Manual

Customer	Sindoh
Product Name	WIFI module
Customer Model	-
Customer P/N	-
Supplier Model	S904-SD-WF

OHSUNG ELECTRONICS CO., LTD.

CONTENTS

1. Features

1.1 General

- **IEEE® 802.11 b/g/n (20MHz/40MHz) (1x1) solution**
- **Integrated PCB antenna**
- **SIZE : 48mm x 28mm x 10mm**
- **CMOS MAC, Baseband PHY, and RF in a single chip for 802.11 b/g/n compatible WLAN**
- **Complete 802.11n solution for 2.4GHz band**
- **72.2Mbps receive PHY rate and 72.2Mbps transmit PHY rate using 20MHz bandwidth**
- **150Mbps receive PHY rate and 150Mbps transmit PHY rata using 40MHz bandwidth**
- **Compatible with 802.11n specification**
- **Backward compatible with 802.11b/g devices while operating in 802.11n mode**

1.2 Ordering Information

Model	Description
S904-SD-WF	802.11 b/g/n (HT20/HT40) Module

2. Product Specifications

2.1 Electrical Specifications

2.1.1 Absolute Maximum Ratings

Description	Min.	Typ	Max.	Unit
Storage Temperature	-30		+80	℃
Storage Humidity (40℃)			85	%

2.1.2 Operating conditions

Description	Min.	Typ	Max.	Unit
Supply Voltage	4	5	6	Vdc
Ambient Temperature	-20		+70	℃
Ambient Humidity (40℃)			85	%

2.2 Standard Test Conditions

The Test for electrical specification shall be performed under the following condition

Otherwise this following conditions, not guaranteed this performance

2.2.1 Ambient Condition

Description	Min.	Typ	Max.	Unit
Ambient Temperature	20		30	℃
Ambient Humidity (40℃)	60		70	%

2.2.2 Power Supply Voltages

Input power	Unit
VDD_5V	5V ± 0.5V

2.2.3 Current Consumption

Device state	Code rate	Output power, dBm	Current consumption	
			Min	Max
ON_Transmit	802.11b 11Mbps	17	180mA	260mA
	802.11g 54Mbps	15	130mA	180mA
	802.11n MCS 7 (HT20)	14	120mA	170mA
	802.11n MCS 7 (HT40)	14	110mA	150mA
ON_Receive	802.11b 11Mbps	N/A	50mA	80mA
	802.11g 54Mbps	N/A	50mA	80mA
	802.11n MCS 7 (HT20)	N/A	50mA	80mA
	802.11n MCS 7 (HT40)	N/A	50mA	80mA

2.2.4 ESD Information

ESD	Unit
Air discharge	±8KV
Contact discharge	±4KV

2.3 Standard Rated Specification

Radio Performance under Typical Conditions: VDD @ 5.0V, temp. 25°C

Division	Characteristic
WLAN Standard	IEEE 802.11 b/g/n HT20/40, Wi-Fi compliant
Host Interface	USB
Frequency Range	2.400GHz ~ 2.4835GHz (2.4GHz ISM Band)
Dimension	L x W x H : 48 x 28 x 10 (typical) mm
Modulation	802.11b : DQPSK, DBPSK, CCK 802.11g/n : OFDM /64-QAM,16-QAM, QPSK, BPSK
Data Rate	802.11b: 1, 2, 5.5, 11Mbps
	802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps
Data Rate (20MHz, 40MHz)	802.11n: MCS0, MCS1, MCS2, MCS3, MCS4, MCS5, MCS6, MCS7

Federal Communication Commission Interference Statement

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.

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 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. FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

This device is intended only for OEM integrators under the following conditions:
1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and 2) The transmitter module may not be co-located with any other transmitter or antenna.
As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed

IMPORTANT NOTE: In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for reevaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling
This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: “Contains FCC ID: OZ5-S904-SD-WF”. The grantee's FCC ID can be used only when all FCC compliance requirements are met.

Manual Information To the End User
The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user’s manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.

ISED Canada (IC) Statement

This Class B digital apparatus complies with Canadian ICES-003.
This device complies with Industry Canada licence-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.

RF Radiation Exposure Statement:
This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

Required end product labeling:
Any device incorporating this module must include an external, visible, permanent marking or label which states: “Contains IC: 21703-S904SDWF”
This radio transmitter (identify the device by certification number or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Canada, Industrie Canada (IC) Déclaration
Cet appareil numérique de classe B est conforme à la norme NMB-003.
Le présent appareil est conforme aux CNR d'Industrie Canada applicables auxappareils 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 adioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Déclaration d'exposition aux radiations:
Cet appareil est conforme aux limites d'exposition aux rayonnements définies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé à une distance minimale de 20 centimètres entre le radiateur et votre corps.

Obligation d'étiquetage du produit final:
Tout dispositif intégrant ce module doit comporter un externe, visible, marquage permanent ou une étiquette qui dit: "Contient IC : 9080A-SBWM3".
Cet émetteur radio (identifier le dispositif par numéro de certification ou le numéro de modèle , si la catégorie II) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous avec le gain maximal admissible indiqué . types d'antennes non inclus dans cette liste , ayant un gain supérieur au gain maximum indiqué pour ce type , sont strictement interdits pour une utilisation avec cet appareil.