ARETE mobile

User Guide

UG1001-28, 2015-06-18

Notice

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Please note that there may be possible mistake or omission of information in this document.

Applicable Device
This document is applicable for iOS 7.0 and Android 2.3.3 above

Revision History

Version	Date	Changes
Rev. 10	2013-07-23	Initially released
Rev. 19	2013-12-26	Changed company address Added revision history
Rev. 20	2014-01-29	Added tag RSSI feature
Rev. 21	2014-03-25	Fixed some typos Modified chapter 1 and 2
Rev. 22	2014-05-20	Modified chapter 1 and 4 Added exporting tags list feature
Rev. 23	2014-07-17	Added speaker beep Added read after startup
Rev. 24	2014-08-18	Modified troubleshooting Added EPC encoding type Added session control Changed function from read after startup to read after plugging
Rev. 25	2014-10-20	Added part no.
Rev. 26	2014-01-27	Added storage and charging information
Rev. 27	2014-03-12	Modified read memory
Rev. 28	2015-06-18	Modified for ARETE POP2 Modified diagnostic

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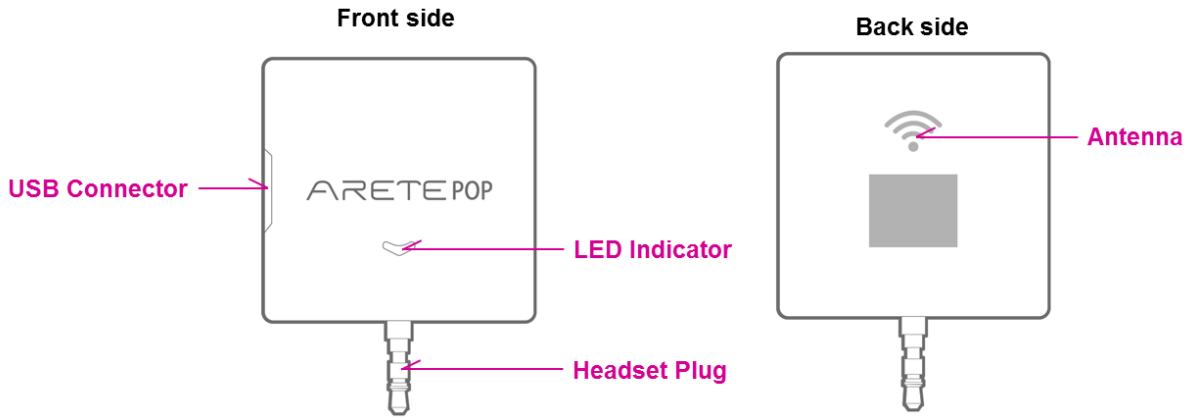
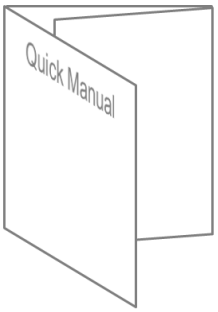
1 Understanding ARETE POP and POP2

1.1 ARETE POP and POP2 at a Glance



1.2 Accessories

USB Cable



Quick Manual

1.3 Specifications

PHYSICAL

Dimension(WxLxH)	51 x 50 x 15 mm (without plug), 51 x 67.5 x 15 mm (with plug)
Weight	30g
Indication	Power on LED(Blue), Charging LED(Red), Tagging LED (Blinking Blue)
Battery	360mAh
Continuous Time	About 2.0 hours
Standby Time	About 17 hours
Charging Time	About 2.0 hours
Charging	Micro USB 5pin
Color	White

RFID

RFID Reader Chip	PHYCHIPS PR9200
Air Protocol	EPCglobal Class 1 Gen 2 / ISO 18000-63 (formerly 18000-6C) Query Parameter: Q = 4, Session 0
Interface	3.5 mm Stereo Headset, CTIA, TRRS (4 pole), Audio jack
Part No. & Operating Center Frequency	A100-K: 917.3 ~ 920.3 MHz (Korea Band) A100-U: 917.1 ~ 926.9 MHz (US Band) A100-E: 865.7 ~ 867.5 MHz (EU Band) A100-J: 920.6 ~ 922.2 MHz (Japan Band) A100-A: 920.7 ~ 924.3 MHz (Australia, Singapore)
OS	Apple iOS 6.0, Android 2.3.3 above (as of July 1st 2013)
Output Power	316mW(25dBm) for excluding Japan band 200mW(23dBm) for Japan band
RFID Read Distance	Up to 1.0m (depend on tags)
Antenna	Circularly Polarized Antenna
RFID Function	Read, Write, Lock, Kill

USER ENVIRONMENT

Operating Temp	0~40˚C
Storage Temp	-20~60˚C
Relative Humidity	20% to 80% noncondensing

REGULATORY

RFID	FCC Part 15 Subpart C 247, EN 302 208, KCC 2013-1, KCC 2012-102, ARIB STD T107
EMI/EMC	EN 301 409-1, EN 301 409-3, EN61000-3-2, EN61000-3-3, KN 301 409-1/3, KN61000-4-2/3/4/5/6/11
RF Exposure	FCC OET Bulletin 6 supplement C, IEEE 1528, IEC 62209, IEC62209-2, RSS-102, EN 62311, KCC 2012-1/2, RRA 2012-7/13/43
Electrical Safety	EN 60950-1

STORAGE

If you store your device when its battery is fully discharged, the battery could fall into a deep discharge state, which makes it incapable of holding a charge.
If you plan to store your device for longer than 3 months, charge it every 3 months.
After it's removed from storage, it may require 20 minutes of charging.
Place your device in a cool, moisture-free environment; Temperature: 23±5°C, Humidity: 60±20%RH.

CHARGING

The ARETE POP and POP2 shall be charged within 0°C to 40°C temperature range.
If you are aware that your device gets hot when you charge it, take it out of its charger first.
The output voltage of charger shall be within 4.4V to 6.5V.
The recommended output current of charger is 0.5A or 500mA.

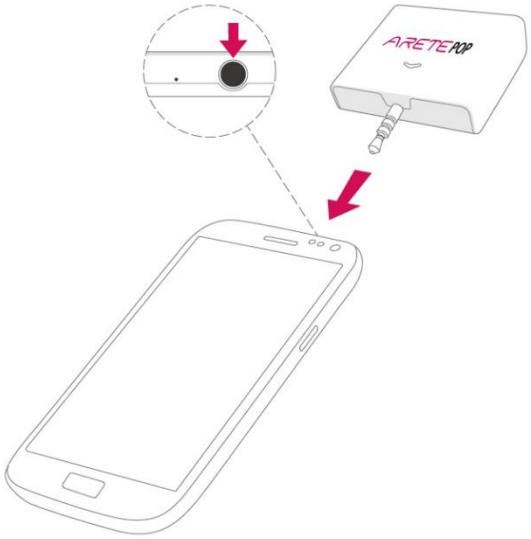
LIMITED WARRANTY

The ARETE POP and POP2 shall never be soaked with liquids such as water, seawater, and drinks such as soft drinks, juices coffee or others. The warranty never covers damage due to wet devices.
The lithium-ion battery capacity is dropping linearly to 80% over 300 cycles. A charge cycle means using all of the battery's capacity, but that doesn't necessarily mean a full charge and discharge.
The lithium-ion battery in ARETE POP and POP2 should not be replaced by any method. Purchase new ARETE POP and POP2 when lithium-ion battery is no longer working.

2 Basics

2.1 Activating

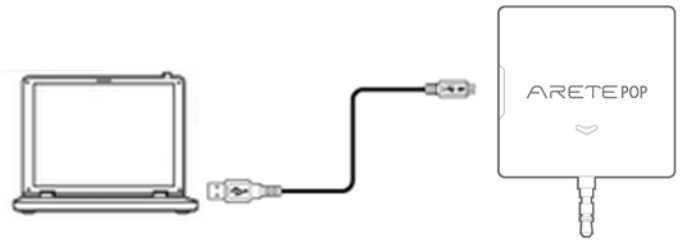
1. Insert ARETE POP or POP2 RFID Reader to your Phone's headphone jack.



2. Turn volume up to 100%.
3. Switch the button to "On" in App.
4. LED indicator will be turned on in blue color.

2.2 Battery Charging

1. Plug USB cable into the USB connector of your device. Plug the other end of USB cable into a USB hub or PC.

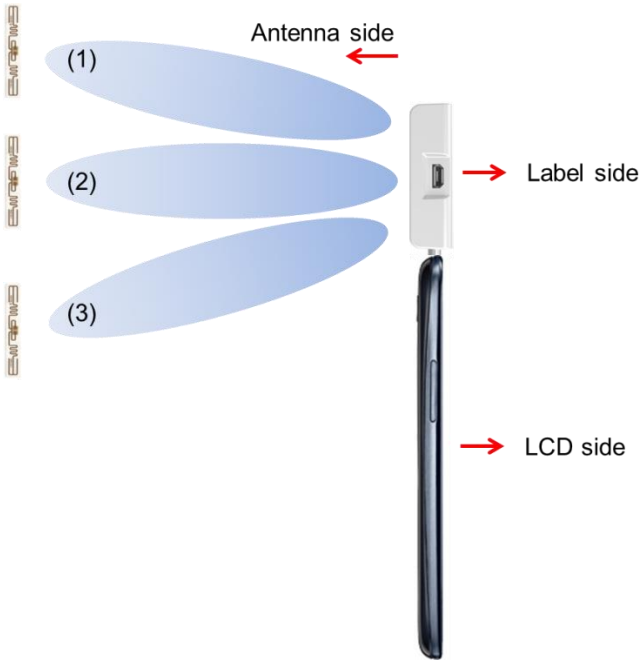


2. Battery will be charged by Micro B USB connector. It is compatible with general Micro B USB connector.
3. Charging time is about 2 hours
4. Red LED: under charging
5. Blue LED: completed charging

2.3 Proper grip

2.4 Antenna radiation pattern

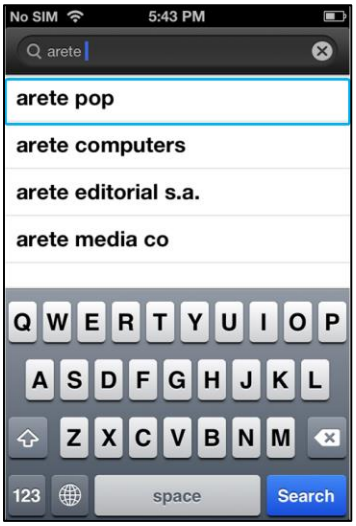
The hand and the shape of the smart phone effect on antenna radiation pattern. To get maximum reading distance, you should test reading the tag located at upper position (1), aligned position (2), and lower position (3). Next, choose proper location for your phone.



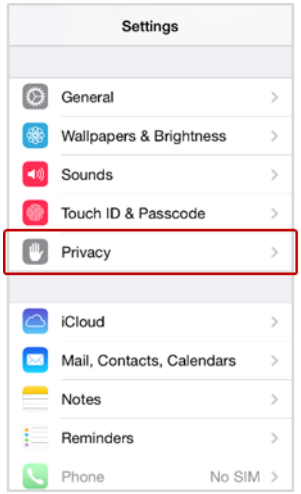
3 How to use application

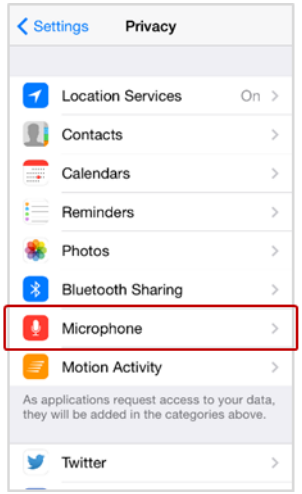
3.1 How to install application in your iPhone

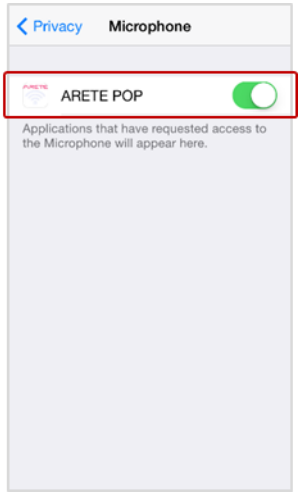
1. Select App Store
2. Search ARETE POP application and install it.



3. iOS7 requires additional setting

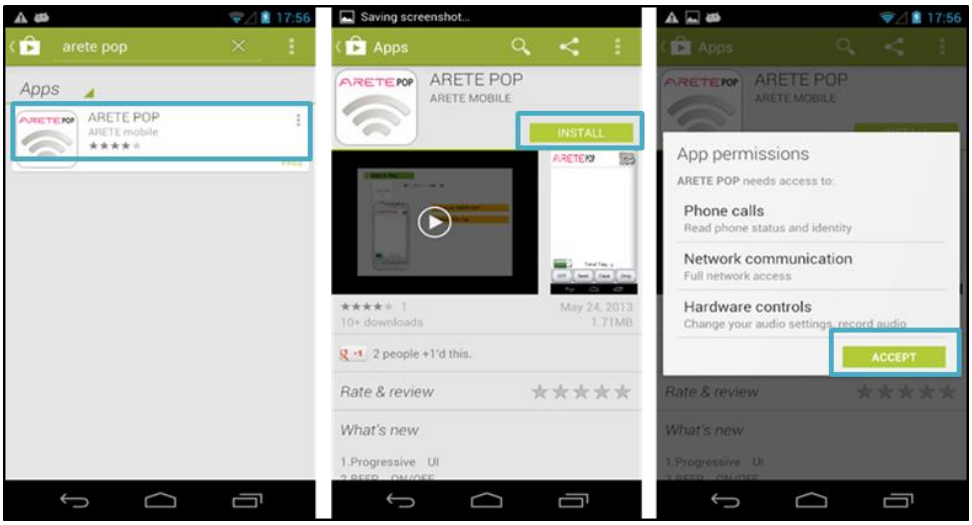






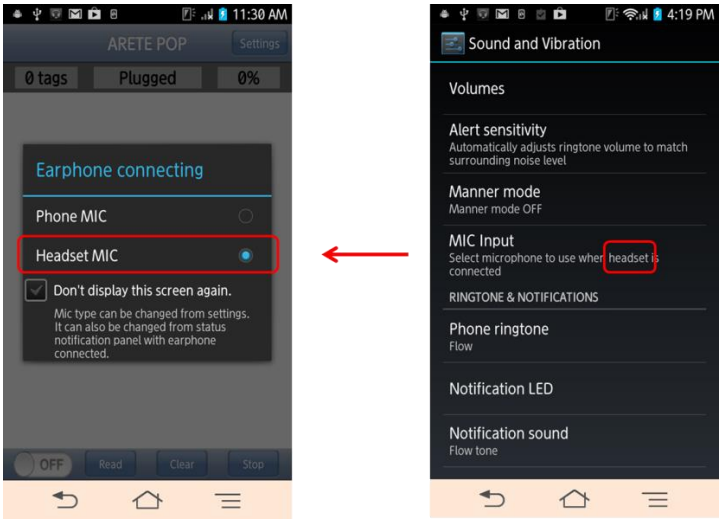
3.2 How to install application in your Android Phone

1. Connect your phone to Google Play Store.
2. Search “ARETE POP” and touch install.

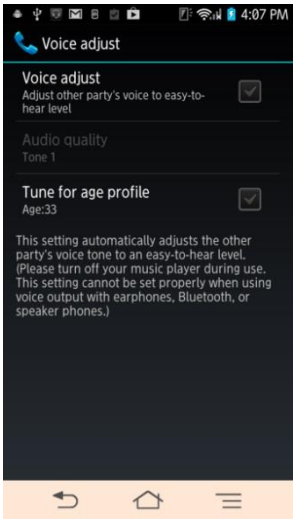


3. Some phones require additional settings.

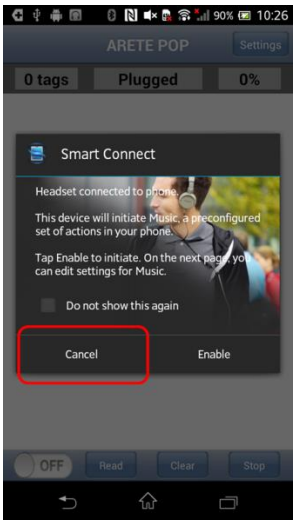
- Select Headset MIC input. (FUJITSU)



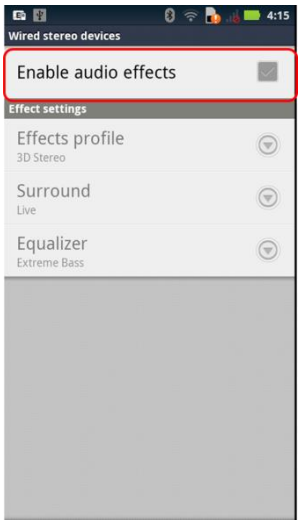
- Disable Voice Adjust. (FUJITSU)



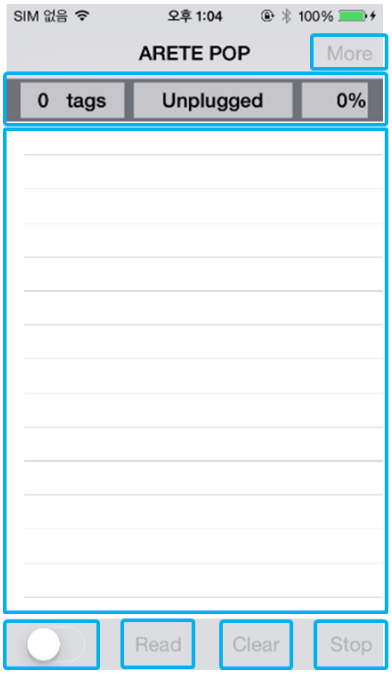
- Cancel Smart Connect (Sony)



- Disable Audio Effects (Motorola)



3.3 Main Display



Status Bar

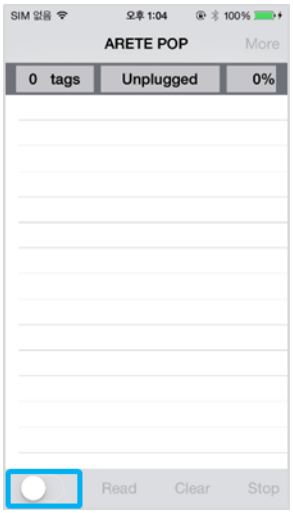
- Switch: Turn on or off the Reader
- Read Button: Start to read “Tag EPC”
- Clear Button: Remove Read Record
- Stop Button: Stop Tag Reading
- Display: Show Tag Read Record

3.4 Status Bar

0 tags	The number of tags displayed
Unplugged	Device Status - Unplugged: Device is not inserted into headset jack. - Plugged: Device is inserted into headset jack. - Connected: Device is connected to app.
0%	Battery gauge

3.5 Inventory

1. Switch the button to "On"
2. Touch **Read** button to inventory tag continuously
   A. PC + EPC will appear.
3. Touch **Stop** button to finish inventory tag
4. Touch **Clear** button to clear the list of tags.
5. Some Android phones warn the high volume. Touch OK and turn volume up to 100%.



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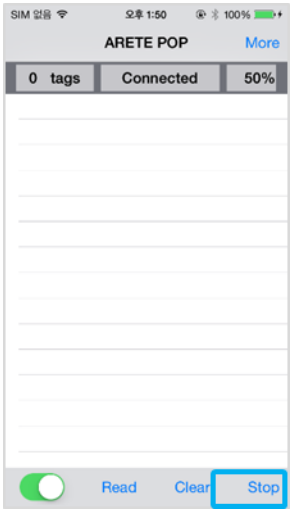

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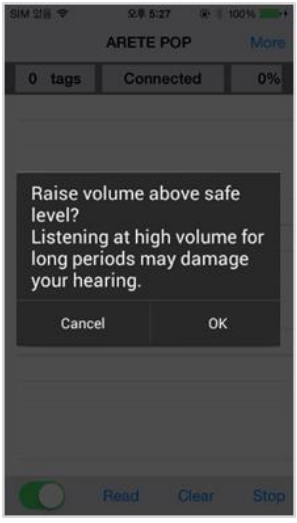

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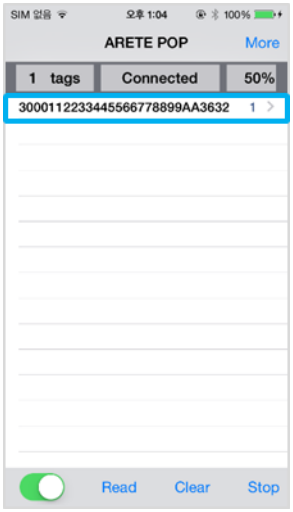
5

3.6 Read Tag Memory

1. Choose the target tag
2. Choose **Read / Write**
3. Configure parameters
   A. Target Tag: EPC will appear automatically.
   B. Give 8 bytes Access Password in hexadecimal.
   C. Give word-aligned Start Address in hexadecimal.
   D. Give word-aligned Length Word in decimal. Set to 0 to read whole memory bank (Up to 64 words).
   E. Give Target Memory bank. RFU means reserved memory bank. Some tags have no USER memory.
4. Touch **Done** button to read tag memory.



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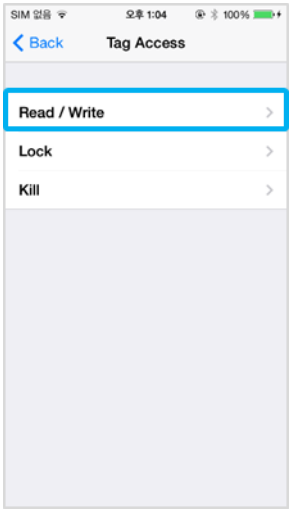

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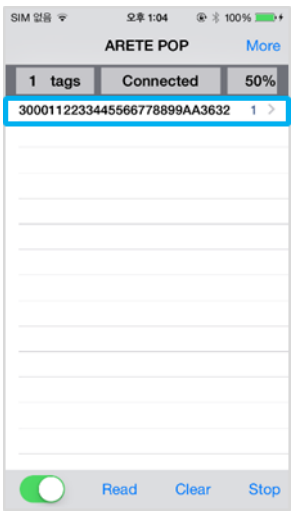
3, 4

3.7 Write Tag Memory

1. Choose the target tag
2. Choose **Read / Write**
3. Choose **Write**
4. Configure parameters
   A. Target Tag: EPC will appear automatically.
   B. Give 8-byte Access Password in hexadecimal.
   C. Give word-aligned Start Address in hexadecimal.
   D. Give word-aligned Length Word in decimal. Set to 0 to read whole memory bank (Up to 64 words).
   E. Give Target Memory bank. RFU means reserved memory bank.
5. Modify Data to write
   A. TID bank is read only (not writable). Some tags have no USER memory.
   B. If you want to change EPC, give start address to 2 (words).
6. Touch **Done** button to write data to tag memory.



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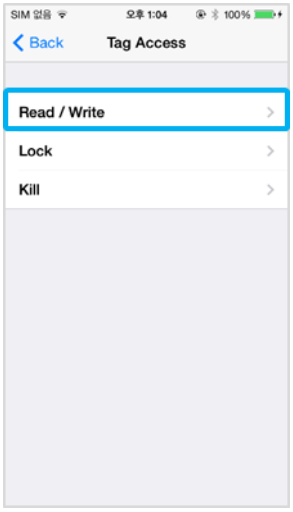

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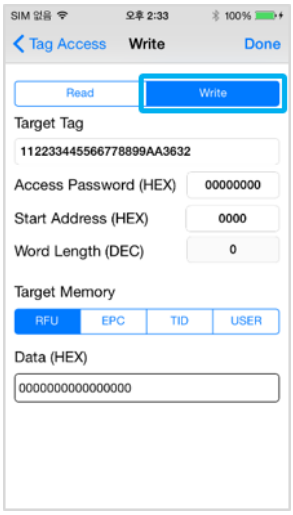

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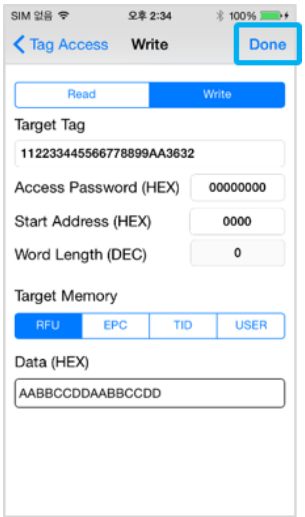

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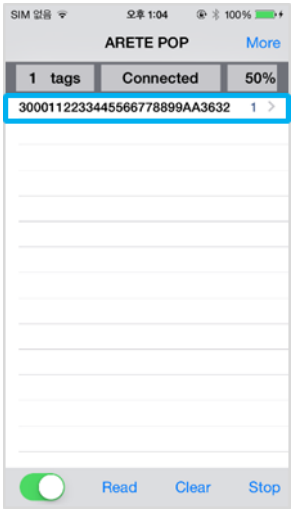
3.8 Lock Tag Memory

1. Choose the target tag
2. Choose **Lock**
3. Configure parameters
   A. Target Tag: EPC will appear automatically.
   B. Give 8-byte Access Password in hexadecimal.
      i. Access password is all zeros, which is the factory default.
      ii. Assign non-zeros access password performing ***Writing Tag Memory*** in previous section.
   C. Choose Target Memory to lock.
      i. Kill / Access memory support read/write locking.
      ii. EPC / User memory support write locking.
      iii. Typically, TID memory is permanently locked at the factory.
   D. Choose Action.
      i. Unlock
      ii. Permanent Unlock
      iii. Lock
      iv. Permanent Lock
4. Touch **Done** button to lock tag memory.



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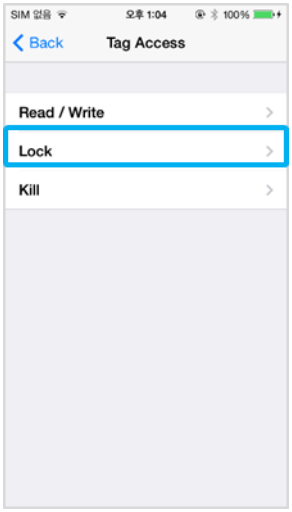

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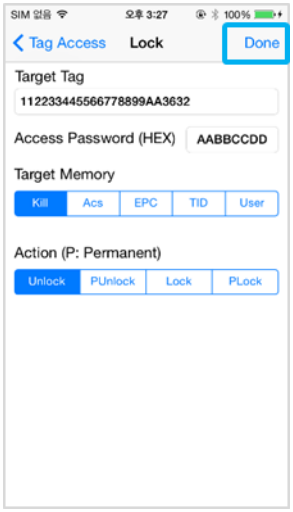
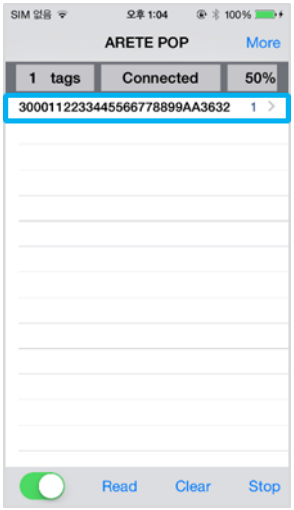


3, 4

3.9 Kill Tag Memory

1. Choose the target tag
2. Choose **Kill**
3. Configure parameters
   A. Target Tag: EPC will appear automatically.
   B. Give 8-byte Kill Password in hexadecimal.
      i. Kill password is all zeros, which is the factory default.
      ii. Assign non-zeros kill password performing ***Writing Tag Memory*** in previous section.
4. Touch **Done** button to kill tag.



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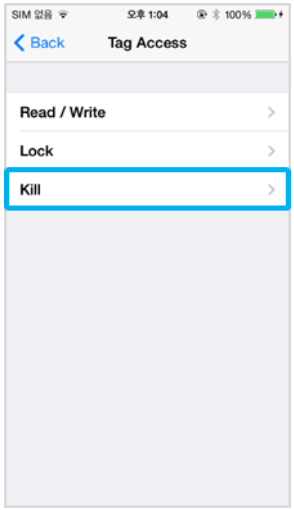

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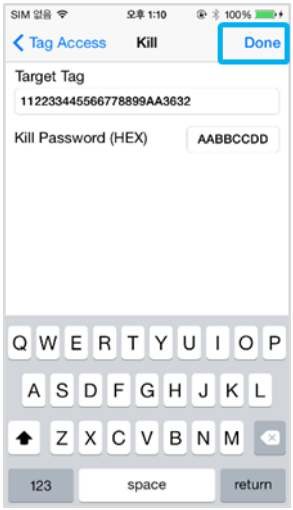

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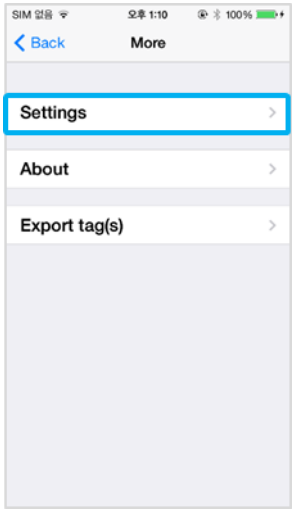
3.10 Output Power Setting

1. Touch **More** button
2. Choose **Settings**
3. Choose **Output Power.**
4. Choose target output power and touch **Done** button to change output power.

1



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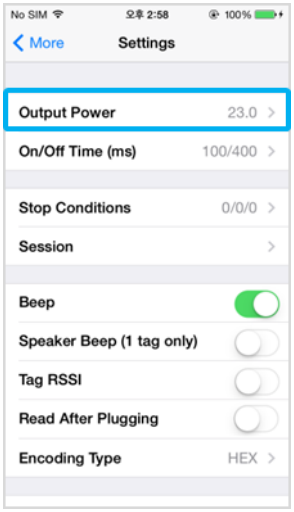

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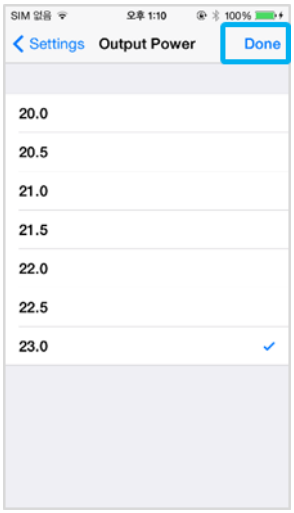

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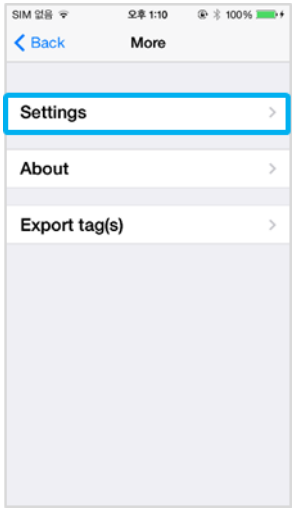
3.11 On/Off Time Setting

1. Touch **More** button
2. Choose **Settings**
3. Choose **On/Off Time**
4. Configure On/Off Time
5. Touch **Done** button.

1



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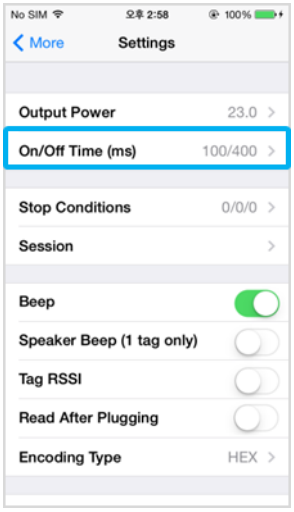
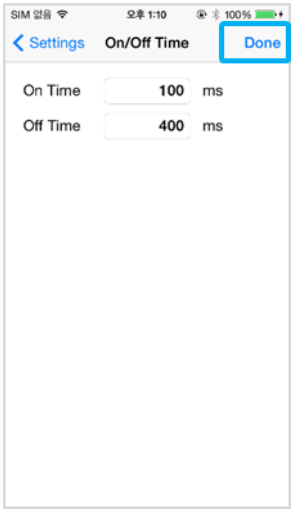


3

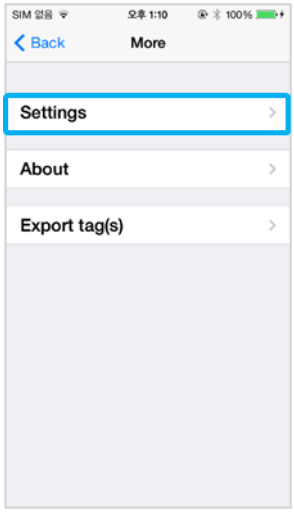


4, 5

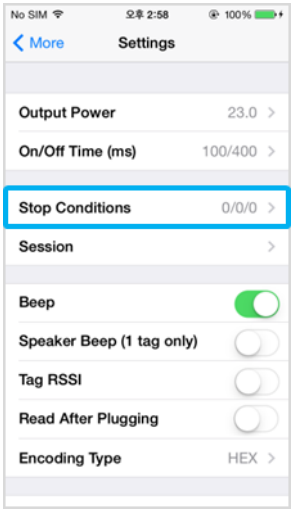
3.12 Stop Condition Setting

1. Touch **More** button
2. Choose **Settings**
3. Choose **Stop Conditions.** Your device will stop reading after reading done.
4. Configure stop parameters
   A. Tag Count (0~100): How many tags to read.
   B. Elapsed Time (0~250): How long have your device read tags in second.
   C. Inventory Round: How many times to read tag.
5. Touch **Done** button.

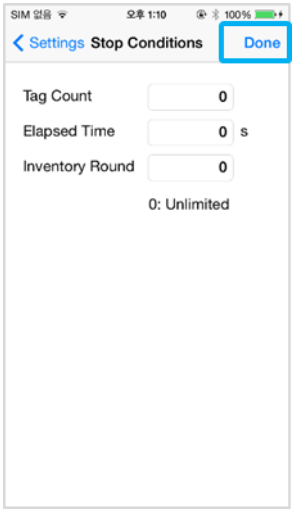
1



2



3

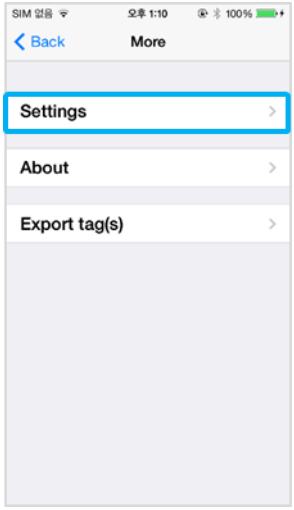


4, 5

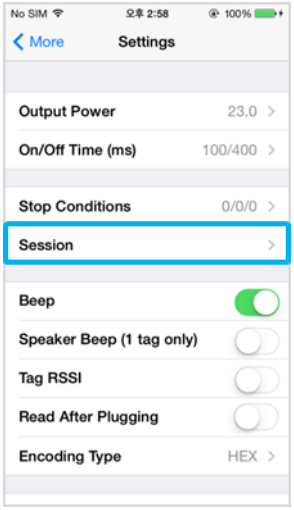
3.13 Session Setting

1. Touch **More** button
2. Choose **Settings**
3. Choose **Session**
4. Configure session
5. Touch **Done** button.
6. **AFTER CHANGING SESSION, YOU SHOULD REBOOT YOUR DEVICE**

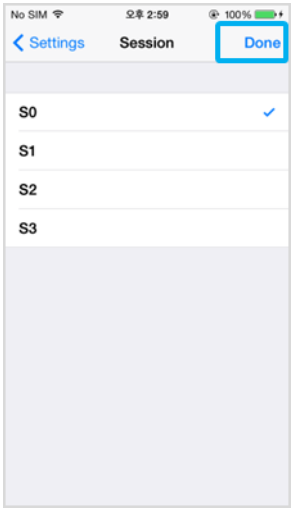
1



2



3

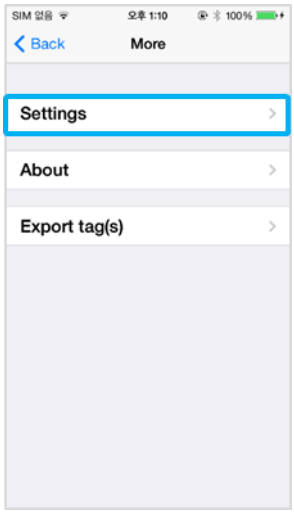


4, 5

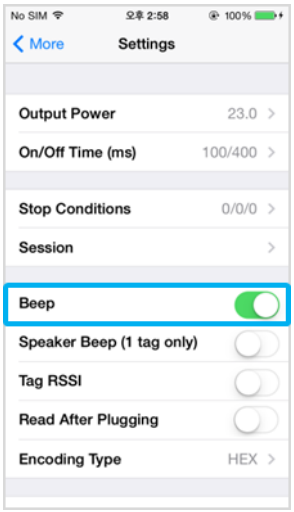
3.14 Beep Setting

1. Touch **More** button
2. Choose **Settings**
3. Switch **Beep** to turn beep on/off

1



2

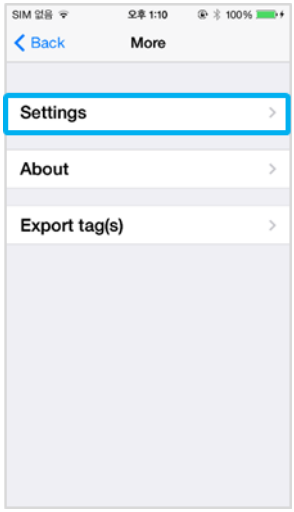


3

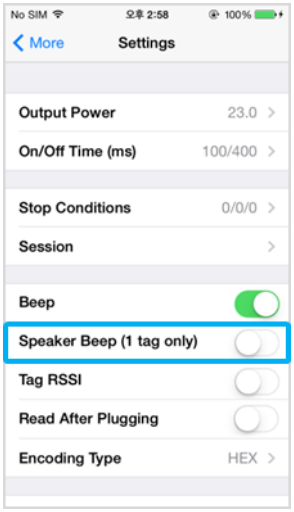
3.15 Speaker Beep Setting

1. Touch **More** button
2. Choose **Settings**
3. Switch **Speaker Beep** to turn speaker beep on/off. When turning on ‘Speaker Beep’, you can read only 1 tag

1



2

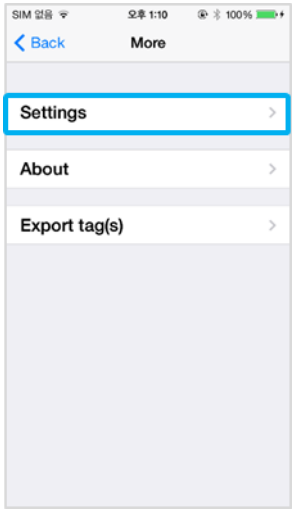


3

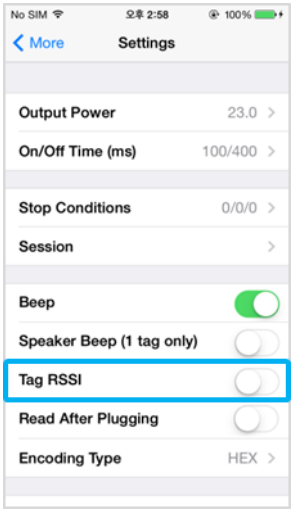
3.16 Tag RSSI Report Setting

1. Touch **More** button
2. Choose **Settings**
3. Switch **Tag RSSI** to turn tag RSSI report on/off
4. Back to the main screen to read tag RSSI

1



2



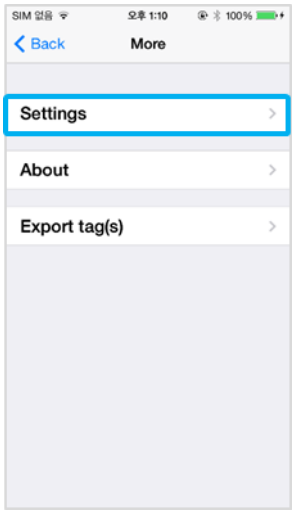
3

4

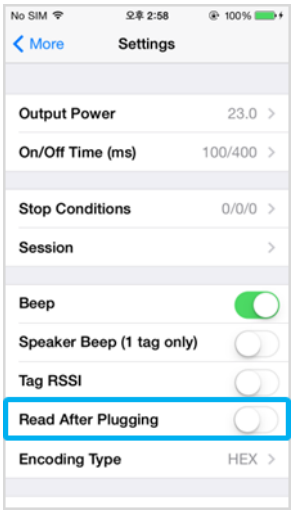
3.17 Read After Plugging Setting

1. Touch **More** button
2. Choose **Settings**
3. Switch **Read After Startup** to turn function on/off

1



2

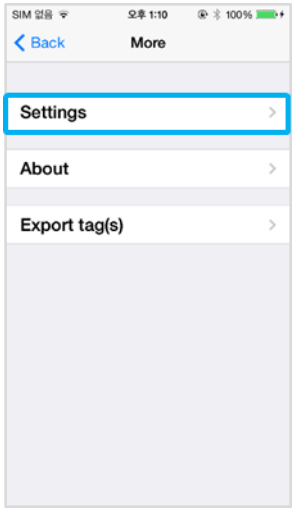


3

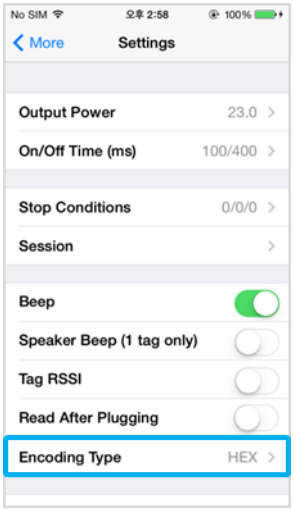
3.18 Encoding Type Setting

1. Touch **More** button
2. Choose **Settings**
3. Switch **Read After Startup** to turn function on/off
4. Configure encoding type
5. Touch **Done** button

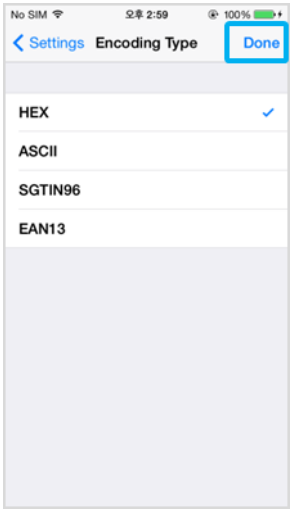
1



2



3

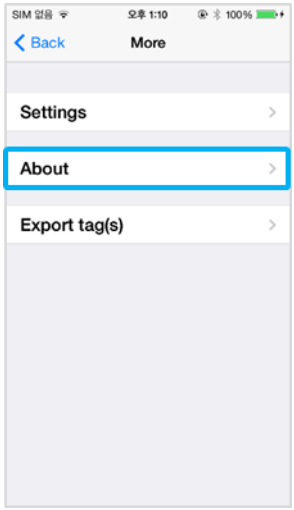


4, 5

3.19 About

1. Touch **More** button.
2. Choose **About** to get your device information.

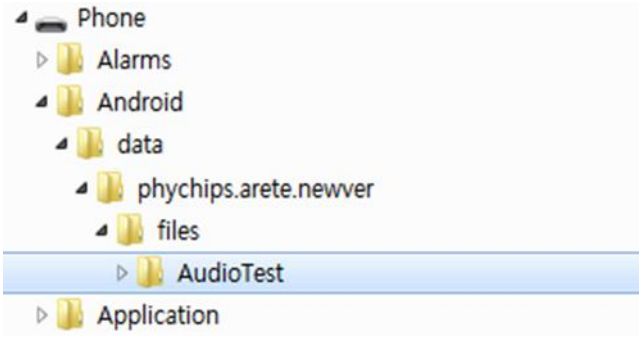
1



2

3. Touch **Diagnostic** when audio communication is not working properly. (Android Only)
4. Test Log will be generated at folder AudioTest in your Android smart phone.
5. Copy all files and send them to PHYCHIPS

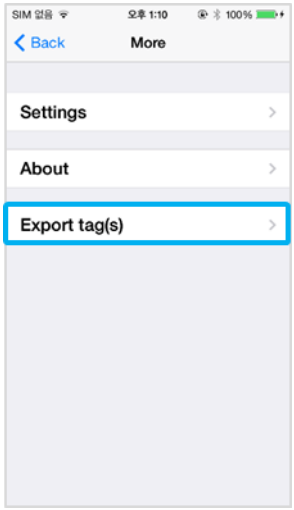
3, 4, 5



3.20 Exporting tag to email

1. Touch **More** button.
2. Choose **Export tag(s)** to export tags list to email.

1



2

4 Information

4.1 Safety Information

1. Do not disassemble or repair arbitrarily but contact where you buy when your device is in trouble.
2. Do not use chemical substance(alcohol, benzene, detergent etc.) and water to clean your device
3. Please avoid vibrations and shocks. Please place in a safe place when not in use.
4. Please avoid high/low temperature and high humidity.
5. Please turn your device off in explosive area as there may be danger due to electric wave.
6. Please keep away from medical device (pacemaker, hearing aid etc.) which is blocked from RF energy.
7. Please stop using your device and consult a medical expert in case of any allergic reactions and side effect.

Caution
Risk of explosion if battery is replaced by an incorrect type.
Dispose of used batteries according to the instructions.

4.2 RF Exposure Information

FCC
The equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operation in conjunction with any other antenna or transmitter.

CE
The antenna must be installed in final product such that 20 cm is maintained between the antenna and user.

KC
본 제품은 인체와 20 cm 이상 간격을 두고 사용을 해야 합니다. 본 제품의 밑면은 일반적인 사용 위치가 아닙니다. 전화 기능을 이용할 때에는 본 제품을 사용하지 말아야 합니다.

4.3 Compliance Information

FCC
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

Note
This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:
• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.

•Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

Caution
Modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

CE
This device is in compliance with the essential requirements and other relevant provisions of directive 1999/5/EC.

Japanese Radio Law
本機器は、電波法第38条の24第1項の規定に基づく認証を行ったものであることを証する。

KC
본 기자재는 전파법 제58조의2 제2항에 따라 인증되었습니다. 적합성평가표시 정보는 다음과 같습니다. 적합성평가를 받은 자의상호: 주식회사 파이칩스. 기자재의 명칭 및 모델명: RFID/USN용 무선기기(900MHz 대역사용기기) / A100-K. 제조년월: 2013. 인증번호: MSIP-CRM-PHY-A100K. 제조자: 주식회사 파이칩스. 제조국가: 대한민국

4.4 Troubleshooting

Q: What should I do if I fail to turn on your device?
A: First, check the batter power status.
Second, recharge for a certain amount of time and try again.
If you fail to turn it on again, please contact where you buy it.
Third, if red LED is blinking in standby status, it is battery failure.
Please contact where you buy it.

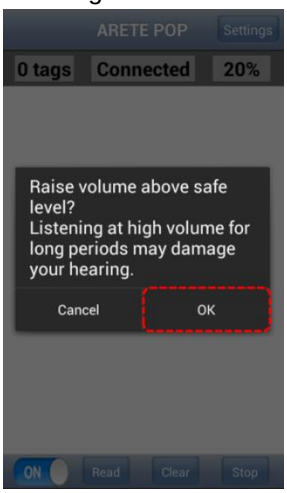
Q: What should I do if your device gets wet?
A: Dry it first.
If it does not working properly after being dried, then contact where you buy it.

Q: What should I do if I fail to read tag?
A: Turn volume up to 100%.
Check power status of A100.
It is possible to fail to read tag due to interference if other RFID readers are being used in the same place.

Q: A100 beeps when it is reading tags. But EPC is not showing in the list.
A: Please touch diagnostic button in **About** menu. Wait for diagnostic process done.
Send generated files in yourPhone/Android/data/phychips.arete.newver/files/AUDIOTEST folder to sales@phychips.com.

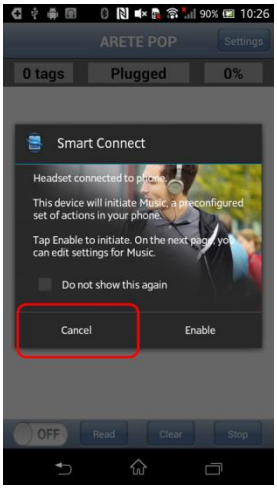
Q: What is the compatible jack?
A: CTIA 3.5 mm TRRS (4 pole) audio jack

Q: What should I do if I see message below?



A: Touch OK. Turn volume up to 100% manually.

Q: What should I do if I see message below?



A: Touch Cancel.

4.5 Error Code

Error code is described in A100_SM1001 SDK manual.

4.6 Disposal and Recycling

You must dispose of your device properly according to your local laws and regulations.
Because electronic components and a battery are included in your device.
Never incinerate nor dispose your device in fire.
These may cause firing of the battery, which is very dangerous and is prohibited.

5 Customer Service

ARETE mobile Customer Service
Phone: + 82 42 864 2402
Fax: + 82 42 864 2403
Email: sales@phychips.com

Address
PHYCHIPS Inc.
#104 Migun Technoworld 2, 187 Techno 2-ro, Yuseong-gu, Daejeon, Korea 305-500

Working Day and time
Monday to Friday
09:00~18:00(Korean Time, GMT Time + 9 hours)

Local Customer Service
Please contact where you buy.