

K30316

***Wireless LAN* Module**

IEEE802.11b/g

Product No. : K30316

Users Manual

K30316

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Rev. record

27-Jan.-2009> Ver.1.0

18-Feb.-2009> Ver.2.0

6-Mar.-2009> Ver.2.1

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Control No. HD-AG-A***** (1/1)	Control name General Items
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Scope

This specification ("Specification") applies to the hybrid IC "K30316" for use **Wireless LAN** module ("Product").

1. Product No. : K30316
2. Function: Radio frequency transfer Module. (**IEEE802.11b/g** standard conformity)
3. Application: Printer
4. Structure: Hybrid IC loaded with silicon monolithic and GaAs semiconductor
Ability of lead free mounting at customer's assembly (Heat resistance of this Product) : Yes
Containment of hazardous substance in this Product
*This product conforms to RoHS Directive (2002/95/EC).
5. Outline: 6-pin Connector
6. Marking: Type, MAC address, Lot number
7. Features:
 - IEEE802.11b/g** standard conformity
 - Transmit speed: 11g (54/48/36/24/18/12/9/6Mbps)
11b (11/5.5/2/1 Mbps)
 - Modulation: 11g (OFDM): BPSK, QPSK, 16QAM, 64QAM
11b (DSSS): BPSK, QPSK, CCK
 - Channel Number: 1 to 11 channels
 - Interface: USB
 - Embedded ARM MPU for reducing loads on host processor
 - Built-in EEPROM (8kbit), OSC (40MHz), Chip Antenna (Monopole antenna), Connector
8. Security: WEP (64/128bit), TKIP (WPA), AES (WPA2)
9. Packing:
 - Packaging method: Trey
10. Notes:
 - a. Any question arising from this Specification shall be solved through mutual discussion by the parties hereof.
 - b. This Product is not designed for radiation durable and should not be used under the circumstance of radiation.
 - c. The operating conditions of this Product are as shown in this Specification.
 - d. This Product mentioned in this Specification is manufactured for use in Printer.
This Product shall not be used in any special equipment (such as medical equipment, space equipment, air craft, disaster prevention equipment), where higher safety and reliability are duly required. Also, evaluation of the safety function of this Product even for use in general electronics equipment shall be thoroughly made and when necessary, a protective circuit shall be added at design stage, all at the customer's sole risk.
 - e. Communication between this Product and others might not be established nor maintained depending upon radio environment or operating conditions of this Product and other **ISM band** at 2.4GHz products.
 - f. This Product operates in the unlicensed ISM band at 2.4GHz. In case this Product is used around the other wireless devices which operate in same frequency band of this Product, there is a possibility that interference occurs between this Product and such other devices. If such interference occurs, please stop the operation of other devices or relocate this Product before using this Product or do not use this Product around the other wireless devices.

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Control No. HD-AM-A*****	(1/1)	Control name Absolute maximum ratings
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Absolute maximum ratings

Item	Symbol	Rating				Unit	Remark
		Min.	Typ.	Max.			
Supply voltage	Vbus	-0.3		6.0		V	
	PE	-0.3		Vbus +0.3			
Storage temperature range	Tstg	-40		100		Degrees C	
Operation temperature range	Topr	-5	25	55		Degrees C	

Recommendation operating range

Item	Symbol	Rating				Unit	Remark
		Min.	Typ.	Max.			
Supply voltage	Vbus	3.4	3.6	4.0		V	
	PE (SL)	-	-	0.2			
	PE (SH)	1.1	-	Vbus			

Note:

1. Operation temperature range is set to satisfy products electrical characteristics for a short period of time.
Refer reliability condition to check the product life cycle if you use this module for a long period of time in the condition other than the Typ. standard.

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Control No. HD-AE-A*****	(1/2)	Control name Electrical characteristics
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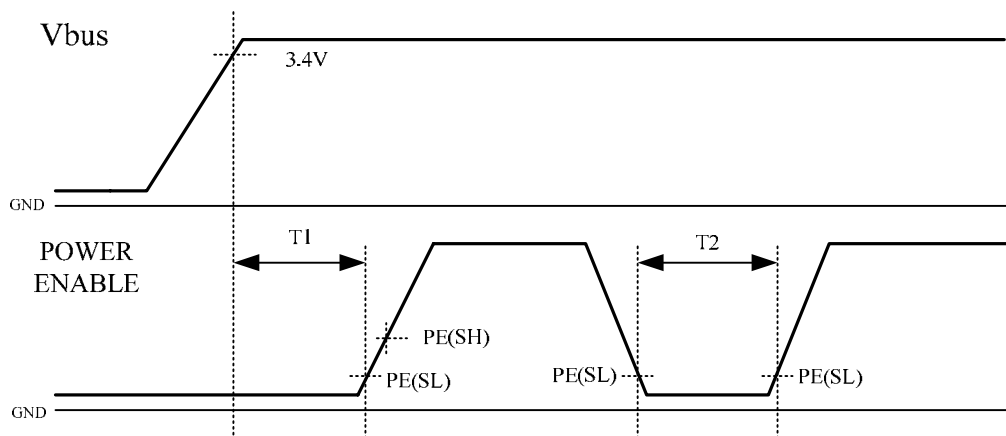
DC Specifications

The Specification applies for Topr.= 25 degrees C, Supply voltage=Typical voltage

No.	Parameter	Condition	Symbol	Min.	Typ.	Max.	Unit	Remark
1	Operating Voltage 1		Vbus	-	3.6	-	V	
2	Operating Voltage 2	Power Enable *1	PE(SL)	-	-	0.2	V	
			PE(SH)	1.1	-	Vbus		
			PEI SL	-50	-	-	uA	
			T1	500	-	-	ms	
			T2	500	-	-		
3	Peak Current1		Ip1	-	-	370	mA	
3	Power consumption1	Continuous (11g/6Mbps)	Pc1	-	943	1080	mW	
4	Power consumption2	Burst Tx (11g/54Mbps)	Pc2	-	663	701	mW	Duty 10.8%
5	Power consumption3	Burst Rx (11g/54Mbps)	Pc3	-	705	723	mW	
6	Power consumption4	Burst Tx (11b/11Mbps)	Pc4	-	713	802	mW	Duty57.3 %
7	Power consumption5	Burst Rx (11b/11Mbps)	Pc5	-	618	635	mW	

*1) Power Enable pin connected to the Vbus pin and pulled up with 100kohm inside of the module.

Power ON Sequence



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Control No. HD-AE-A*****	(2/2)	Control name Electrical characteristics
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RF Specifications (WLAN 11g/54Mbps, OFDM)

The Specification applies for Ta=25 degrees C, Supply voltage =Typical voltage

No.	Parameter	Condition	Symbol	Min	Typ	Max	Unit	Remark
1	RF frequency range		FREQ	2412		2462	MHz	
2	TX Power		Po	10	12	14	dBm	
3	Spectrum Mask	1 st Side Lobe	M1	-		-20	dBc	
		2 nd Side Lobe	M2	-		-28	dBc	
		3 rd Side Lobe	M3	-		-40	dBc	
4	Symbol clock tolerance		Ft	-25		25	ppm	
5	Frequency tolerance		Ft	-25		25	ppm	
6	EVM	RMS	EVM	-		5.6	%	
7	TX Out of band spurious1	f<2387MHz, 2496.5MHz<f	TOS1	-		2.5	uW	
8	TX Out of band spurious2	2387MHz<f<2400MHz, 2483.5MHz<f<2496.5M Hz	TOS2	-		25	uW	
9	Rx sensitivity	PER<10%	SEN	-	-71	-65	dBm	
10	Maximum Input Level	PER<10%	MIL	-20		-	dBm	
11	RX Out of band spurious1	f<1GHz	ROS1	-		4	nW	
12	RX Out of band spurious2	f>1GHz	ROS2	-		20	nW	

RF Specifications (WLAN 11b/11Mbps, CCK)

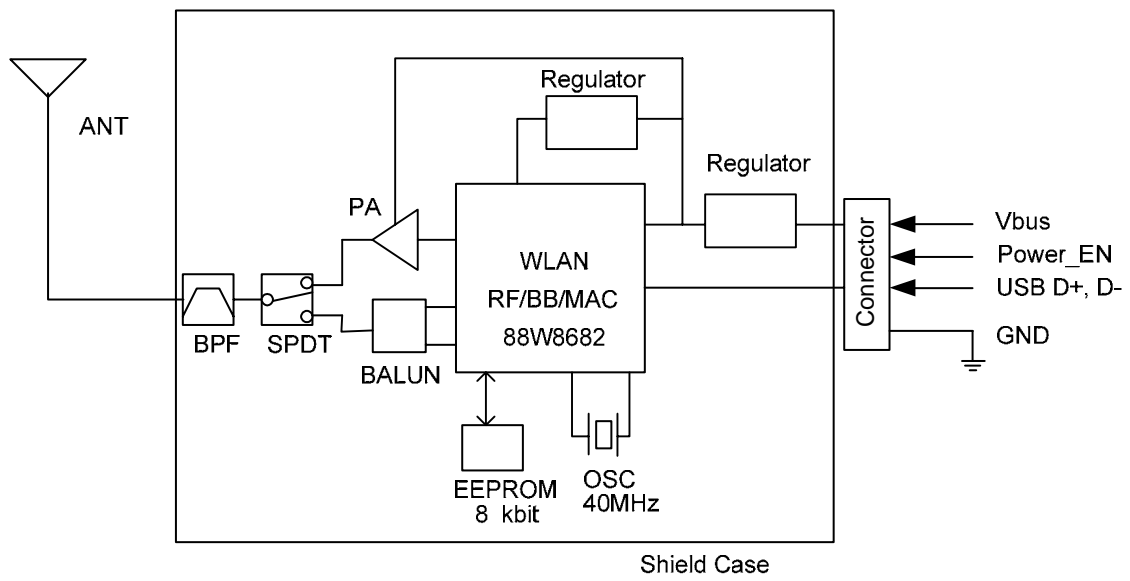
The Specification applies for Ta=25 degrees C, Supply voltage=Typical voltage

No.	Parameter	Condition	Symbol	Min	Typ	Max	Unit	Remark
1	RF frequency range		FREQ	2412		2462	MHz	
2	TX Power		Po	11	13	15	dBm	
3	Spectrum Mask	1 st Side Lobe	M1	-		-30	dBc	
		2 nd Side Lobe	M2	-		-50	dBc	
4	Power up-down rump	Power up	TU	-		2	us	
		Power down	TD	-		2	us	
5	Frequency tolerance		Ft	-25		25	ppm	
6	EVM	Peak	EVM	-		35	%	
7	TX Out of band spurious1	f<2387MHz, 2496.5MHz<f	TOS1	-		2.5	uW	
8	TX Out of band spurious2	2387MHz<f<2400MHz, 2483.5MHz<f<2496.5M Hz	TOS2	-		25	uW	
9	Rx sensitivity	PER<8%	SEN		-85	-76	dBm	
10	Maximum Input Level	PER<8%	MIL	-10			dBm	
11	RX Out of band spurious1	f<1GHz	ROS1	-		4	nW	
12	RX Out of band spurious2	f>1GHz	ROS2	-		20	nW	

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Control No. HD-MC-A*****	(1/1)	Control name Circuit Schematic
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Block Diagram

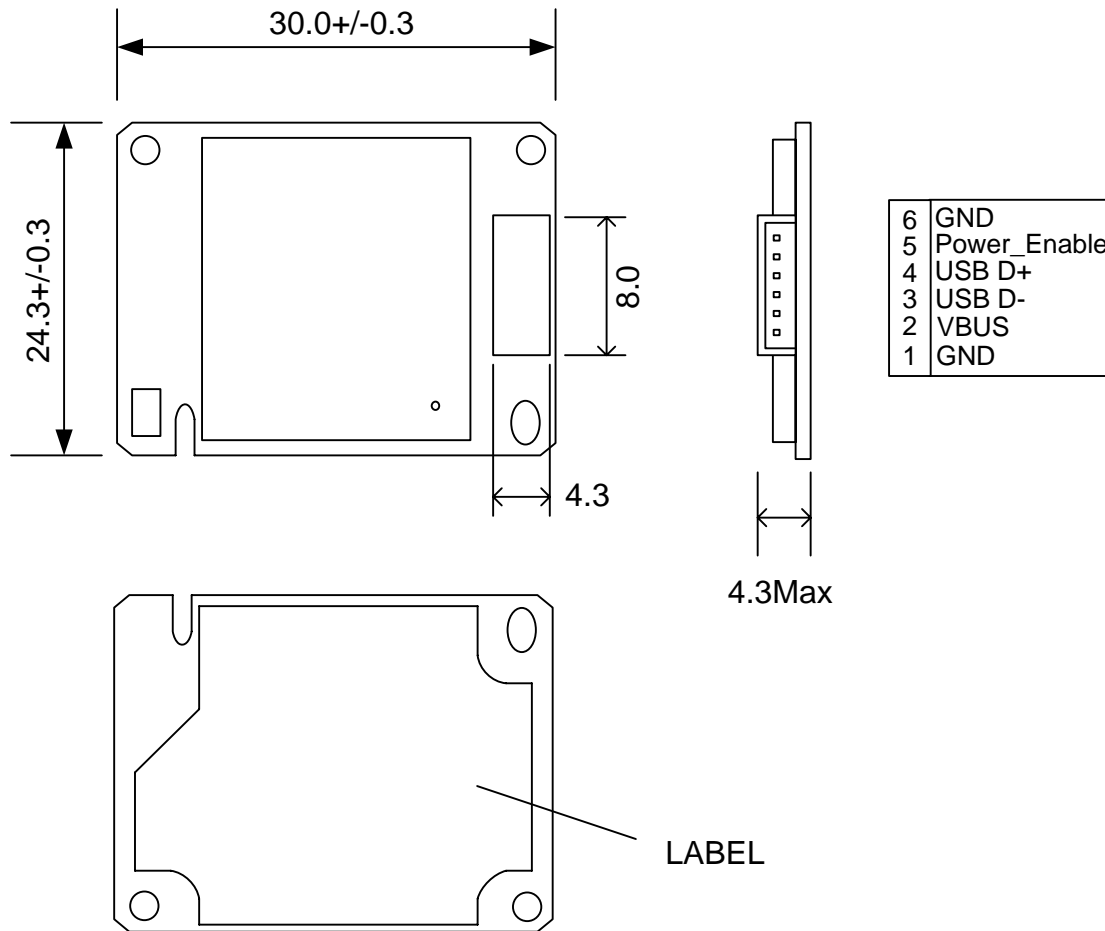


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Control No. HD-AD-A*****	(1/1)	Control name Outline/Appearance
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OUTLINE

Unit: mm



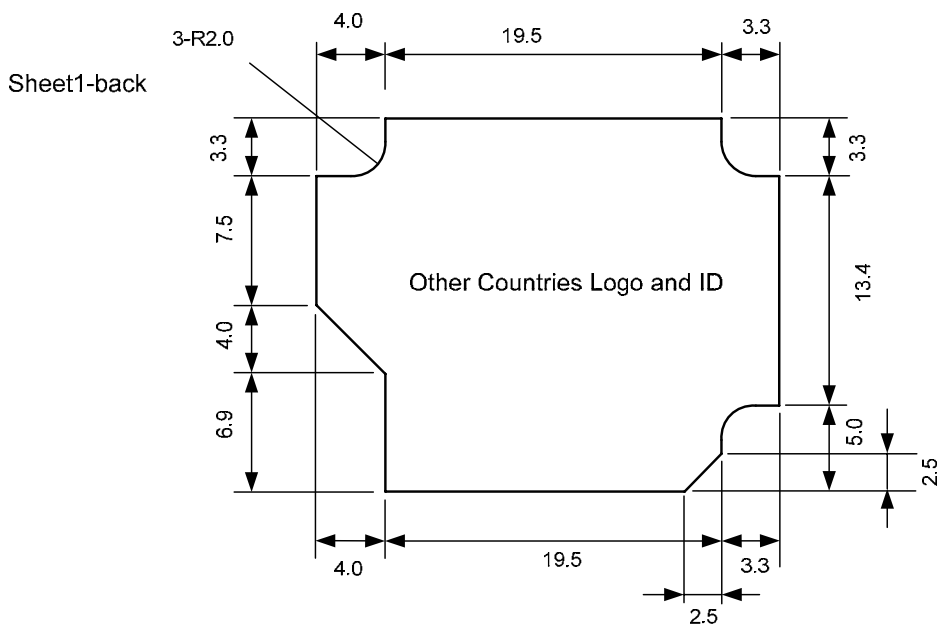
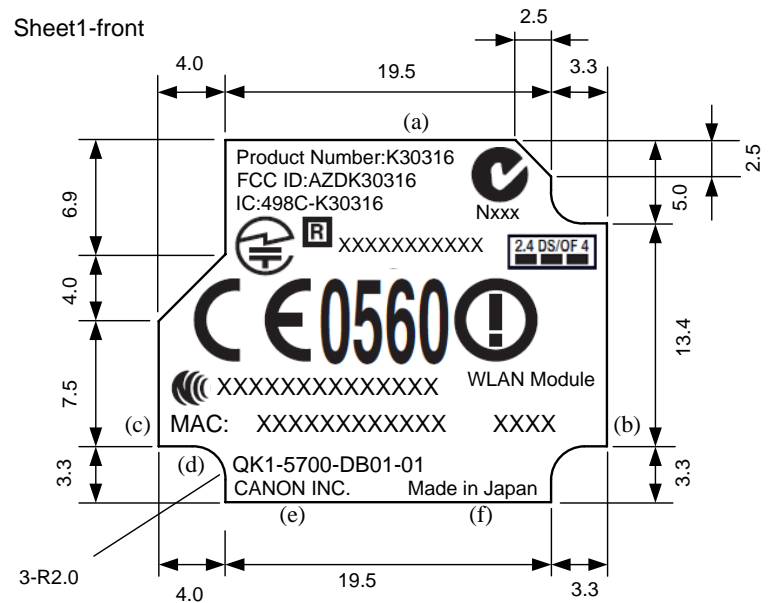
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Control No. HD-AD-B*****	(1/2)	Control name Outline/Appearance
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Indication label

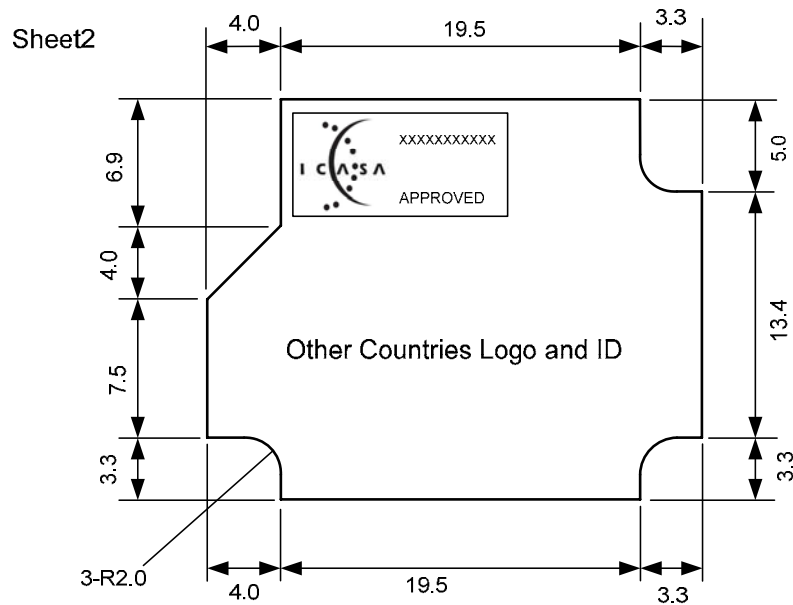
Unit: mm

This label is consisted of two sheets.



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Control No. HD-AD-B*****	(2/2)	Control name Outline/Appearance
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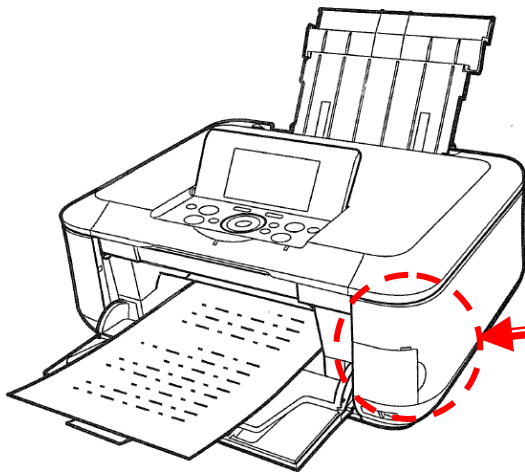
- (a) Product Number :K30316
- (b) Lot Number
- (c) Mac address
- (d) Manufacturer control number
- (e) Manufacturer : CANON INC.
- (f) Country of Origin : Japan

Material: PET (UL969)/ Label color: White

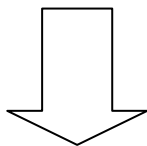
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Control No. *****	(1/2)	Control name Mounting Location of Module
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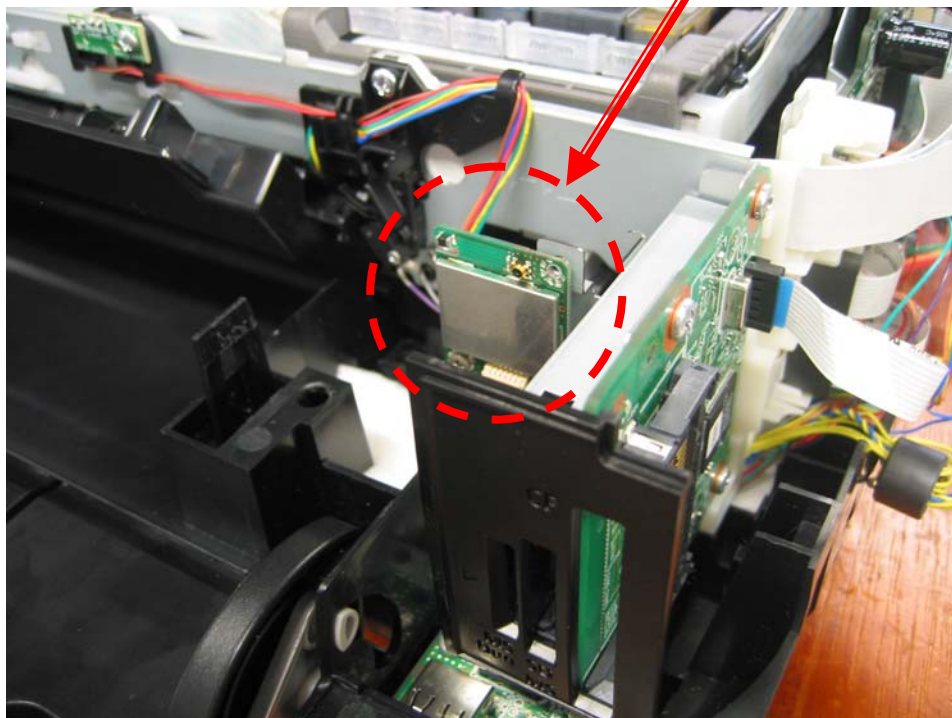
Mounting Location of Wireless LAN Module (Example)



Module is placed inside of the right corner of the printer.



Wireless LAN Module



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Control No. *****	(2/2)	Control name Mounting Location of Module
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How to attach the plate to the module:



Front Screw

When you install the module into your final set, please leave space between the module and the metal plate more than 4mm. (Except the screw-hole areas.)

Please do not place metal plate around the antenna area for antenna performance.

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FCC Regulatory Information

CAUTION: This device should be used in separation distance of at least 20 centimeters maintained between transmitter's radiating structure and the body of the user or nearby persons.

The antenna used for this transmitter 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.
- (2) This device must accept any interference received, including interference that may Cause undesired operation.

Canada Regulatory Information

CAUTION: This device should be used in separation distance of at least 20 centimeters maintained between transmitter's radiating structure and the body of the user or nearby persons.

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.

L'utilisation de ce dispositif est autorisée seulement aux conditions suivantes :

- (1) il ne doit pas produire de brouillage et
- (2) l'utilisateur du dispositif doit être prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.

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R&TTE Directive Information

This device is a 2.4 GHz wideband transmission system (transceiver), intended for use in all EU member states and EFTA countries, except in France and Italy where restrictive use applies.

For Italy and France, this device may be limited to **USE INDOOR** only.



Hereby CANON INC. declares that this Wireless LAN Module (Model No.: K30316) is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

The declaration of Conformity may be obtained at:

CANON INC. 451, Tsukagoshi 3-chome, Saiwai-ku, Kawasaki-shi,
Kanagawa 212-8530, Japan
Telephone No.) 81-44-542-0164; Fax No.) 81-44-548-7524

CAUTION

- Please note that this users manual should not be provided to end-users. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the requirement.

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Notice

- At the installation of our Wireless LAN Module (Model No.: K30316) into the device, following information should be provided with end-user under the responsibility of the manufacture who integrates it into their device.

The following sentence has to be displayed on the outside of the device in which the module is installed:

"Contains Transmitter Module FCC ID: AZDK30316 / IC ID: 498C-K30316", or "Contains FCC ID: AZDK30316 / IC ID: 498C-K30316"

FCC Regulatory information

CAUTION: This device should be used in separation distance of at least 20 centimeters maintained between transmitter's radiating structure and the body of the user or nearby persons.

To maintain compliance with FCC's RF exposure guidelines, use only the supplied antenna. Unauthorized antenna, modification, or attachments could damage the transmitter and may violate FCC regulations.

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.
- (2) This device must accept any interference received, including interference that may Cause undesired operation.

Canada Regulatory information

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.

L'utilisation de ce dispositif est autorisée seulement aux conditions suivantes :

- (1) il ne doit pas produire de brouillage et
- (2) l'utilisateur du dispositif doit être prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.

CAUTION: This device should be used in separation distance of at least 20 centimeters maintained between transmitter's radiating structure and the body of the user or nearby persons.

R&TTE Directive information

This device is a 2.4 GHz wideband transmission system (transceiver), intended for use in all EU member states and EFTA countries, except in France and Italy where restrictive use applies.

For Italy and France, this device may be limited to **USE INDOOR** only.



Hereby [Name of manufacture(*)], declares that this [type of equipment(*)] is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC

(*) Note: Please write in your company name and type of equipment into [].

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NCC Regulatory information

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。

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。

Note:

1. 本模組於取得認證後將依規定於模組本體標示審驗合格標籤
2. 系統廠商應於平台上標示「本產品內含射頻模組: XXXyyyLPDzzzz-x (NCC ID) 」字樣

NTC Regulatory information

This telecommunication equipment conforms to NTC technical requirement.