FlashAir™
Wireless LAN embedded SD Memory Card
User Manual

First Edition / Rev.0.01(2012/11/02)

TOSHIBA Corporation

Semiconductor & Storage Products Company

Revision History

Date	Revision	Contents
2012.11.02	0.01	1st Edition

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1. FlashAir Memory Card Users Manual
- Brand Name：Toshiba
- Model Number：WLSDTHNSWAAB

8GB , 16GB

2. Manual
Thank you for purchasing this Toshiba product. To ensure proper use, please read this manual and your device manual carefully and entirely before using this Toshiba product, then retain this manual for future reference.

3. LIMITED WARRANTY
This Toshiba Product ("the Product") is warranted against defects in materials and workmanship for one (1) year from the date of purchase. Retain the original dated sales receipt. Proof of the date of purchase will be required with any request for warranty replacement.

Toshiba's sole liability in the event of such defects is to repair or replace the Product, at Toshiba's option, and Toshiba may replace the Product with a remanufactured Product.

4. LIMITATIONS
(1) This warranty does not cover circumstances beyond Toshiba's control, nor problems caused by failure to follow the operation instructions for the Product.
(2) The Product is labeled based on the memory chip(s) it contains, not the amount of memory capacity available for data storage by the end user. Part of the capacity is reserved for product functionality. Approximate minimum consumer-usable capacity for each product is xxxxx.
(3) With the passage of time, or after extended use, the Product may lose some or all of its functionality, including the reading, writing, and deleting of data, and the performance speed of the Product may decrease below the original speed specific to the Product's applicable SD or UHS Speed Class.
(4) Toshiba does not warrant that the use or operation of the Product will be error free, nor does it warrant that any data stored on the Product will remain accessible or uncorrupted. To protect against accidental data loss, back up your data frequently on multiple types of storage media.
(5) Each card may only be used in the compatible device shown in "Compatibility" table. Please comply with the device restrictions, e.g., capacity restrictions. Toshiba does not warrant that the Procuct will be compatible with all devices that may use storage media similar to the Procuct. Toshiba does not warrant that Product will be compatible with all software except the operating software explicitly specified by Toshiba.
(6) Approximate maximum speed for SDHC is listed in "Transfer Speed" table. The speed is based on Toshiba's testing conditions.
(7) Read and write speed may vary depending o user-specific conditions such as devices used and file size read or written.
(8) THIS WARRANTY DOES NOT APPLY TO FAILURES DUE TO SHIPPING DAMAGE, ACCIDENT, ALTERATION, MODIFICATION, UNAUTHORIZED SERVICE, MISUSE, ABUSE, USE WITH INCOMPATIBLE DEVICES, ACCESSORIES OR ATTACHMENTS, FAILURE TO USE ITEMS SUPPLIED BY TOSHIBA (SUCH AS ADAPTERS), OR TO CLAIMS MADE AFTER THE EXPIRATION OF THIS WARRANTY. TOSHIBA EXPRESSLY DISCLAIMS ANY WARRANTIES, EXPRESS OR IMPLIED, OTHER THAN THOSE SET FORTH HEREIN, INCLUDING BUT NOT LIMITED TO WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE. TOSHIBA SHALL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL, OR INDIRECT DAMAGES, WHETHER OR NOT TOSHIBA HAD BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, INCLUDING LOSSOF DATA, LOSS OF BUSINESS, OR OTHER LOSSES.
(9) In the event that the exclusion of any implied warranty is ineffective under the law, the duration of the implied warranty will be one (1) year from the purchase date. Toshiba's only obligation will be the replacement of this Product. Toshiba will not be responsible for any special, consequential, incidental or

indirect damages resulting from the sale, purchase, use or malfunction of this Product, regardless of the case. Such damages for which Toshiba will not be liable include, but are not limited to, loss of or inability to capture images, loss of revenue or profit, downtime costs, loss of the use of equipment, cost of substitute equipment, facilities or services, and claims by your customers for such damages.

5. YOUR RIGHTS

Some states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may have other rights which may vary from state to state or province to province. If the applicable law does not permit such limitations or exclusions, this warranty will deemed modified to the extent permitted, but the rest of the warranty remains in full force and effect.

6. UNINTENDED USAGE

The Product is intended for usage in general electronics applications. The Product is neither intended nor warranted for usage in equipment or system that requires extraordinarily high levels of quality and/or system reliability or in equipment the malfunction or failure of which may cause loss of human life, bodily injury, property damage or serious effect to the public. UNLESS OTHERWISE AGREED IN WRITING BY TOSHIBA, TOSHIBA SHALL ASSUME NO RESPONSILITIES OR LIABILITIES WHATSOEVER FOR ANY DAMAGES RESULTING FROM OR RELATION TO CUSTOMER'S UNINTENDED USAGE OF THE PRODUCT.

7. PRIVACY DATA

The Product, once directly or indirectly returned to Toshiba, may be analyzed for quality purposed by Toshiba or a company that provides components or services for the Product. Data that may still be remaining on the Product will be treated in confidence and will not be shared with any other third party. The returned Product and the data will be destroyed after the analysis.

8. EXPORT CONTROL

Unless written notice to the contrary is provided to the authorized reseller, you represent and warrant that any Product returned under warranty or otherwise does not contain any software or technology that is subject to export controls of the United States or of your country.

9. GEOGRAPHICAL COVERAGE

THIS LIMITED WARRANTY WILL BE HONORED ONLY IN MAINLAND CHINA, HONG KONG, TAIWAN, SOUTH KOREA, SINGAPORE, INDONESIA, MALAYSIA, BRUNEI, THAILAND, VIETNAM, PHILIPPINES, CAMBODIA, MYANMAR, INDIA, AUSTRALIA AND NEW ZEALAND. IN ALL OTHER REGIONS, TOSHIBA MAKES NO WARRANTY, AND SPECIFICALLY DISCLAIMS ANY AND ALL WARRANTIES WHETHER EXPRESS OR IMPLIED, WITH RESPECT TO THE PRODUCT AND TO THE FULLEST EXTENT PERMITTED UNDER APPLICABLE LAWS.

10. INSTRUCTIONS AND WARNINGS

Safety Precautions

⚠ WARNING

Keep the Product out of reach of children and pets.
Misuse of the Product including without limitation accidental swallowing may cause suffocation or other injury. Contact a doctor immediately if you suspect a child has swallowed the Product.
Failure to follow the instructions below could result in fire, damage to the Product and/or personal injury including burns and electric shock.
- **Do not disassemble or modify the Product.**
- **Do not bend, drop, place heavy objects upon the Product,** or otherwise expose the Product to strong

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force or impact.
● **If the Product produces an odor, overheats or smokes, immediately turn off the device with which the Product is used, including the computer and peripherals, and disconnect the power cord from the outlet.** Do not use the Product again. Please contact the store that you purchased the Product from.

⚠ CAUTION

Failure to follow the instructions below may also cause malfunction, corruption, or loss of data:
● Do not touch the terminals (connection surface) directly or with metal objects, because it may cause surges, including static electricity.
● Do not place in bathrooms or otherwise expose the Product to moisture or humidity.
● Do not expose the Product to dust, electric noise, strong magnetic fields, or corrosive chemicals or gases.
● Do not place near sources of heat or flame, or near flammable materials.
● Do not disconnect or turn off the power while data is being written or read.
● Do not remove the Product from the device with which the Product is used before processing the removal or stop function using the device's operating system.

Although the Product comes pre-formatted in compliance with SD or SDHC Memory Card standards, you may need to reformat the Product using the device with which you are using the Product.
Follow the instructions in the manual of the device to reformat the Product. When switching devices with which you are using the Product, you may need to reformat the Product using the new device. Reformatting the Product may cause all the data stored in the Product to be lost or corrupted. Ensure the Product contains no necessary data or files before reformatting. Formatting with a personal computer may cause problems with the Product such as the inability to read, write, or delete data. If you have such trouble, you may be able to repair the Product by reformatting it using the SD format utility found at the following link.
(http://www.sdcard.org/jp/consumers/formatter_3/)

Notice
● For instructions on connecting and disconnecting the Product to devices with which it is to be used, refer to the instruction manuals of the devices.
● If the Product is used in ways other than described in this instruction manual, however, data could be corrupted or lost.
Toshiba accepts no responsibility for corruption or loss of data stored on the Product, regardless of the type or cause of the problem or damage.
● Write protection is only applicable to the Toshiba SD memory family (SD/SDHC memory card and SDHC/SDXC UHS-I card). If the Product you purchased has a write protection feature, set the write protect tab on the side of the Product to the "LOCK" position to protect important data from being accidentally deleted. This prevents data from being written to the Product. Set the tab back to its original position (unlocked) when you want to store, edit or delete data.
● Deleting data in the Product completely by using an appropriate system or product; e.g., software for deleting data available on the market, is recommended when transferring or destroying the Product. Even if you delete or reformat the Product on a PC, digital still camera, or cell phone (for example), data may not be completely removed and/or may be recoverable if the device you used for the deletion or reformatting was not supplied with functionality that permanently deletes data from the Product. Please dispose in accordance with local rules when destroying the Product.

TOSHIBA RESERVES THE RIGHT TO MODIFY THE DESIGN OR SPECIFICATIONS OF THE PRODUCT OR THE PRODUCT INSTRUCTIONS OR WARNINGS AT ANY TIME IN ITS SOLE DISCRETION AND WITHOUT NOTICE. UPDATED INFORMATION WILL BE PROVIDED VIA
http://www.toshiba.co.jp/p-media/wwsite/index.htm

* SD, SDHC and SDXC Logos are trademarks of SD-3C, LLC.
* All other company product names may be registered trademarks of their respective companies.
* The card in this package is made in Japan.

11. Main Specifications

[Operating Ambience〕　Temperature: -25〜85℃(-13〜185℉), Humidity:95%RH
[Size]　32.0（L）×24.0（W）×2.1mm（T）
[Weight]　2g
[Interface]　SDHC Memory Card Standard
[Input Voltage]　2.7〜3.6V(Max)
[Content of the Package]　SDHC memory Card (1 pc), Card case (1 pc), User manual
[User Area]　7.4GB
[WLAN Supported Channel]　1〜11ch

12. Safety Information and Rules and Regulations for wireless LAN

- Wireless LAN devices may cause interference with medical equipment such as cardiac pacemakers.　If you use personal medical equipment, consult with your physician and medical equipment instructions before using the Product.　The Product should not be used in environments with medical equipment such as hospitals and medical offices, or near users of personal medical equipment.
- Always turn off wireless functionality if the computer is near automatic control equipment or appliances such as automatic doors or fire detectors. Radio waves can cause malfunction of such equipment, possibly resulting in serious injury.
- Do not use the Wireless LAN functionality near a microwave oven or in areas subject to radio interference or magnetic fields. Interference from a microwave oven or other source can disrupt Wireless LAN operation.
- The transmission speed over the wireless LAN, and the distance over which the wireless LAN can reach, may vary depending on surrounding electromagnetic environment, obstacles, access point design and configuration, client design and software/hardware configurations. The transmission rate described is the theoretical maximum speed as specified under the appropriate standard – the actual transmission speed will be lower than the theoretical maximum speed.

Regulatory Statements

When being used in U.S/Canada (international roaming), the range is restricted to
2412-2462MHz and 1 – 11 channels.

Federal Communications Commission (FCC) Notice　(USA)

This equipment 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 or more of the following measures:

● Reorient or relocate the receiving antenna.
● Increase the separation between the equipment and the 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 or television technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
To comply with the FCC RF exposure compliance requirements, this device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

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.

Canadian Notice

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to
The following two conditions: (1) this device may not cause interference, and (2) this device must
accept any interference, including interference that may cause undesired operation of the device.
To comply with the Canadian RF exposure compliance requirements, this device and its antenna
must not be co-located or operating in conjunction with any other antenna or transmitter.

Avis Canadien

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts
de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire
de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le
brouillage est susceptible d'en compromettre le fonctionnement.
Pour se conformer aux exigences de conformité RF canadienne l'exposition, cet appareil et son antenne
ne doivent pas être co-localisés ou fonctionnant en conjonction avec une autre antenne ou transmetteur.

European Union Regulatory Notice

This device bearing the CE marking is in compliance with the essential requirements and other relevant
provisions of Directive 1999/5/EC. This device complies with the following harmonized European standards.

Health: EN62311:2008
Safety: EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011
EMC : EN301 489-1 V1.9.2:2011 , EN301 489-17 V2.1.1:2009
Radio: EN300 328 V1.7.1:2006

● The following CE marking is valid for EU harmonized telecommunications products.

CE 0560

Refer to the regulatory label provided on this product.

EU Declaration of Conformity: This Product carries the CE-Mark in accordance with the related European Directives.
Toshiba Electronics Europe GmbH, Hansaallee 181, D-40549 Dusseldorf, Germany is responsible for CE-Marking.

For further information, please visit www.toshiba-memory.com

Hotline: 0 180-5677765 from Germany 0,14 Euro/min.
              +49 180-5677765 from other Countries than Germany

Italy

E'necessaria una concessione ministeriale anche per l'uso del prodotto. Verifici per favore con il proprio
distributore o direttamente presso la Direzione Generale Pianificazione e Gestione Frequenze.
License required for use. Verify with your dealer or directly with the General Direction for Frequency
Planning and Management (Direzione Generale Pianificazione e Gestione Frequenze).

Republic of China (Taiwan)

根據 NCC 低功率電波輻射性電機管理辦法 規定：

12.1. 第十二條	**12.2.**	經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。
12.3. 第十四條 **12.4.**	**12.5.**	低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。 前項合法通信，指依電信法規定作業之無線電通信。 低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

Temporary **NCC ID:**

CCAExxLPyyyZzW

13. Supplementary Operational Manual

SDHC memory card with embedded wireless LAN functionality

Manual

Thank you for purchasing Toshiba FlashAir™ ("Product").

To ensure proper use, please read this manual and your device manual carefully and entirely before using the Product, then retain this manual for future reference.

The Product can be used with the devices which are compatible with 8GB SDHC memory cards.

Before using the Wireless LAN capability of the Product, please set Wireless LAN security options.

Do not format the Product with devices which are not compatible with the SDHC format. Formatting with devices which are not compatible with SDHC could cause failure of the wireless LAN functionality of the Product

Security Notice in the use of Wireless LAN products

Wireless LAN sends and receives data between devices such as personal computers and access points by means of radio transmission rather than network cables. Absent obstructions, radio transmission enables a wireless LAN connection.

Users should take appropriate security measures to prevent third parties from hacking or stealing data transmitted wirelessly.   Please review the security procedures in this manual carefully before using the Product.

Important message: Initial Settings

Be sure to change security key (password) before using. If you fail to do so, your data (e.g. Photos) may be stolen or hacked by third party.

1. Using the Product in wireless LAN devices such as smartphones, Tablet PCs, etc.

(1) Insert the Product into a device (e.g. digital camera) which is compatible with SDHC memory cards.

(2) Turn on the device. The wireless LAN functionality of the Product will run automatically.   Please take the security steps described below as quickly as possible to prevent unauthorized users from inputting a security key. If an unauthorized party configures security settings, you will need to initialize the card using FlashAir configuration software.

(3)   Within five (5) minutes after turning on the device, connect to the Product according to the following steps using a wireless LAN device (e.g. smartphone). Without any connection from a wireless LAN device within 5 minutes, wireless LAN functionality of the Product will be automatically turned off. If wireless LAN functionality is turned off, please turn on the device again.

(4) Activate the wireless LAN feature of the device (e.g. smartphone). When the device searches available wireless LAN networks, "flashair_xxxxxxxxxxxx(twelve-digit alphanumeric characters)" should appear.

(5) Select "flashair_xxxxxxxxxxxx". Enter the default security key "12345678" for the network, and the device will connect to the Product.

(6) Please change the default security key. Open the browser of the device and enter the following address into the URL input field.

http://flashair/

(7) The below screen (fig.1) should be displayed.   Press the arrow and go to the next page.

Welcome!

Fig. 1   Fig.2

(8) When Figure 2 is displayed, enter a new network name in the SSID field and a new security key in the Password field. The security key should have eight (8) to sixty three (63) characters. Do not use easy-to-guess password and please select a strong password. Toshiba recommends you to make a note of your SSID and security key.

   (9) This will complete your initial setup.

2. Setting up the card on a personal computer ("PC")*

        *OS: Windows® XP, Windows Vista®, Windows® 7

   (1) Insert the Product into the PC. Go to the Product's directory and double-click "FlashAir.exe" to install the Product's software. After the installation is complete, a "FlashAirTool" icon will appear on desktop in a PC. Double-click the icon to start the FlashAir configuration software (fig.3). Select the drive which is assigned to the Product, and click "Card Setting".

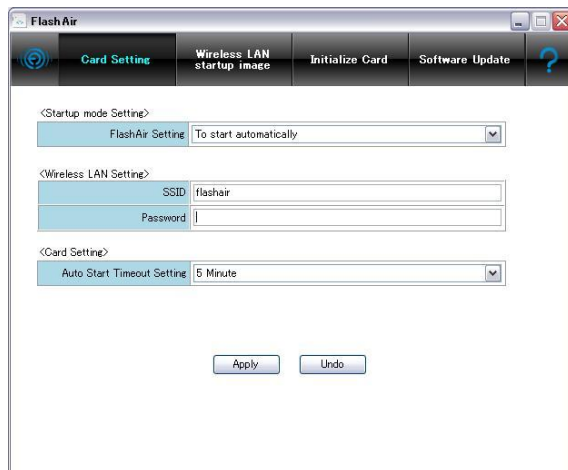Fig. 3   Fig.4

   (2) When the above screen (fig.4) is displayed, enter the new network name in the SSID field and a new security key in the Password field. Click "Apply" to change.

   (3) This will complete your initial setup.

How to browse data in the Product via Wireless LAN functionality (Wireless data transfer function)

This function allows you to browse and download data from the device (e.g. digital camera) to smartphones, Tablet PCs and PCs while leaving the Product inside the device.

1. How to browse data

   (1) Insert the Product into a device (e.g. digital camera) which is compatible with SDHC memory cards.

   (2) Turn on the device. The wireless LAN functionality of the Product will run automatically.

   (3)   Activate the wireless LAN feature of the device (e.g. smartphones, Tablet PCs, PCs). The name of the wireless LAN network which you set during setup will be displayed. Choose that network and enter the new security key if required.

   (4) Once the devices and the Product are connected, open the browser of the device and enter the following address into the input field.

http://flashair/

   (5) Files and folders which are stored in the Product will be displayed in the browser.

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2. How to save files

Operating procedures may vary as device operating systems are updated. Please refer to instructions for your device.

- Android devices or smartphones: Tap and hold the file. Tap "Save image" on a pop-up option list and the item will be saved to the device.

- iPhone/iPad: Touch and hold the file. Tap "Save Image" and the item will be saved to the device.

- PC: Place the pointer on the file and right-click to open a pop-up menu. Click "Save Picture As…" or "Save Target As" and the item will be saved to the device.

3. Operating Precautions

- If wireless LAN functionality is turned off while using the Product, the device within which the Product is used might power off automatically. Please extend the automatic power off time of the device to the longest period possible.

- The range of the wireless signal can be affected when the Product is placed near metal surfaces and/or solid high-density materials.

- When a number of devices connect to the Product, the wireless LAN connection might slow down or be interrupted.

- The folder "100_TSB" is pre-written on the Product and the JPEG file "FA000001.JPG" is pre-written in the folder. When the Product is used in a digital camera, the below image will be displayed. This folder and the file are necessary for the operation of the FlashAir configuration software. **Do not delete the folder and file, or you will be unable to change the automatic-manual operation for wireless LAN functionality.**

  The detail information how to use this image is available on on-line help of FlashAir configuration software.

  If you delete them, you can reset the Product to factory defaults using the "Initialize Card" menu of FlashAir configuration software.

  The "Initialize Card" feature may cause all the data and initial settings stored in the Product to be lost. Back up your data on multiple types of storage media before using this feature.

- The Product is compliant with local radio regulations in following countries or regions. (as of February 2012)

  Japan, North America, Canada, EU (European Union)

  Use in other countries and regions may violate local ordinances.

  You can check the latest information at online manual (http://www/toshiba.co.jp/p-media/flashair/manual.htm) or contact your Customer Service.

- Default settings

SSID	flashair_xxxxxxxxxxxx (x represents MAC address of the Product)
Security	WPA2　security key: 12345678
Encryption and authentification	WPA2-AES (access point mode)
IP Address	192.168.0.1 (access point mode)

Wireless LAN functional specifications

Wireless LAN Standard: IEEE802.11b/g/n

Modulation: DSSS/CCK (1, 2, 5.5, 11 Mbps), OFDM (6 to 72.2 Mbps)

Wireless LAN Security: WEP, TKIP, AES (WPA/WPA2)