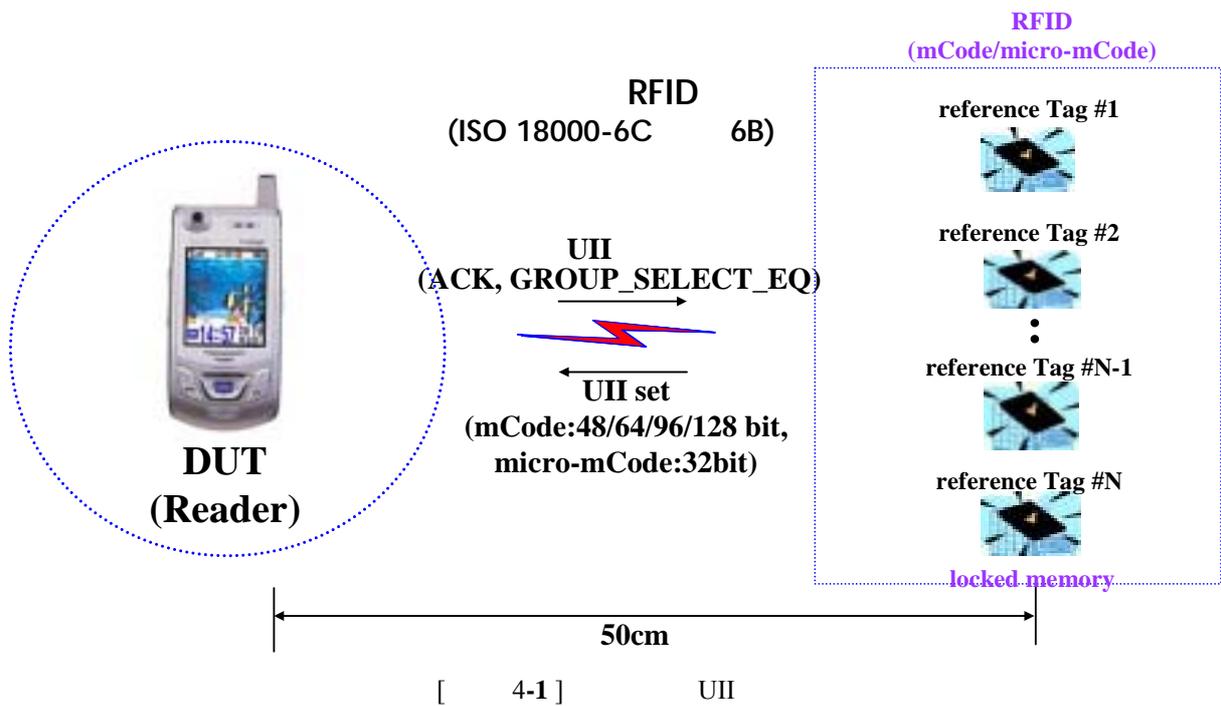
가 UII , UII

4.1.1.2

50cm 가 가

{P+OID+O} UII(mCode micro-mCode) set (18000-6C: UII ,
 18000-6B: User) UII mCode 48(Class A)/64(Class B)/96(Class D~E)
 /128bit(Class I~N) 4 micro-mCode 1

4.1.1.3



ISO 18000-6 C

1 UII 64bit-Class B mCode {P+OID+O} Application defined
 (000) , Access Password≠0 Access Password
 Lock-field [1,1], UII Lock-field [1,0] ISO 18000-6C

Bank	Byte No.	Field Name	Data for mRFID
00 ₂		Reserved	<ul style="list-style-type: none"> · 00_H~1F_H: Kill Password · 20_H~2F_H: Access Password

01 ₂	0 ~ 1	CRC-16	
	2	Protocol Control (PC) bits	10~14 _H =Length of (PC+UII), 15=0 ₂ (No User Bank), 16 _H =00 ₂ , 17 _H =1 ₂
	3		18 _H ~1F _H : 01 _H (AFI)
	4 ~	UII	· 00 _H ~07 _H : 01 _H (DSFID) · 08 _H ~: UII set (P+OID+O)
10 ₂		TID	
11 ₂		USER	· N/A

(Query→ACK)

UII

UII mCode(48bit-ClassA/96bit-Class D~E/128bit-Class I~N) micro-mCode UII

가 “ UII ”

ISO 18000-6B

1 User 64bit-ClassB mCode {P+OID+O} Application defined
(000) ISO 18000-6B

locked

Byte No.	Field Name	Data for mRFID
12	Embedded Application Code	0A _H
13	Application Family ID (AFI)	01 _H
14	Storage Data Format	01 _H
15	Size of UII set	UII set (byte)
16	Size of AD sets	00 _H
17	N/A	
18 ~	User Data	UII set (P+OID+O)

DUT() GROUP_SELECT_EQ[NE/GT/NT]
, UII (Read, Data_Read, Read_Variable) 12~15byte UII
set UII

UII mCode(48bit-ClassA/96bit-Class D~E/128bit-Class I~N) micro-mCode

가 “ UII ”

4.1.1.4

ISO 18000-6C , UII UII(48/64/96/128 bit mCode
micro-mCode)

ISO 18000-6B , User UII(48/64/96/128 bit mCode
micro-mCode)

4.1.2

4.1.2.1

(AD set) 가

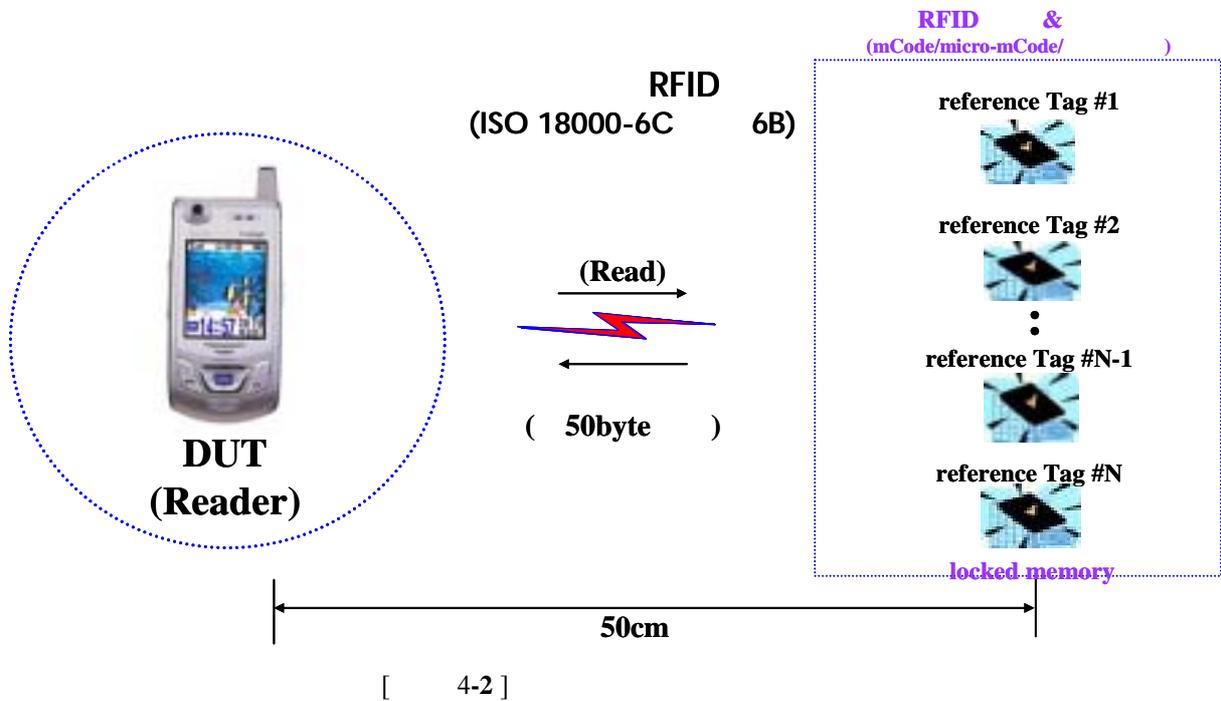
4.1.2.2

User () (ISO 18000-6C : 32byte , ISO 18000-6B : 32byte)

50cm 가 가

User () {P+OID+O} (ISO 18000-6C: 22byte
1 , ISO 18000-6B: 50byte 2~3)

4.1.2.3



ISO 18000-6C

1 UII 96bit mCode-Class D, User 1 (Type1[
) {P+OID+O} (UII: Application defined (000), : Application
defined (000, [UTF-8 String Value-UTF-8/Decimal Numeric Character String Value-Numeric
compaction]) , Access Password≠0 Access Password
Lock-field [1,1] , UII User Lock-field [1,0]

ISO 18000-6C

Bank	Byte No.	Field Name	Data for mRFID
00 ₂		Reserved	<ul style="list-style-type: none"> 00_H~1F_H: Kill Password 20_H~2F_H: Access Password

01 ₂	0 ~ 1	CRC-16	
	2	Protocol Control (PC) bits	10~14 _H =Length of (PC+UII), 15=1 ₂ (User Bank), 16 _H =00 ₂ , 17 _H =1 ₂
	3		18 _H ~1F _H : 01 _H (AFI)
	4 ~	UII	· 00 _H ~07 _H : 01 _H (DSFID) · 08 _H ~: UII set (P+OID+O)
10 ₂		TID	
11 ₂		USER	· 00 _H ~07 _H : 01 _H (DSFID) · 08 _H ~: 1 st AD set (P+OID+O)

UII (Query→ACK)
(Read)
(Type1~16)

가 “ ”

ISO 18000-6B

1 User 96bit mCode-Class D (Type2[])/Type3[]/
Type4[가]) {P+OID+O} (UII: Application defined(000), :
Application defined (000, [UTF-8 String Value-UTF-8/Decimal Numeric Character Sring Value-
Numeric compaction]) ISO 18000-6B

locked

Byte No.	Field Name	Data for mRFID
12	Embedded Application Code	0A _H
13	Application Family ID (AFI)	01 _H
14	Storage Data Format	01 _H
15	Size of UII set	UII set (byte)
16	Size of AD sets	1~3 AD set (byte)
17	N/A	
18 ~	User Data	UII set (P+OID+O), 1 st AD set (P+OID+O), 2 nd AD set (P+OID+O), 3 rd AD set (P+OID+O)

GROUP_SELECT_EQ[NE/GT/NT] , User

(Read, Data_Read, Read_Variable) 12~16byte

, UII set AD set
(Type3[])/Type10[], Type 9[]/Type12[
, Type2[]/Type7[]), Type1[]/Type14[URL]/Type13[
]/Type7[], Type8[]/Type15[URN], Type11[-]/Type16[])

가 “ ”

4.1.2.4

ISO 18000-6C , 22byte (1 AD set) 1

ISO 18000-6B , 50byte (1~3 AD set) 1

4.1.3 UII

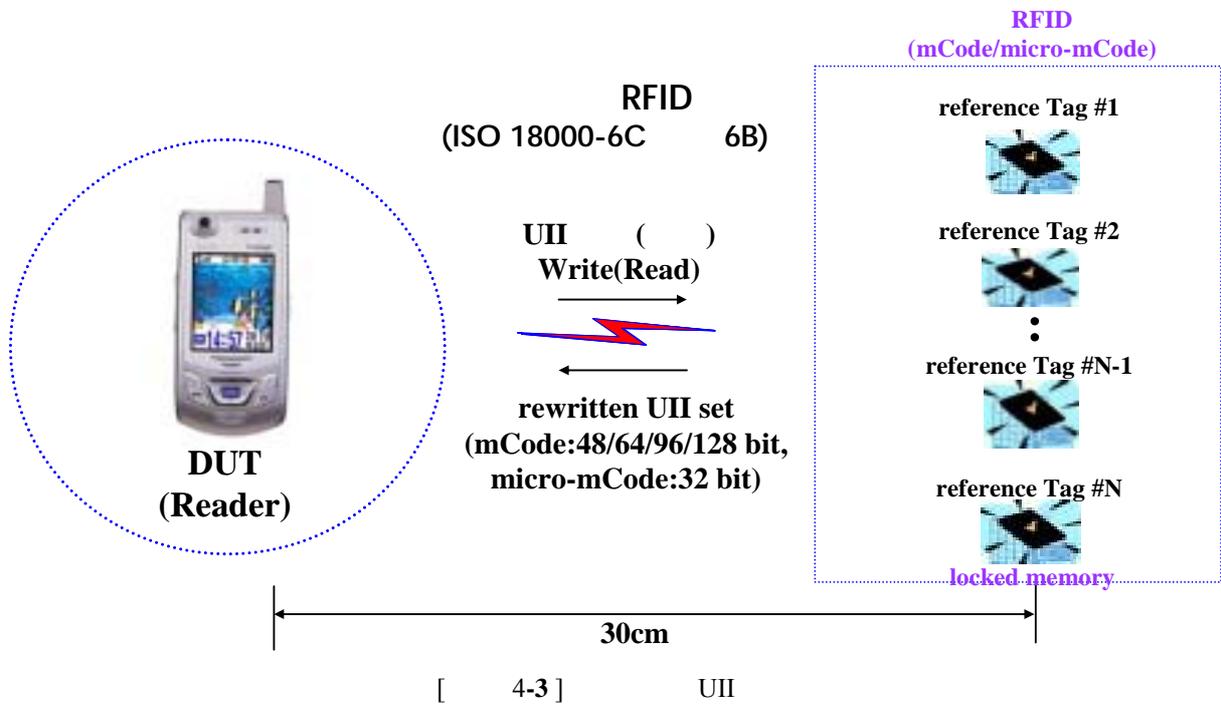
4.1.3.1

가 UII , UII

4.1.3.2

(Write) 30cm
 가 가
 ISO 18000-6C Access Password , UII Lock-field
 가 [1,0] [1,1] 가
 UII {P+OID+O} UII set (18000-6C: UII , 18000-6B: User)
 . mCode 48/64/96/128 bit 4 micro-mCode 1

4.1.3.3



ISO 18000-6C

Case1: UII Lock-field[1,0]

1 UII 64bit mCode-Class B {P+OID+O} Application defined
 (000) . Access Password≠0 UII Lock-field [1,0]

ISO 18000-6C

Bank	Byte No.	Field Name	Data for mRFID
00 ₂		Reserved	· 00 _H ~1F _H : Kill Password · 20 _H ~2F _H : Access Password
01 ₂	0 ~ 1	CRC-16	
	2	Protocol Control (PC) bits	10~14 _H =Length of (PC+UII), 15=0 ₂ (No User Bank), 16 _H =00 ₂ , 17 _H =1 ₂

	3		18 _H ~1F _H : 01 _H (AFI)
	4 ~	UII	· 00 _H ~07 _H : 01 _H (DSFID) · 08 _H ~: UII set (P+OID+O)
10 ₂		TID	
11 ₂		USER	· N/A

UII (Query →ACK)

UII

ACCESS Access Password Secured state

UII(ⓐ)) Write , 20ms

{TRext(1)+0₂+handle+CRC-16} Read

UII

UII mCode(48bit-ClassA/96bit-Class D~E) ⓐ~ⓓ

가 “ UII ”

Case2: UII Lock-field[1,1]

1 UII 64bit mCode-Class B {P+OID+O} Application defined

(000) Access Password≠0 UII Lock-field [1,1]

ISO 18000-6C

Bank	Byte No.	Field Name	Data for mRFID
00 ₂		Reserved	· 00 _H ~1F _H : Kill Password · 20 _H ~2F _H : Access Password
01 ₂	0 ~ 1	CRC-16	
	2	Protocol Control (PC) bits	10~14 _H =Length of (PC+UII), 15=0 ₂ (No User Bank), 16 _H =00 ₂ , 17 _H =1 ₂
	3		18 _H ~1F _H : 01 _H (AFI)
	4 ~	UII	· 00 _H ~07 _H : 01 _H (DSFID) · 08 _H ~: UII set (P+OID+O)
10 ₂		TID	
11 ₂		USER	· N/A

UII (Query →ACK)

UII

ACCESS Access Password Secured state

UII(ⓐ)) Write , 20ms

{1₂+Error code(04_h)+handle+CRC-16} Read

UII

Open User UII UII가 가

UII mCode(128bit-Class I~N) micro-mCode ⓐ~ⓓ

가 “ UII ”

ISO 18000-6B

1 User 64bit mCode-Class B {P+OID+O} Application defined

(000) ISO 18000-6B

locked

Byte No.	Field Name	Data for mRFID
12	Embedded Application Code	0A _H
13	Application Family ID (AFI)	01 _H
14	Storage Data Format	01 _H
15	Size of UII set	UII set (byte)
16	Size of AD sets	00 _H
17	N/A	
18 ~	User Data	UII set (P+OID+O)

GROUP_SELECT_EQ[NE/GT/NT]
 (Read, Data_Read, Read_Variable) 12~15byte UII
 UII
 User UII(ⓐ) Write
 Error UII (Read/Data_Read/
 Read_Variable) UII
 UII mCode(48bit-ClassA/96bit-Class D~E/128bit-Class I~N) micro-mCode ~
 가 “ UII ”

4.1.3.4

ISO 18000-6C 가 Access Password UII , UII Lock-field
 [1,0] Secured state UII 가 가 UII Lock-field
 [1,1] UII
 ISO 18000-6B UII , UII가 locked UII

4.1.4

4.1.4.1

가

4.1.4.2

(Write) 30cm

가 가

User () (ISO 18000-6C : 32byte , ISO 18000-6B : 32byte)

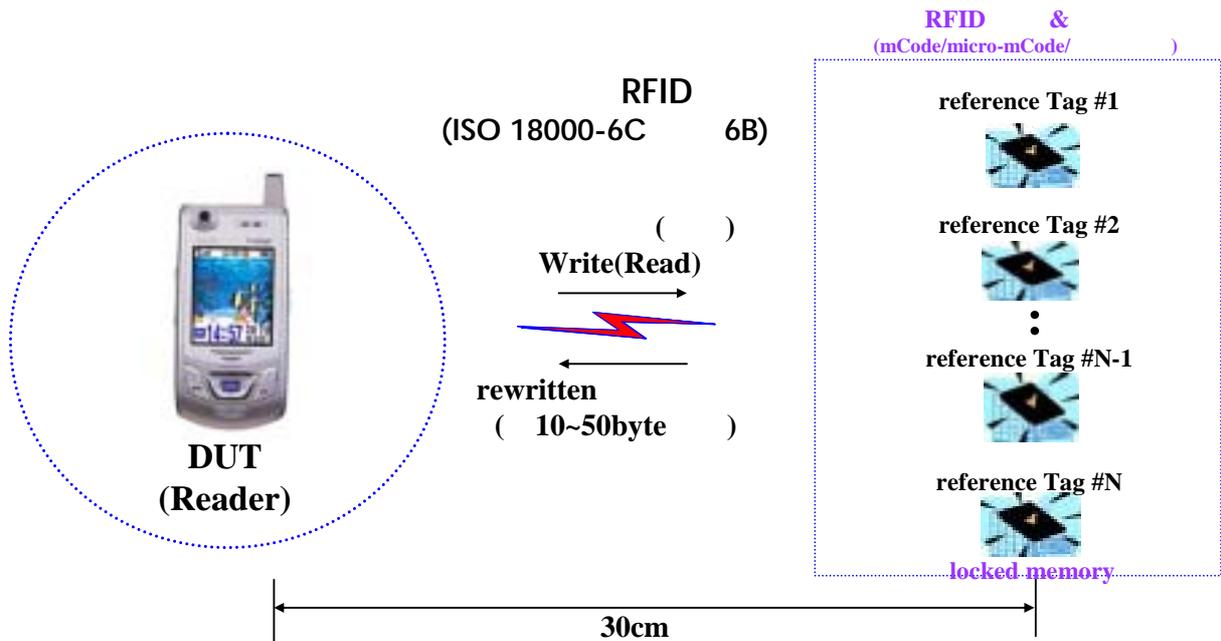
Access Password , User Lock-field가 [1,0] [1,1]

가

{P+OID+O} AD set (ISO 18000-6C: 22byte

1 , ISO 18000-6B: 50byte 2)

4.1.4.3



[4-4]

ISO 18000-6C

Case1: User Lock-field[1,0]

1 UII 128bit mCode-Class I, User

가 (Type 1[]) {P+OID+O} (UII: Application defined(000), : Application defined (000, [UTF-8 String Value-UTF-8/Decimal Numeric Character Sring Value-Numeric compaction]) . Access Password≠0

Access Password Lock-field [1,1] , UII Bank User Bank Lock-field [1,0]

ISO 18000-6C

Bank	Byte No.	Field Name	Data for mRFID
00 ₂		Reserved	<ul style="list-style-type: none"> · 00_H~1F_H: Kill Password · 20_H~2F_H: Access Password
01 ₂	0 ~ 1	CRC-16	
	2	Protocol Control (PC) bits	10~14 _H =Length of (PC+UII), 15=1 ₂ (User Bank), 16 _H =00 ₂ , 17 _H =1 ₂
	3		18 _H ~1F _H : 01 _H (AFI)
	4 ~	UII	<ul style="list-style-type: none"> · 00_H~07_H: 01_H (DSFID) · 08_H ~: UII set (P+OID+O)
10 ₂		TID	
11 ₂		USER	<ul style="list-style-type: none"> · 00_H~07_H: 01_H · 08_H ~: 1st AD set (P+OID+O)

UII (Query→ACK)

UII

ACCESS Access Password Secured state User

(①) Write

20ms {T_{RExt}(1)+0₂+handle+CRC-16}

Read

(Type 5) ①~④

가 “ ”

Case2: User Lock-field[1,1]

1 UII 128bit mCode-Class I, User

가 (Type 2[]) {P+OID+O} (UII: Application

defined(000), : Application defined (000, [UTF-8 String Value-UTF-8/Decimal Numeric

Character String Value-Numeric compaction]) . Access Password≠0

Access Password Lock-field [1,1] , UII Bank User Bank Lock-field [1,1]

ISO 18000-6C

Bank	Byte No.	Field Name	Data for mRFID
00 ₂		Reserved	<ul style="list-style-type: none"> · 00_H~1F_H: Kill Password · 20_H~2F_H: Access Password
01 ₂	0 ~ 1	CRC-16	
	2	Protocol Control (PC) bits	10~14 _H =Length of (PC+UII), 15=1 ₂ (User Bank), 16 _H =00 ₂ , 17 _H =1 ₂
	3		18 _H ~1F _H : 01 _H (AFI)
	4 ~	UII	<ul style="list-style-type: none"> · 00_H~07_H: 01_H (DSFID) · 08_H ~: UII set (P+OID+O)
10 ₂		TID	
11 ₂		USER	<ul style="list-style-type: none"> · 00_H~07_H: 01_H · 08_H ~: 1st AD set (P+OID+O)

UII (Query→ACK)

UII

ACCESS Access Password Secured state User

(①) Write

20ms {0₂+Error code(04_h)+handle+CRC-16}

Read

Open User 가

가 (Type 16) ①~④

가 “ ”

ISO 18000-6B

1 User 128bit mCode-Class I (Type 1[]+ Type 4[가
]) {P+OID+O} (UII: Application defined(000), : Application
defined (000, [UTF-8 String Value-UTF-8/Decimal Numeric Character Sring Value-Numeric
compaction]) ISO 18000-6B

locked

Byte No.	Field Name	Data for mRFID
12	Embedded Application Code	0A _H
13	Application Family ID (AFI)	01 _H
14	Storage Data Format	01 _H
15	Size of UII set	UII set (byte)
16	Size of AD sets	1 AD set (byte)
17	N/A	
18 ~	User Data	UII set (P+OID+O), 1 st AD set (P+OID+O) 2 nd AD set (P+OID+O)

GROUP_SELECT_EQ[NE/GT/NT] ,

(Read/Data_Read/Read_Variable) 12~16byte , UII set

AD set

User (①)

Write , Error

(Read/Data_Read/Read_Variable) ,

(Type 5+Type 9, Type13+Type16) ①~

가 “ ”

4.1.4.4

ISO 18000-6C 가 Access Password , User

Lock-field [1,0] Secured state 가 가

User Lock-field [1,1]

ISO 18000-6B , 가 lock

4.1.5 Kill

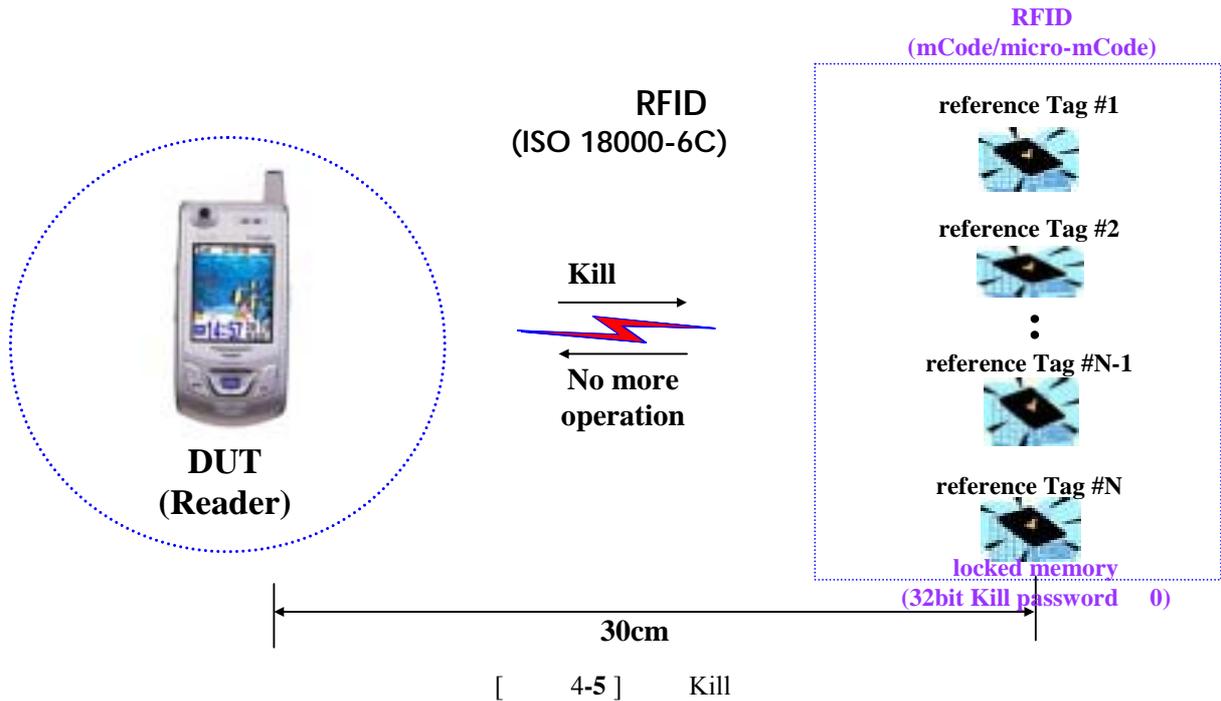
4.1.5.1

kill 가

4.1.5.2

ISO 18000-6C Kill 가
 30cm 가 가
 ISO 18000-6C Kill Password가 “nonzero” ”zero” 가
 Access Password Kill Password
 Access Password Kill password , Secured
 ISO 18000-6C Kill Password가 Kill Password≠0
 Access Password Kill Password

4.1.5.3



1 UII 96bit mCode-Class J {P+OID+O} Application defined(000)
 . Access password≠0 Kill password≠0
 Access password Kill password Lock-field [1,1], UII Lock-field [1,1]
 ISO 18000-6C

Bank	Byte No.	Field Name	Data for mRFID
00 ₂		Reserved	<ul style="list-style-type: none"> · 00_H~1F_H: Kill Password · 20_H~2F_H: Access Password

01 ₂	0 ~ 1	CRC-16	
	2	Protocol Control (PC) bits	10~14 _H =Length of (PC+UII), 15=0 ₂ (No User Bank), 16 _H =00 ₂ , 17 _H =1 ₂
	3		18 _H ~1F _H : 01 _H (AFI)
	4 ~	UII	· 00 _H ~07 _H : 01 _H (DSFID) · 08 _H ~: UII set (P+OID+O)
10 ₂		TID	N/A
11 ₂		USER	· N/A

ACCESS Access password Secured state

Kill Password(nonzero) Kill , Kill ,

 20ms {TRext(1)+0₂+handle+CRC-16} 가

 , , 가 killed

().

 Kill password zero , Secured Kill

가 Killed 가

 가 “ Kill”

4.1.5.4

ISO 18000-6C Access password Kill password Secured state

 Kill , Kill Password≠0 Killed

 Kill Password=0 Killed

4.1.6 UII

4.1.6.1

UII 가

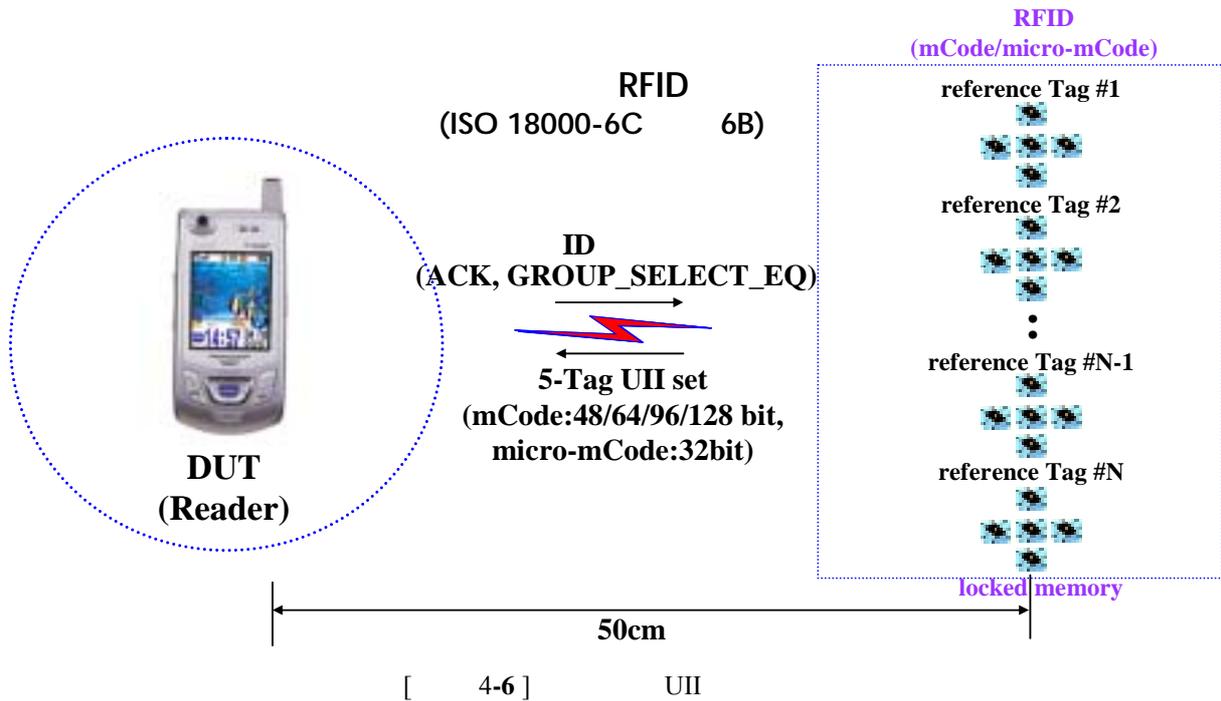
4.1.6.2

(5cm 5) 50cm ,

가 가

UII {P+OID+O} UII set (18000-6C: UII , 18000-6B: User) . mCode 48/64/96/128 bit 4 micro-mCode 1

4.1.6.3



ISO 18000-6C

5 UII 4 mCode 1 micro-mCode(32bit micro-mCode 1 , 48/64/96/128 bit 1) {P+OID+O} Application defined(000)

5 Access Password≠0 Access Password Lock-field [1,1], UII

Lock-field [1,1] 5 ISO 18000-6C

Bank	Byte No.	Field Name	Data for mRFID
00 ₂		Reserved	<ul style="list-style-type: none"> 00_H~1F_H: Kill Password 20_H~2F_H: Access Password
01 ₂	0 ~ 1	CRC-16	
	2	Protocol Control (PC) bits	10~14 _H =Length of (PC+UII), 15=0 ₂ (No User Bank), 16 _H =00 ₂ , 17 _H =1 ₂
	3		18 _H ~1F _H : 01 _H (AFI)
	4 ~	UII	<ul style="list-style-type: none"> 00_H~07_H: 01_H(DSFID) 08_H~: UII set (P+OID+O)

4.1.7

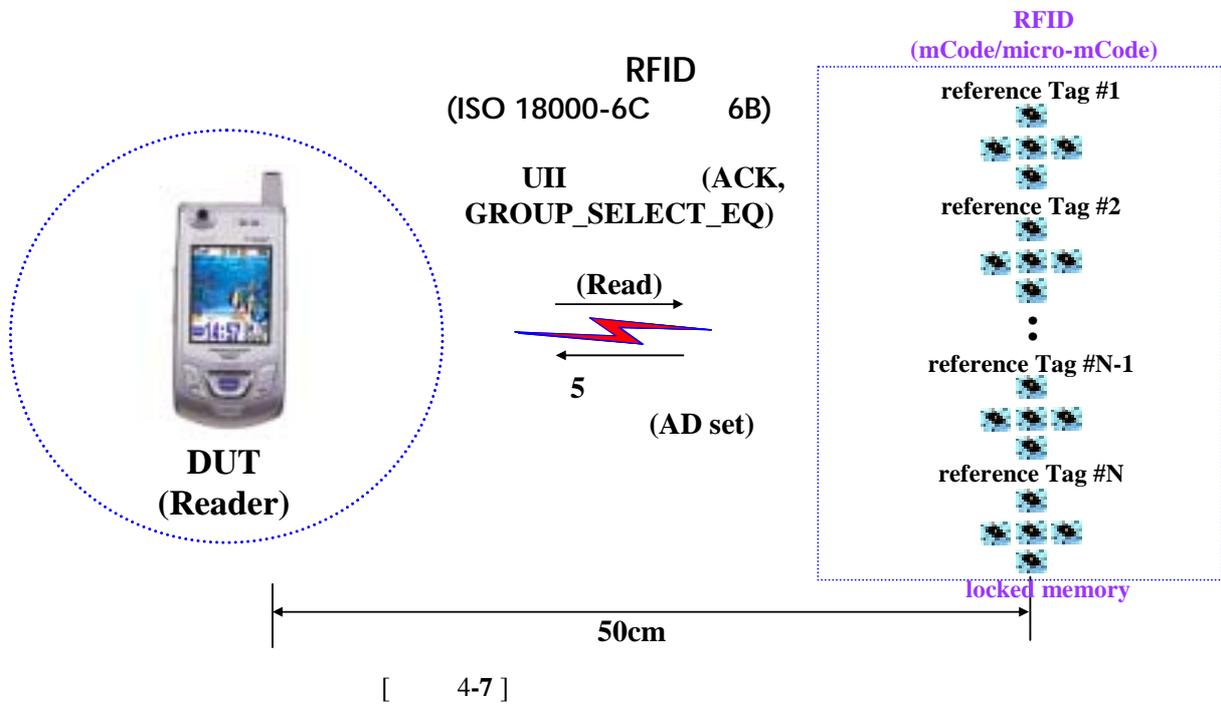
4.1.7.1

가

4.1.7.2

(5cm 5) 50cm ,
 가 가
 User () (ISO 18000-6C : 32byte , ISO 18000-6B : 32byte)
 5 User () {P+OID+O} AD set (ISO 18000-6C:
 22byte 1 , ISO 18000-6B: 50byte 2~3)

4.1.7.3



ISO 18000-6C

5 UII 5 mCode(64bit 1 , 96bit 2 , 128bit 2) {P+OID+O}
 Application defined(000) 5 User
 22byte {P+OID+O} Application defined (000, [UTF-8 String
 Value-UTF-8/Decimal Numeric Character Sring Value-Numeric compaction])
 Access Password≠0 Access Password
 Lock-field [1,1], UII Lock-field [1,1] 5
 ISO 18000-6C

Bank	Byte No.	Field Name	Data for mRFID
00 ₂		Reserved	<ul style="list-style-type: none"> · 00_H~1F_H: Kill Password · 20_H~2F_H: Access Password

01 ₂	0 ~ 1	CRC-16	
	2	Protocol Control (PC) bits	10~14 _H =Length of (PC+UII), 15=1 ₂ (User Bank), 16 _H =00 ₂ , 17 _H =1 ₂
	3		18 _H ~1F _H : 01 _H (AFI)
	4 ~	UII	<ul style="list-style-type: none"> · 00_H~07_H: 01_H (DSFID) · 08_H ~: UII set (P+OID+O) * 1 O: 64bit mCode-Class B 2 O: 96bit mCode-Class D 3 O: 96bit mCode-Class E 4 O: 128bit mCode-Class K 5 O: 128bit mCode-Class M
10 ₂		TID	N/A
11 ₂		USER	<ul style="list-style-type: none"> · 00_H~07_H: 01_H · 08_H~ : 1st AD set (P+OID+O), 2nd AD set (P+OID+O), 3rd AD set (P+OID+O) * 1 O: Type3[] 2 O: Type15[URN] 3 O: Type1[] 4 O: Type16[] 5 O: Type9[]

5 UII (Query →ACK)

5 UII

5 Read , 5

가 “ ”

ISO 18000-6B

5 User 5 mCode(64bit 1 , 96bit 2 , 128bit 2) {P+OID+O}

Application defined(000) 5 User

50byte {P+OID+O} Application defined (000, [UTF-8 String

Value-UTF-8/Decimal Numeric Character Sring Value-Numeric compaction])

ISO 18000-6B 5

locked

Byte No.	Field Name	Data for mRFID
12	Embedded Application Code	0A _H
13	Application Family ID (AFI)	01 _H
14	Storage Data Format	01 _H
15	Size of UII set	UII set (byte)
16	Size of AD sets	1~3 AD set (byte)
17	N/A	
18 ~	User Data	UII set (P+OID+O), 1 st AD set (P+OID+O), 2 nd AD set (P+OID+O) * 1 O: 64bit mCode-Class B 2 O: 96bit mCode-Class D 3 O: 96bit mCode-Class E 4 O: 128bit mCode-Class L 5 O: 128bit mCode-Class N * 1 O: Type3[]/Type10[] 2 O: Type15[URN]/Type4[가]

		3 O: Type12[]/ Type11[-] 4 O: Type16[]/Type10[-] 5 O: Type9[]/Type8[]
--	--	--

DUT() GROUP_SELECT_EQ[NE/GT/NT]

5

(Read/Data_Read/Read_Variable)

5

12~ 16byte

UII

5

UII

가 “ ”

4.1.7.4

ISO 18000-6C

,

5

UII

22byte

2

ISO 18000-6B

,

5

UII

50byte

2

4.2

4.2.1 UII

4.2.1.1

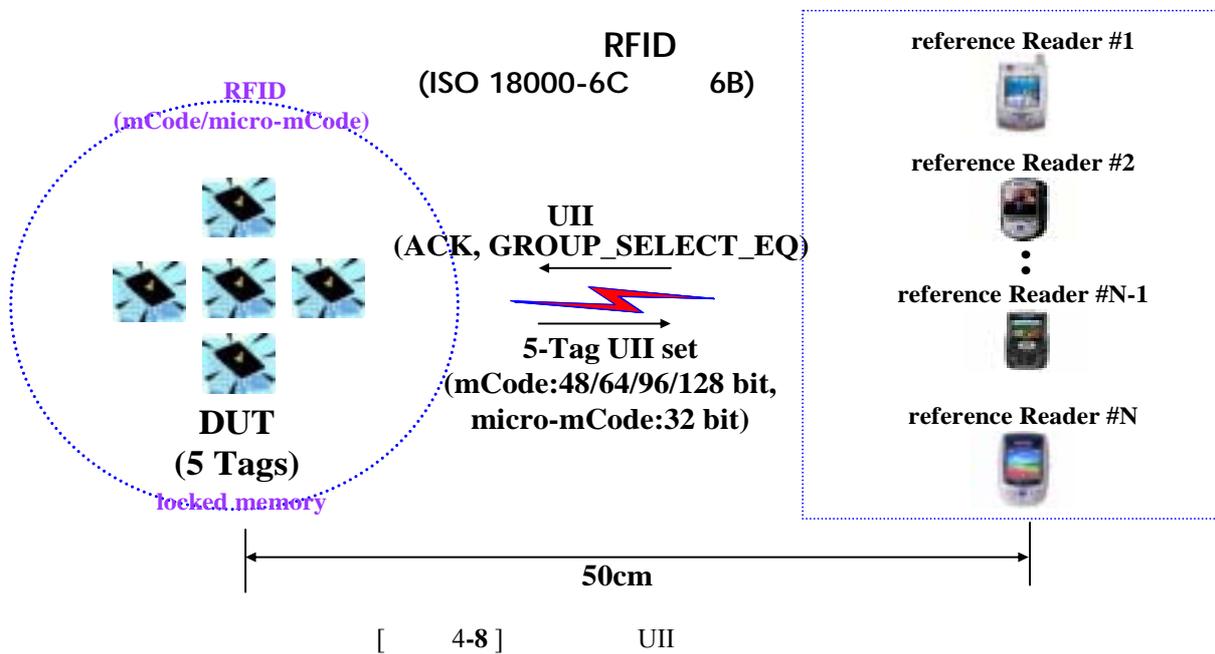
UII , UII 가 .

4.2.1.2

50cm , 가 가

{P+OID+O} UII set (18000-6C: UII , 18000-6B: User)
 mCode 48/64/96/128 bit 4 micro-mCode 1

4.2.1.3



ISO 18000-6 C

1 UII 64bit mCode-Class B {P+OID+O} Application defined
 (000) , Access Password ≠0 Access Password
 Lock-field [1,1], UII Lock-field [1,0] ISO 18000-6C

Bank	Byte No.	Field Name	Data for mRFID
00 ₂		Reserved	· 00 _H ~1F _H : Kill Password · 20 _H ~2F _H : Access Password
01 ₂	0 ~ 1	CRC-16	
	2	Protocol Control (PC) bits	10~14 _H =Length of (PC+UII), 15=0 ₂ (No User Bank), 16 _H =00 ₂ , 17 _H =1 ₂
	3		18 _H ~1F _H : 01 _H (AFI)
	4 ~	UII	· 00 _H ~07 _H : 01 _H (DSFID) · 08 _H ~: UII set (P+OID+O)
10 ₂		TID	
11 ₂		USER	· N/A

U11 (Query→ACK)

U11

U11 mCode(48bit-ClassA/96bit-Class D~E/128bit-Class I~N) micro-mCode U11

가 “ U11 ”

ISO 18000-6B

1 User 64bit mCode-Class B {P+OID+O} Application defined(000)
ISO 18000-6B

locked

Byte No.	Field Name	Data for mRFID
12	Embedded Application Code	0A _H
13	Application Family ID (AFI)	01 _H
14	Storage Data Format	01 _H
15	Size of U11 set	U11 set (byte)
16	Size of AD sets	00 _H
17	N/A	
18 ~	User Data	U11 set (P+OID+O)

GROUP_SELECT_EQ[NE/GT/NT]

(Read/Data_Read/Read_Variable) 12~15byte U11

U11

U11 mCode(48bit-ClassA/96bit-Class D~E/128bit-Class I~N) micro-mCode U11

가 “ U11 ”

4.2.1.4

ISO 18000-6C , U11(mCode micro-mCode)

ISO 18000-6B , U11(mCode micro-mCode)

4.2.2

4.2.2.1

가

4.2.2.2

User () (ISO 18000-6C : 32byte , ISO 18000-6B : 32byte)

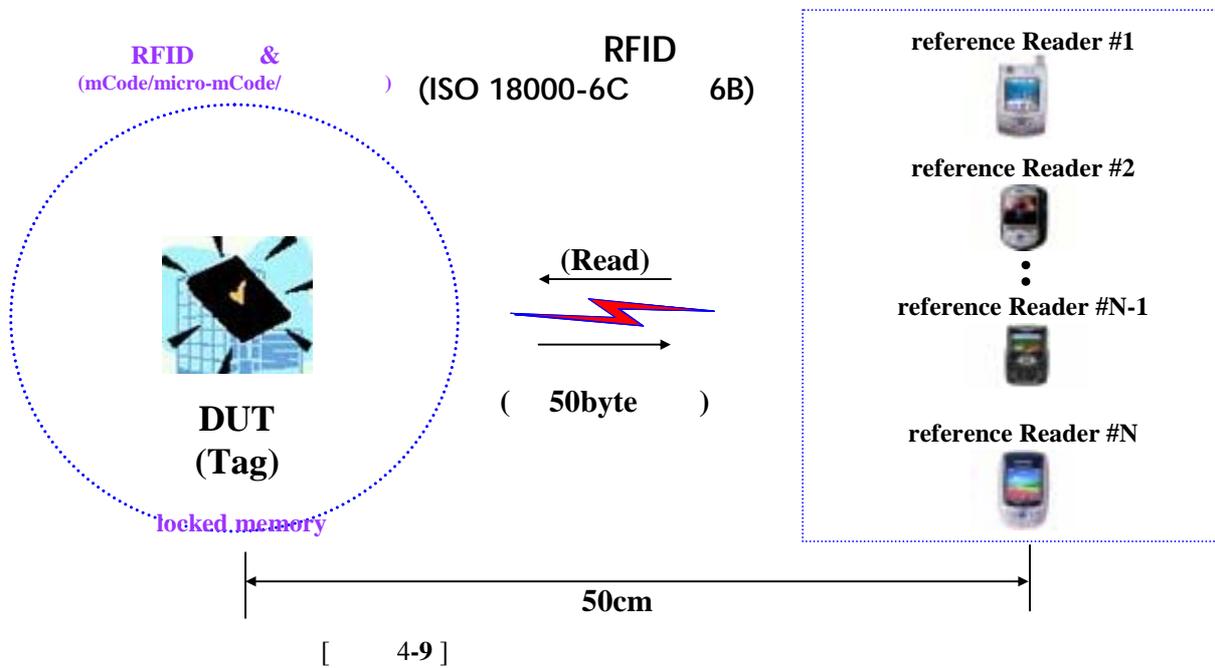
50cm

가 가

{P+OID+O} AD set (ISO 18000-6C: 22byte

1 , ISO 18000-6B: 50byte 2~3)

4.2.2.3



ISO 18000-6C

1 UII 96bit mCode-Class D, User (Type 1[
]) {P+OID+O} (UII: Application defined (000), : Application
 defined (000, [UTF-8 String Value-UTF-8/Decimal Numeric Character Sring Value-Numeric
 compaction]) , Access Password≠0 Access Password
 Lock-field [1,1] UII User Lock-field [1,1]

ISO 18000-6C

Bank	Byte No.	Field Name	Data for mRFID
00 ₂		Reserved	· 00 _H ~1F _H : Kill Password · 20 _H ~2F _H : Access Password
01 ₂	0 ~ 1	CRC-16	
	2	Protocol Control (PC) bits	10~14 _H =Length of (PC+UII), 15=1 ₂ (User Bank),

			16 _H =00 ₂ , 17 _H =1 ₂
	3		18 _H ~1F _H : 01 _H (AFI)
	4 ~	UII	· 00 _H ~07 _H : 01 _H (DSFID) · 08 _H ~: UII set (P+OID+O)
10 ₂		TID	
11 ₂		USER	· 00 _H ~07 _H : 01 _H 08 _H ~: AD set (P+OID+O)

UII (Query→ACK)

UII

(Read)

(Type2~16)

가

가

“

”

ISO 18000-6B

1 User 96bit mCode-Class D (Type2[]/Type5[]
/Type 4[가]) {P+OID+O} (UII: Application defined(000), :
Application defined (000, [UTF-8 String Value-UTF-8/Decimal Numeric Character Sring Value-
Numeric compaction]) ISO 18000-6B

locked

Byte No.	Field Name	Data for mRFID
12	Embedded Application Code	0A _H (For ISO/IEC 15961, 15962)
13	Application Family ID (AFI)	01 _H
14	Storage Data Format	01 _H
15	Size of UII set	UII set (byte)
16	Size of AD sets	1~3 AD set (byte)
17	N/A	
18 ~	User Data	UII set (P+OID+O), 1 st AD set (P+OID+O), 2 nd AD set (P+OID+O), 3 rd AD set (P+OID+O)

GROUP_SELECT_EQ[NE/GT/NT]

UII

(Read/Data_Read/Read_Variable)

12~16byte

, UII set

AD

set

(Type3[]/Type10[], Type 9[]/Type12[

], Type2[]/Type7[], Type1[]/Type14[URL],Type13[

] /Type7[], Type8[]/Type15[URN], Type11[-],/Type16[])

가

가

“

”

4.2.2.4

ISO 18000-6C

, 22byte

1

ISO 18000-6B

, 50byte

(1~3 AD set) 1

4.2.3 UII

4.2.3.1

UII , UII 가

4.2.3.2

(Write)

30cm

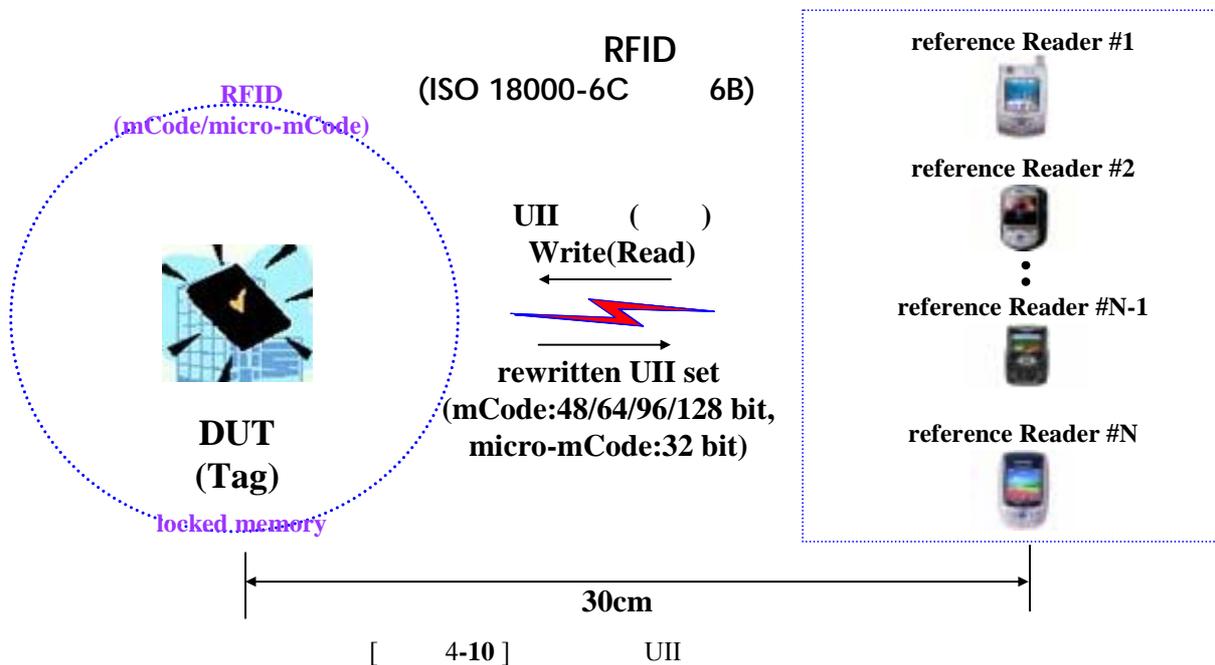
가 가

Access Password , Secured UII

UII {P+OID+O} (18000-6C: UII , 18000-6B: User)

mCode 48/64/96/128 bit 4 micro-mCode 1

4.2.3.3



ISO 18000-6C

Case1: UII Lock-field[1,0]

1 UII 64bit mCode-Class B {P+OID+O} Application defined(000)
 , Access Password≠0 Reserved Lock-
 field [1,1], UII Lock-field [1,0] ISO 18000-6C

Bank	Byte No.	Field Name	Data for mRFID
00 ₂		Reserved	<ul style="list-style-type: none"> 00_H~1F_H: Kill Password 20_H~2F_H: Access Password
01 ₂	0 ~ 1	CRC-16	
	2	Protocol Control (PC) bits	10~14 _H =Length of (PC+UII), 15=0 ₂ (No User Bank), 16 _H =00 ₂ , 17 _H =1 ₂
	3		18 _H ~1F _H : 01 _H (AFI)
	4 ~	UII	<ul style="list-style-type: none"> 00_H~07_H: 01_H(DSFID) 08_H ~: UII set (P+OID+O)

10 ₂		TID	
11 ₂		USER	· N/A

U11 (Query→ACK)

U11 ACCESS Access Password, Secured state

U11 Write (①) 20ms

{TRext(1)+0₂+handle+CRC-16} Read

U11

U11 mCode(48bit-ClassA/96bit-Class D~E) ①~④

가 “ U11 ”

Case2: U11 Lock-field[1,1]

1 U11 64bit mCode-Class B {P+OID+O} Application defined(000)

Access Password≠0 Reserved Lock-field [1,1], U11 Lock-field [1,1] ISO 18000-6C

Bank	Byte No.	Field Name	Data for mRFID
00 ₂		Reserved	· 00 _H ~1F _H : Kill Password · 20 _H ~2F _H : Access Password
01 ₂	0 ~ 1	CRC-16	
	2	Protocol Control (PC) bits	10~14 _H =Length of (PC+U11), 15=0 ₂ (No User Bank), 16 _H =00 ₂ , 17 _H =1 ₂
	3		18 _H ~1F _H : 01 _H (AFI)
	4 ~	U11	· 00 _H ~07 _H : 01 _H (DSFID) · 08 _H ~: U11 set (P+OID+O)
10 ₂		TID	
11 ₂		USER	· N/A

U11 (Query→ACK)

U11 ACCESS Access Password, Secured state

U11 Write (①) 20ms

{0₂+Error code(04_H)+handle+CRC-16} Read

U11

Open U11 U11 U11가 가

U11 mCode(128bit-Class I~N) micro-mCode 1 ①~④

가 “ U11 ”

ISO 18000-6B

1 User 64bit mCode-Class B {P+OID+O} Application defined(000)

ISO 18000-6B

locked

Byte No.	Field Name	Data for mRFID
12	Embedded Application Code	0A_H (For ISO/IEC 15961, 15962)
13	Application Family ID (AFI)	01_H
14	Storage Data Format	01_H
15	Size of UII set	UII set (byte)
16	Size of AD sets	00_H
17	N/A	
18 ~	User Data	UII set (P+OID+O)

GROUP_SELECT_EQ[NE/GT/NT]
 (Read/Data_Read/Read_Variable) 12~15byte UII set
 UII
 User UII (①) Write
 Error UII (Read/Data_Read/Read_Variable)
 UII
 UII mCode(48bit-ClassA/96bit-Class D~E/128bit-Class I~N) micro-mCode ~
 가 “ UII ”

4.2.3.4

ISO 18000-6C Access Password UII
 UII Lock-field가 [1,0] UII Secured state
 UII Lock-field가 [1,1] UII
 ISO 18000-6B User 가 locked UII
 , UII

4.2.4

4.2.4.1

가

4.2.4.2

User () (ISO 18000-6C : 32byte , ISO 18000-6B : 32byte)

(Write) 30cm

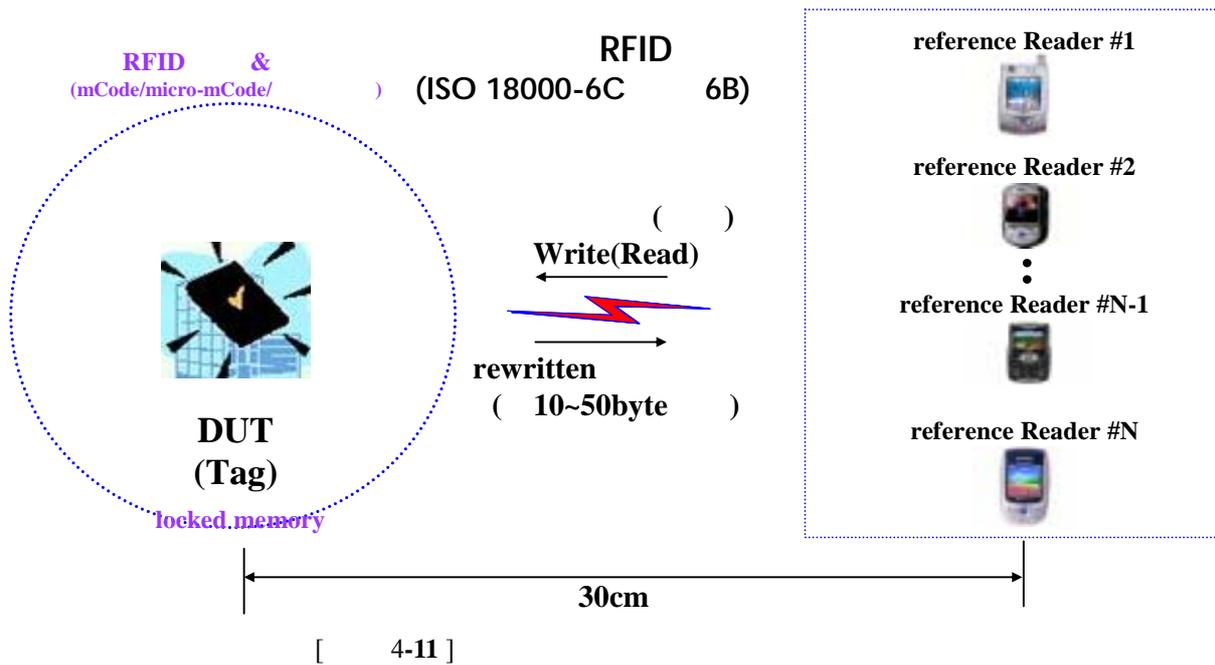
가 가

Access Password Secured

{P+OID+O} AD set (ISO 18000-6C: 22byte 1 , ISO

18000-6B: 50byte 2) User ()

4.1.1.1



ISO 18000-6C

Case1: User Lock-field[1,0]

1 UII 128bit mCode-Class I, User (Type 1[])
 {P+OID+O} (UII: Application defined(000), : Application defined
 (000, [UTF-8 String Value-UTF-8/Decimal Numeric Character String Value-Numeric
 compaction]) , Access Password≠0 Reserved Lock-field
 [1,1], UII User Lock-field [1,0] ISO 18000-6C

Bank	Byte No.	Field Name	Data for mRFID
00 ₂		Reserved	<ul style="list-style-type: none"> · 00_H~1F_H: Kill Password · 20_H~2F_H: Access Password
01 ₂	0 ~ 1	CRC-16	
	2	Protocol Control (PC) bits	10~14 _H =Length of (PC+UII), 15=1 ₂ (User Bank), 16 _H =00 ₂ , 17 _H =1 ₂
	3		18 _H ~1F _H : 01 _H (AFI)
	4 ~	UII	<ul style="list-style-type: none"> · 00_H~07_H: 01_H(DSFID) · 08_H~: UII set (P+OID+O)
10 ₂		TID	
11 ₂		USER	<ul style="list-style-type: none"> · 00_H~07_H: 01_H · 08_H~: 1st AD set (P+OID+O)

UII (Query→ACK)

UII

ACCESS Access Password, Secured state User

(①) Write

20ms {TRext(1)+0+handle+CRC-16}

Read

(Type 5) ①~④

가 “ ”

Case2: User Lock-field[1,1]

1 UII 128bit mCode-Class I, User (Type 2[]) {P+OID+O} (UII: Application defined(000), : Application defined (000, [UTF-8 String Value-UTF-8/Decimal Numeric Character String Value-Numeric compaction]) , Access Password≠0 Reserved Lock-field [1,1], UII User Lock-field [1,1] ISO 18000-6C

Bank	Byte No.	Field Name	Data for mRFID
00 ₂		Reserved	<ul style="list-style-type: none"> · 00_H~1F_H: Kill Password · 20_H~2F_H: Access Password
01 ₂	0 ~ 1	CRC-16	
	2	Protocol Control (PC) bits	10~14 _H =Length of (PC+UII), 15=1 ₂ (User Bank), 16 _H =00 ₂ , 17 _H =1 ₂
	3		18 _H ~1F _H : 01 _H (AFI)
	4 ~	UII	<ul style="list-style-type: none"> · 00_H~07_H: 01_H(DSFID) · 08_H~: UII set (P+OID+O)
10 ₂		TID	
11 ₂		USER	<ul style="list-style-type: none"> · 00_H~07_H: 01_H · 08_H~: 1st AD set (P+OID+O)

UII (Query→ACK)

UII

ACCESS Access Password Secured state User

(①) Write

20ms {0₂+Error code(04_h)+handle+CRC-16}

Read

Open User 가

가

(Type 16) ①~④

가 “ ”

ISO 18000-6B

1 User 128bit mCode-Class I (Type 1[]+Type4[가])

{P+OID+O} (UII: Application defined(000), : Application defined

(000, [UTF-8 String Value-UTF-8/Decimal Numeric Character Sring Value-Numeric

compaction]) ISO 18000-6B

locked

Byte No.	Field Name	Data for mRFID
12	Embedded Application Code	0A _H
13	Application Family ID (AFI)	01 _H
14	Storage Data Format	01 _H
15	Size of UII set	UII set (byte)
16	Size of AD sets	1 AD set (byte)
17	N/A	
18 ~	User Data	UII set (P+OID+O), 1 st AD set (P+OID+O) , 2 nd AD set (P+OID+O)

GROUP_SELECT_EQ[NE/GT/NT]

(Read/Data_Read/Read_Variable) 12~16byte , UII set AD set

User (①)

Write , Error

(Read/Data_Read/Read_Variable) ,

(Type 5+ Type 9, Type 13+Type 16) ①~

가 “ ”

4.2.4.3

ISO 18000-6C Access Password

, User Lock-field가 [1,0] User

Secured state , User Lock-field가 [1,1]

ISO 18000-6B User 가 locked

, User

4.2.5 Kill

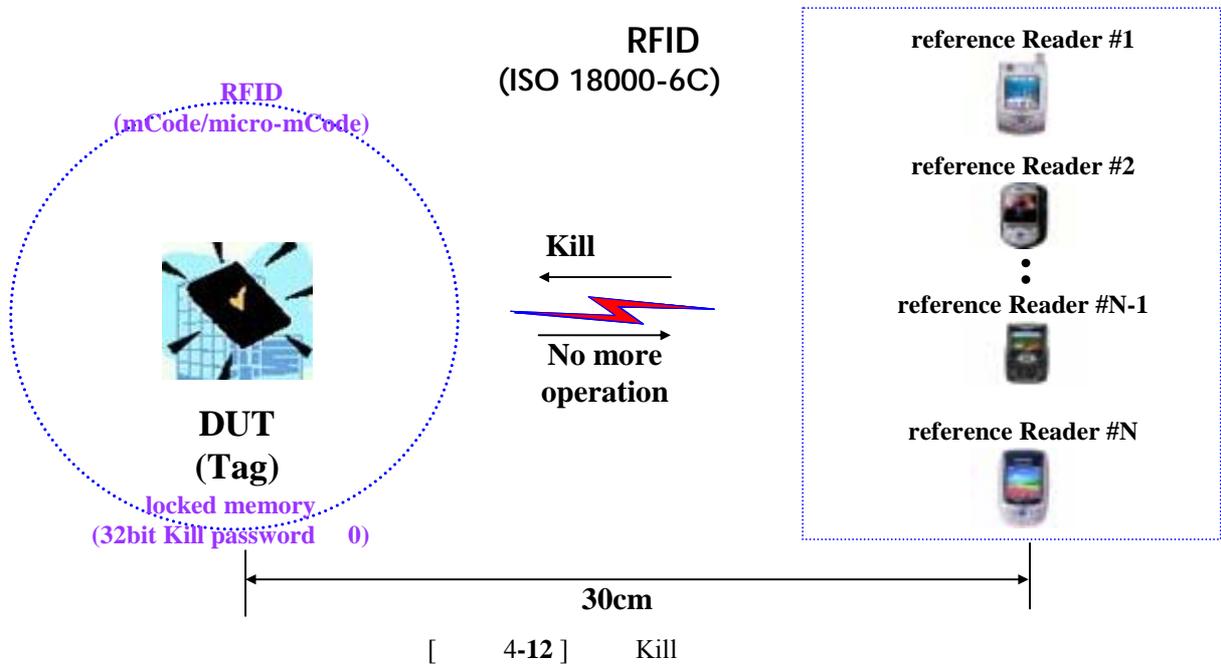
4.2.5.1

Kill
가

4.2.5.2

Kill , 30cm
가 가
ISO 18000-6C , Kill Password가 “nonzero” ”zero” 가
Access Password Kill Password
Access Password Secured
Kill Password

4.2.5.3



1 UII 96bit mCode-Class J {P+OID+O} Application defined(000)
Access Password≠0 Kill Password≠0 Access
password Kill password Lock-field [1,1] ISO 18000-6C

Bank	Byte No.	Field Name	Data for mRFID
00 ₂		Reserved	<ul style="list-style-type: none"> 00_H~1F_H: Kill Password 20_H~2F_H: Access Password
01 ₂	0 ~ 1	CRC-16	
	2	Protocol Control (PC) bits	10~14 _H =Length of (PC+UII), 15=0 ₂ (No User Bank), 16 _H =00 ₂ , 17 _H =1 ₂
	3		18 _H ~1F _H : 01 _H (AFI)
	4 ~	UII	<ul style="list-style-type: none"> 00_H~07_H: 01_H(DSFID) 08_H ~: UII set (P+OID+O)

10 ₂		TID	N/A
11 ₂		USER	· N/A

ACCESS Access Password Secured state ,
Kill Password(nonzero) Kill , Kill
, 20ms {TRext(1)+0₂+handle+CRC-16} 가
, 가 killed
().
Kill password zero , Secured Kill
가 Killed 가
가 “ Kill ”

4.2.5.4

ISO 18000-6C Access password Kill password Secured state Kill
, Kill Password≠0 Killed Kill
Password=0 Killed

4.2.6 UII

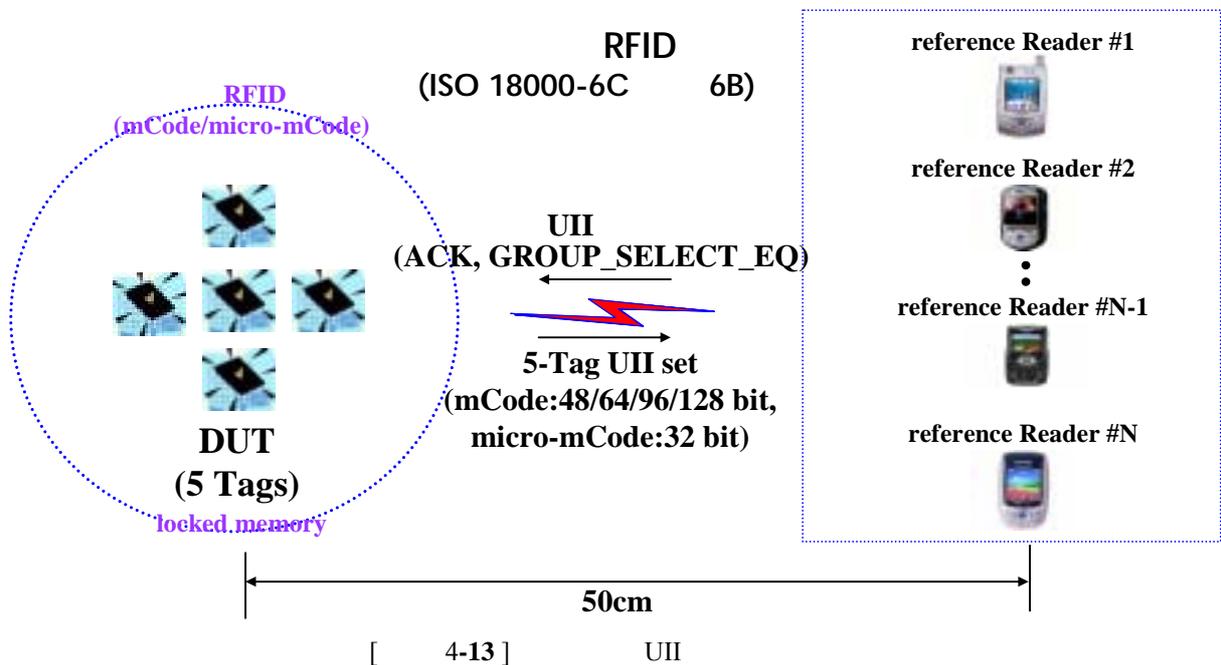
4.2.6.1

UII 가 , UII

4.2.6.2

(5cm 5) 50cm ,
 가 가
 {P+OID+O} UII set (18000-6C: UII , 18000-6B: User)
 . mCode 48/64/96/128 bit 4 micro-mCode 1

4.2.6.3



ISO 18000-6C

5 UII 4 mCode 1 micro-mCode(32bit micro-mCode 1 , 48/64/96/128 bit
 1) {P+OID+O} Application defined(000)
 , Access Password ≠0 Access Password Lock-field [1,1], UII
 Lock-field [1,0] 5 ISO 18000-6C

Bank	Byte No.	Field Name	Data for mRFID
00 ₂		Reserved	<ul style="list-style-type: none"> 00_H~1F_H: Kill Password 20_H~2F_H: Access Password
01 ₂	0 ~ 1	CRC-16	
	2	Protocol Control (PC) bits	10~14 _H =Length of (PC+UII), 15=0 ₂ (No User Bank), 16 _H =00 ₂ , 17 _H =1 ₂
	3		18 _H ~1F _H : 01 _H (AFI)
	4 ~	UII	<ul style="list-style-type: none"> 00_H~07_H: 01_H(DSFID) 08_H~: UII set (P+OID+O)

			* 1 O: 32bit micro-mCode 2 O: 48bit mCode-Class A 3 O: 64bit mCode-Class B 4 O: 96bit mCode-Class D 5 O: 128bit mCode-Class K
10 ₂		TID	N/A
11 ₂		USER	N/A

5 5 UII (Query→ACK)
5 UII
가 “ UII ”

ISO 18000-6B

5 User 4 mCode 1 micro-mCode(micro-mCode 1 , 48/64/96/128 bit 1
) {P+OID+O} Application defined(000)
5 ISO 18000-6B
lock

Byte No.	Field Name	Data for mRFID
12	Embedded Application Code	0A _H
13	Application Family ID (AFI)	01 _H
14	Storage Data Format	01 _H
15	Size of UII set	UII set (byte)
16	Size of AD sets	00 _H
17	N/A	
18 ~	User Data	UII set (P+OID+O) * 1 O: 32bit micro-mCode 2 O: 48bit mCode-Class A 3 O: 64bit mCode-Class B 4 O: 96bit mCode-Class D 5 O: 128bit mCode-Class K

GROUP_SELECT_EQ[NE/GT/NT] 5
(Read/Data_Read/Read_Variable) 5 12~15 byte
UII set 5 UII
가 “ UII ”

4.2.6.4

ISO 18000-6C 5 1.5 UII
ISO 18000-6B 5 1.5 UII

4.2.7

4.2.7.1

가

4.2.7.2

User () (ISO 18000-6C : 32byte , ISO 18000-6B : 32byte)

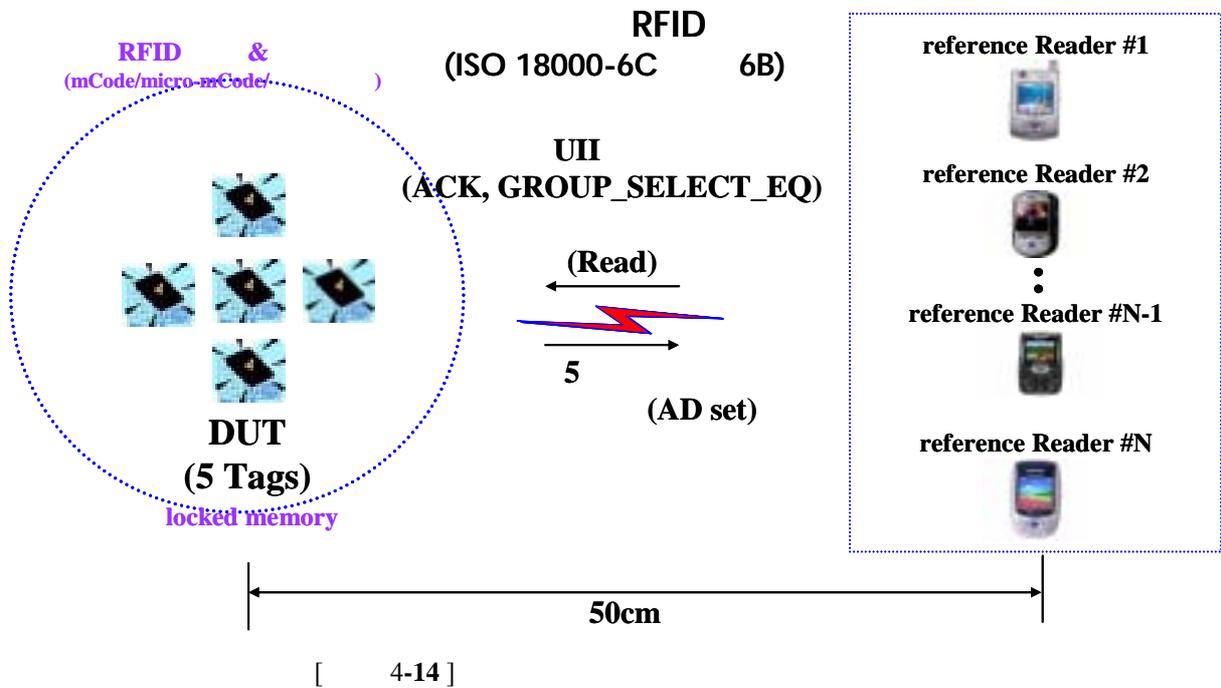
(5cm 5) 50cm ,

가 가

{P+OID+O} AD set (ISO 18000-6C: 22byte 1 ,

ISO 18000-6B: 50byte 2) User ()

4.2.7.3



ISO 18000-6C

5 UII 5 mCode(64bit 1 , 96bit 2 , 128bit 2) {P+OID+O}

Application defined(000) , 5 User Type

1~5 {P+OID+O} Application defined (000, [UTF-8 String Value-UTF-8/Decimal Numeric Character Sring Value-Numeric compaction])

Access Password≠0 Access Password Lock-field

[1,1], UII User Lock-field [1,1] 5

ISO 18000-6C

Bank	Byte No.	Field Name	Data for mRFID
00 ₂		Reserved	00 _H ~1F _H : Kill Password

		2 O: Type15[URN]/Type1[]
		3 O: Type4[가]/Type11[-]
		4 O: Type16[]/Type10[-]
		5 O:Type9[]/Type8[]

GROUP_SELECT_EQ[NE/GT/NT] 5 ,
 (Read/Data_Read/Read_Variable) 5 12~16 byte
 , UII set AD set 5 UII
 가 “ ”

4.2.7.4

ISO 18000-6C 5 , UII 22byte 2
 ISO 18000-6B 5 , UII 50byte 2

Annex 1: 가

4.1	4.1.1	UII	Pass/Fail	
	4.1.2		Pass/Fail	
	4.1.3	UII	Pass/Fail	
	4.1.4		Pass/Fail	
	4.1.5	Kill	Pass/Fail	, ISO 18000-6C Kill 가
	4.1.6	UII	Pass/Fail	
	4.1.7		Pass/Fail	
4.2	4.2.1	UII	Pass/Fail	
	4.2.2		Pass/Fail	, User memory
	4.2.3	UII	Pass/Fail	
	4.2.4		Pass/Fail	, User memory
	4.2.5	Kill	Pass/Fail	, ISO 18000- 6C
	4.2.6	UII	Pass/Fail	
	4.2.7		Pass/Fail	, User memory