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# **Users Manual**

**Product name: Wireless LAN Module**

**Type : CMN-851A**

Rev. 1. 0 0

Japan Radio Co., Ltd.  
Mobile Communication Group

## **History**

Rev.	Date	Change Record
1.00	2013.04.11	First Edition

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## 1. General

This equipment is Wireless LAN Module for IEEE802.11 a/b/g/n (2.4GHz band/5GHz band) with PCI-Express mini-card interface.

## 2. Specifications for Wireless LAN

### 2.1 Environment

#### (1) Temperature

Operation 0~+50°C (Ta : Ambient Temperature)  
0~+65°C (Tc : Case Surface Temperature )  
Storage -40~+85°C (Ta : Ambient Temperature)

#### (2) Humidity

Operation 20~95%RH(no condensation)  
Storage 20~95%RH(no condensation)

### 2.2 Power

- (1) Input Supply from the host interface connector
- (2) Operation voltage DC3.3V ±5%
- (3) Maximum voltage +3.6V
- (4) Ripple Less than 100mVp-p
- (5) Consumption current See Table 1

Table 1. Consumption Current (Source voltage is 3.3V)

Condition	TYP	MAX
2.4GHz Band (Tx)	440mA	740mA
5GHz Band(Tx)	630mA	930mA
2.4GHz Band (Rx)	200mA	350mA
5GHz Band (Rx)	230mA	360mA

### 2.3 Radio specification

- (1) Standard ARIB STD-T71/T66, IEEE802.11a/b/g/n/e/h  
11e (QoS) and 11h (DFS) are operated by driver software.
- (2) Frequency  
20MHz System  
2.4GHz band(ISM) 2412~2472MHz, 5MHz step 13ch  
5.2/5.3GHz band 5180~5320MHz, 20MHz step 8ch  
5.6GHz band 5500~5700MHz, 20MHz step 11ch  
5.8GHz band 5745~5825MHz, 20MHz step 5ch  
40MHz System  
2.4GHz band(ISM) 2422~2462MHz, 5MHz step 9ch  
5.2/5.3GHz band 5190~5310MHz, 40MHz step 4ch  
5.6GHz band 5510~5670MHz, 40MHz step 5ch  
5.8GHz band 5755MHz, 5795MHz, 40MHz step 2ch  
(Note)  
Available frequency is regulated by law in each country.  
5.2GHz band and 5.3GHz band are for indoor use only.
- (3) Mode Infrastructure / Ad-hoc (not Ad-hoc operation in the DFS band.)
- (4) RF connector 20441-001E-01 (IPEX, Hirose U.FL-R) 2 ports  
Nominal Impedance 50ohm (Recommended ANT VSWR : <= 2)

- (5) Modulation      2.4GHz band: OFDM, DSSS  
                         5GHz band: OFDM
- (6) MIMO            2x2, 2 stream
- (7) Transmit rate   IEEE802.11b(DSSS/CCK)            1~11Mbps  
                         IEEE802.11a/g(OFDM)                6~54Mbps  
                         IEEE802.11n(OFDM,2x2MIMO)      6.5~300Mbps
- (8) Functions      Encryptions  
                         Power save function and etc are operated by driver software.
- (9) Security        IEEE802.11i  
                         Encryption method : WEP/TKIP/AES

## 2.4 Radio specifications

### (1) Transmit power

#### 2.4GHzband

Table 2. 2.4GHz band

Mode	Rate	Tx Power	allowable deviation
IEEE802.11b	All rate 1~11Mbps	3mW/MHz (14.8dBm)	+20%, -80% (+0.8dB, -7dB)
IEEE802.11g	All rate 6~54Mbps	3mW/MHz (17.1dBm)	+20%, -80% (+0.8dB, -7dB)
IEEE802.11n HT20	MCS8~14	3mW/MHz (17.3dBm)	+20%, -80% (+0.8dB, -7dB)
	MCS15	1.4mW/MHz (14.0dBm)	
IEEE802.11n HT40	MCS8~14	1.5mW/MHz (17.3dBm)	+20%, -80% (+0.8dB, -7dB)
	MCS15	0.7mW/MHz (14.0dBm)	

#### 5.2/5.3GHz band

Table3. 5.2/5.3GHz band

Mode	Rate	Tx power	allowable deviation
IEEE802.11a	6~48Mbps	3mW/MHz (17.1dBm)	+20%, -80% (+0.8dB, -7dB)
	54Mbps	1.4mW/MHz (13.8dBm)	
IEEE802.11n HT20	MCS8~13	3mW/MHz (17.3dBm)	+20%, -80% (+0.8dB, -7dB)
	MCS14~15	1.4mW/MHz (14.0dBm)	
IEEE802.11n HT40	MCS8~13	1.5mW/MHz (17.3dBm)	+20%, -80% (+0.8dB, -7dB)
	MCS14~15	0.7mW/MHz (14.0dBm)	

5.6GHz band

Table 4. 5.6GHz band

Mode	Rate	Tx power	allowable deviation
IEEE802.11a	6~48Mbps	1.4mW/MHz (13.8dBm)	+50%, -50% (+1.8dB, -3dB)
	54Mbps	0.6mW/MHz (10.1dBm)	
IEEE802.11n HT20	MCS8~13	1.4mW/MHz (14.0dBm)	+50%, -50% (+1.8dB, -3dB)
	MCS14~15	0.6mW/MHz (10.3dBm)	
IEEE802.11n HT40	MCS8~13	0.7mW/MHz (14.0dBm)	+50%, -50% (+1.8dB, -3dB)
	MCS14~15	0.3mW/MHz (10.3dBm)	

5.8GHz band (TBD)

Table 5. 5.8GHz band

Mode	Rate	Tx power	allowable deviation
IEEE802.11a	6~48Mbps	2.0mW/MHz (15.2dBm)	+20%, -80% (+0.8dB, -7dB)
	54Mbps	1.0mW/MHz (12.2dBm)	
IEEE802.11n HT20	MCS8~13	2.0mW/MHz (15.5dBm)	+20%, -80% (+0.8dB, -7dB)
	MCS14~15	1.0mW/MHz (12.5dBm)	
IEEE802.11n HT40	MCS8~13	1.0mW/MHz (15.5dBm)	+20%, -80% (+0.8dB, -7dB)
	MCS14~15	0.5mW/MHz (12.5dBm)	

- (2) Occupied band width
- |                         |                   |
|-------------------------|-------------------|
| 20MHz system            |                   |
| 2.4GHz band             | Less than 26MHz   |
| 5.2/5.3GHz band         | Less than 19MHz   |
| 5.6/5.8GHz band         | Less than 19.7MHz |
| 40MHz system            |                   |
| 2.4GHz band             | Less than 38MHz   |
| 5.2/5.3/5.6/5.8GHz band | Less than 38MHz   |
- (3) Frequency accuracy
- |                         |        |
|-------------------------|--------|
| 2.4GHz band             | ±50ppm |
| 5.2/5.3/5.6/5.8GHz band | ±20ppm |

(4) Receiver sensitivity

Table 6. 2.4GHz band

System	Band width	MCS index		Data Rate	Sensitivity [dBm]
802.11b (2.4GHz band)				1Mbit/s	Less than -80
				2Mbit/s	Less than -75
802.11g (2.4GHz band)	20MHz			6Mbit/s	Less than -82
				9Mbit/s	Less than -81
				12Mbit/s	Less than -79
				18Mbit/s	Less than -77
				24Mbit/s	Less than -74
				36Mbit/s	Less than -70
				48Mbit/s	Less than -66
				54Mbit/s	Less than -65
802.11n (2.4GHz band)	20MHz	0	8		Less than -82
		1	9		Less than -79
		2	10		Less than -77
		3	11		Less than -74
		4	12		Less than -70
		5	13		Less than -66
		6	14		Less than -65
		7	15		Less than -64
	40MHz	0	8		Less than -79
		1	9		Less than -76
		2	10		Less than -74
		3	11		Less than -71
		4	12		Less than -67
		5	13		Less than -63
		6	14		Less than -62
7	15		Less than -61		

Table 7. 5GHz band

System	Band width	MCS index		Data Rate	Sensitivity [dBm]
802.11a (5GHz band)	20MHz			6Mbit/s	Less than -82
				9Mbit/s	Less than -81
				12Mbit/s	Less than -79
				18Mbit/s	Less than -77
				24Mbit/s	Less than -74
				36Mbit/s	Less than -70
				48Mbit/s	Less than -66
				54Mbit/s	Less than -65
802.11n (5GHz band)	20MHz	0	8		Less than -82
		1	9		Less than -79
		2	10		Less than -77
		3	11		Less than -74
		4	12		Less than -70
		5	13		Less than -66
		6	14		Less than -65
		7	15		Less than -64
	40MHz	0	8		Less than -79
		1	9		Less than -76
		2	10		Less than -74
		3	11		Less than -71
		4	12		Less than -67
		5	13		Less than -63
		6	14		Less than -62
7		15		Less than -61	



## 2.5 Block diagram

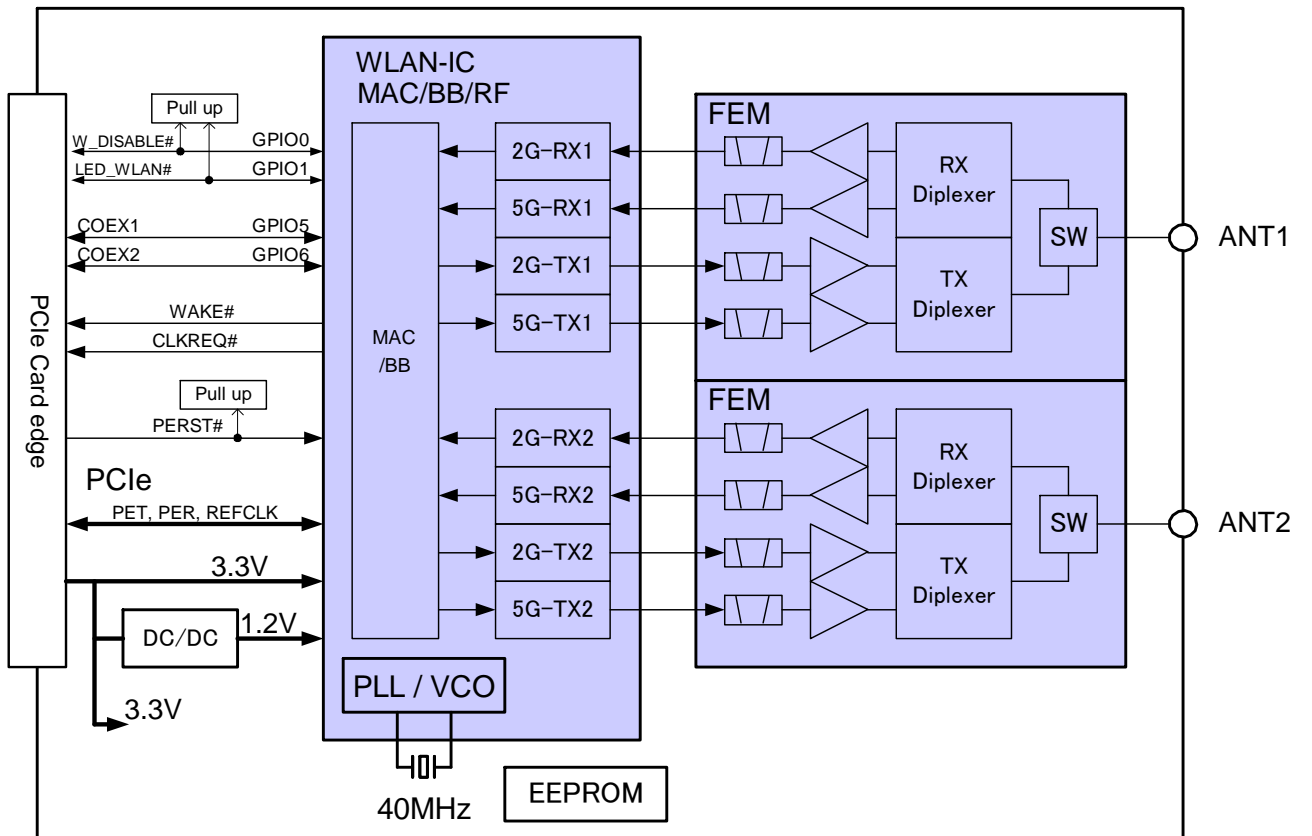


Fig 1. Block diagram

## 2.6 Host interface

- (1) Interface PCI-express mini-card Rev1.1 base
- (2) PIN assign

Table 9. Host interface

Pin	Name	Type	explanation
1	#WAKE	OD	PCIE Request to service a function-initiated wake event Open drain (Drive current: 24mA max)
2	3.3Vaux		3.3V input
3	COEX1	I/O	Connected to AR9280-GPIO 5pin Drive current: 24mA max (Current is defined driver software) 250k ohm pull down (settable)
4	GND		Ground
5	COEX2	I/O	Connected to AR9280-GPIO 6pin Drive current: 24mA max (Current is defined driver software) 250k ohm pull down (settable)
6	1.5V		NC
7	CLKREQ#	OD	PCIE Reference clock request. Open drain (Drive current: 24mA max)
8	UIM PWR		NC
9	GND		Ground
10	UIM_DATA		NC
11	REFCLK-	I	PCIE Differential reference clock (100MHz)
12	UIM_CLK		NC
13	REFCLK+	I	PCIE Differential reference clock (100MHz)
14	UIM_RESET		NC
15	GND		Ground
16	UIM_VPP		NC
17	Reserved (UIM_C8)		NC
18	GND		Ground
19	Reserved (UIM_C4)		NC
20	W_DISABLE#	IH/OH	Connected to AR9280-GPIO 0pin 10k ohm pull up Drive current: 24mA max (Current is defined driver software)
21	GND		Ground
22	PERST#	IH	PCIE reset 100k ohm pull up
23	PERn0	O	PCIE Differential transmit
24	3.3Vaux		3.3V input
25	PERp0	O	PCIE Differential transmit
26	GND		Ground
27	GND		Ground
28	+1.5V		NC
29	GND		Ground
30	SMB_CLK		NC

Pin	Name	Type	explanation
31	PETn0	I	PCIE Differential receive
32	SMB_DATA		NC
33	PETp0	I	PCIE Differential receive
34	GND		Ground
35	GND		Ground
36	USB_D-		NC
37	GND		Ground
38	USB_D+		NC
39	3.3Vaux		3.3V input
40	GND		Ground
41	3.3Vaux		3.3V input
42	LED_WWAN#		NC
43	GND		Ground
44	LED_WLAN#	IH/OH	Connected AR9280-GPIO 1pin 10k ohm pull up Drive current : 24mA max (Current is defined driver software)
45	Reserved		NC
46	LED_WPAN#		NC
47	Reserved		NC
48	+1.5V		NC
49	Reserved		NC
50	GND		Ground
51	Reserved		NC
52	3.3Vaux		3.3V input

※Type: I=input, O=Output, OD=Open drain, H=Pull up

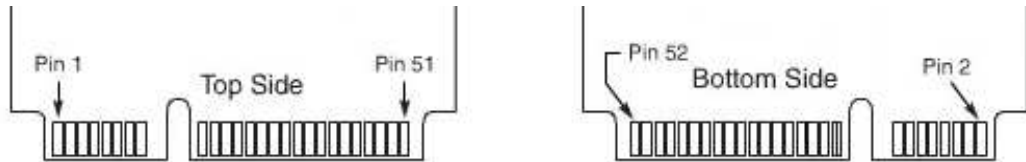


Fig 2. Pin allocation

(3) Start up sequence

Please comply with the following timing.

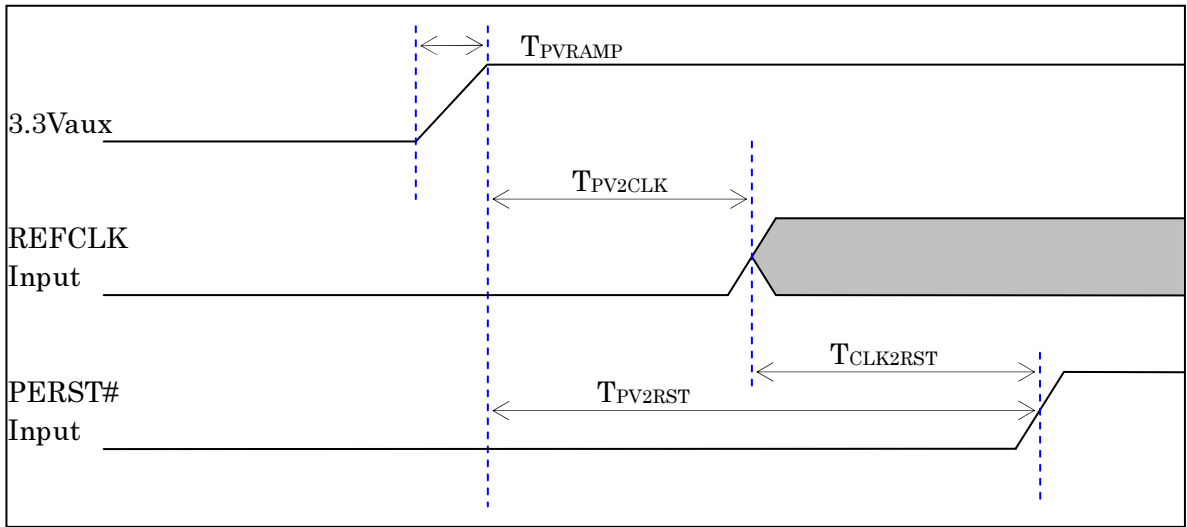


Fig 3. Start up sequence

Table 10. Start up timing

Signal	Name	Min	Max	Unit
$T_{PVRAMP}$	Power Supply Ramp on 3.3V	—	1	ms
$T_{PV2CLK}$	Power valid to REFCLK stable	100	—	us
$T_{CLK2RST}$	REFCLK stable to PERST# de-asserted	100	—	us
$T_{PV2RST}$	Power valid to PERST# de-asserted	10	—	ms

2.7 Environmental load  
(1) RoHS available

2.8 MTBF

25 years

(Condition)

Temperature 0°C to 50°C

Humidity 93%(40°C)

VibrationFrequency 10 to 200 Hz

Accelerations 29.4m/s<sup>2</sup>

Time : Up and Down 4H, Back and force 2H,

Right and left 2H

Shock

Peak acceleration: 500 m/s<sup>2</sup>

Time: 11ms

Profile: half sin

Number of shock: 3 times each axis (Total 18 times)。

3. Reliability test

Contact us

4. Packing

See packing instruction

5. Assurance

(1) Duration of guarantee

1 year

(2) Analysis method

It supports only re-test on the production line.

6. Structure

See "Parts allocation" and "Parts list"

7. Location of manufacture

Factory Japan Radio Co., Ltd. MITAKA plant

Place MITAKA CITY, TOKYO MET.

Country Japan

## 8. Note

### **FCC/IC CAUTION**

**This device complies with Part 15 of FCC Rules and 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 this device.**

**Le présent appareil est conforme aux la partie 15 des règles de la FCC et 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.**

### **RF exposure compliance**

**This equipment complies with FCC/IC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET65 and RSS-102 of the IC radio frequency (RF) Exposure rules. This equipment should be installed and operated keeping the radiator at least 20cm or more away from person's body (excluding extremities: hands, wrists, feet and ankles).**

**Cet équipement est conforme aux limites d'exposition aux rayonnements énoncées pour un environnement non contrôlé et respecte les règles les radioélectriques (RF) de la FCC lignes directrices d'exposition dans le Supplément C à OET65 et d'exposition aux fréquences radioélectriques (RF) CNR-102 de l'IC. Cet équipement doit être installé et utilisé en gardant une distance de 20 cm ou plus entre le dispositif rayonnant et le corps (à l'exception des extrémités : mains, poignets, pieds et chevilles).**

### **Compliance with FCC requirement 15.407(c) and IC requirement RSS-210 A9.4 4**

**Data transmission is always initiated by software, which is the passed down through the MAC, through the digital and analog baseband, and finally to the RF chip. Several special packets are initiated by the MAC. These are the only ways the digital baseband portion will turn on the RF transmitter, which it then turns off at the end of the packet. Therefore, the transmitter will be on only while one of the aforementioned packets is being transmitted. In other words, this device automatically discontinues transmission in case of either absence of information to transmit or operational failure.**

**La transmission des données est toujours commencée par logiciel qui est les passés en bas à travers le MAC à travers le baseband numérique et analogique, et finalement à l'éclat RF. Plusieurs paquets spéciaux sont commencés par le MAC. Ce sont les seuls chemins que la portion du baseband numérique allumera le transmetteur RF qu'il désactive alors à la fin du paquet. Par conséquent, le transmetteur sera sur seulement pendant qu'un des parquets susmentionnés est transmis. En d'autres termes, cet appareil cesse automatiquement la transmission en cas de l'un et l'autre absence d'information pour transmettre ou échec opérationnel.**

## **FCC CAUTION**

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

5.15-5.25GHz band is restricted to indoor operations only.

Frequency Tolerance:  $\pm 50$  ppm (2.4GHz band),  $\pm 20$  ppm (5GHz band)

## **IC CAUTION**

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

5.15-5.25GHz band is restricted to indoor operations only.

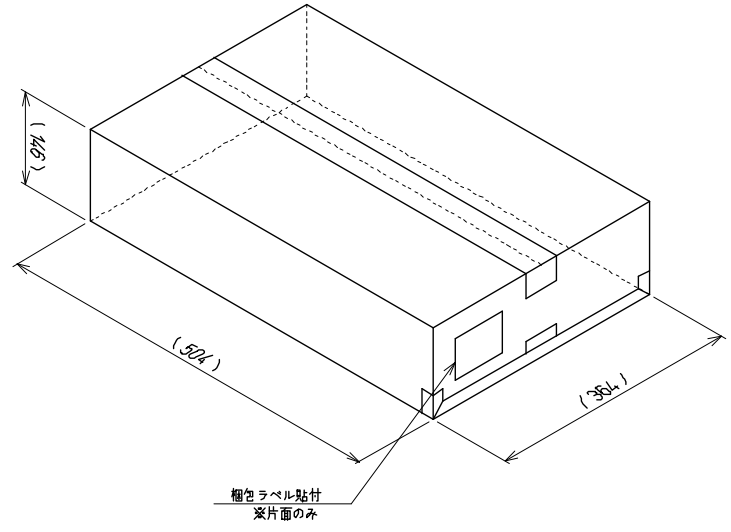
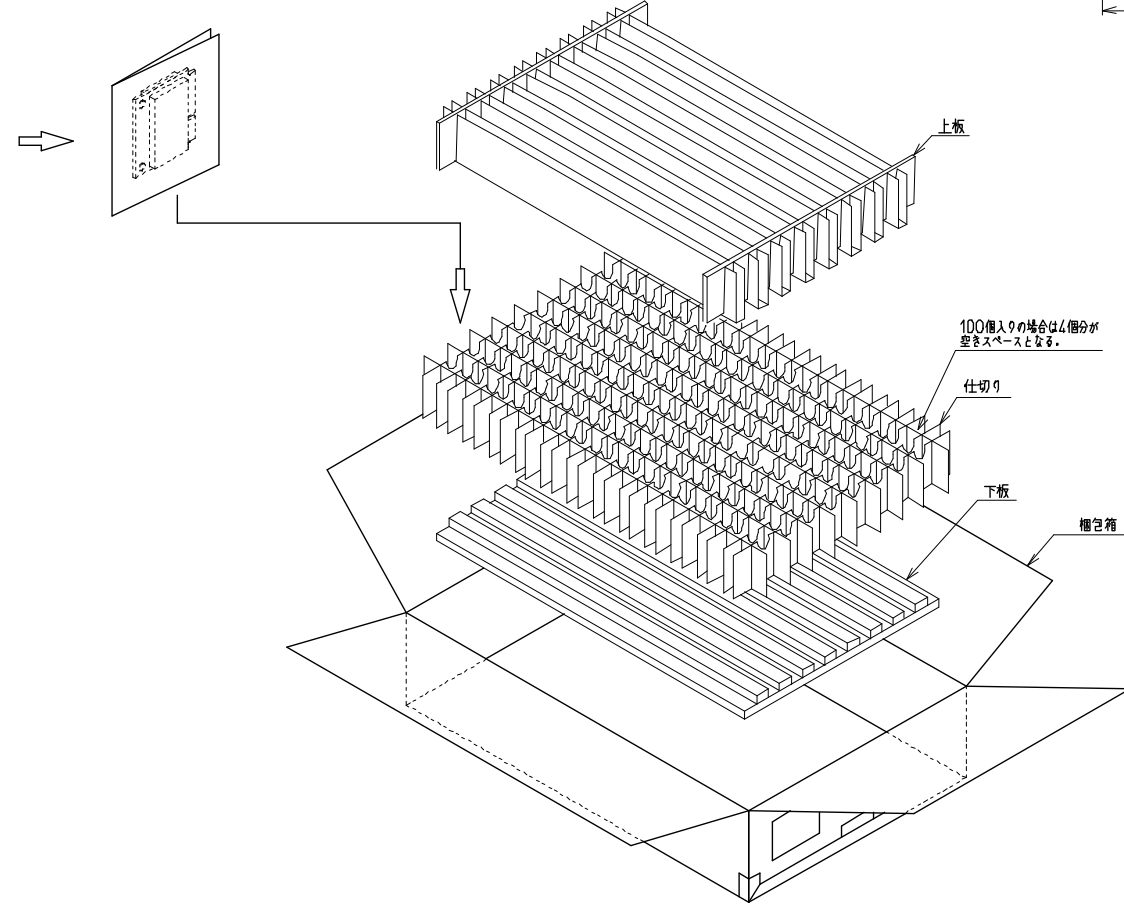
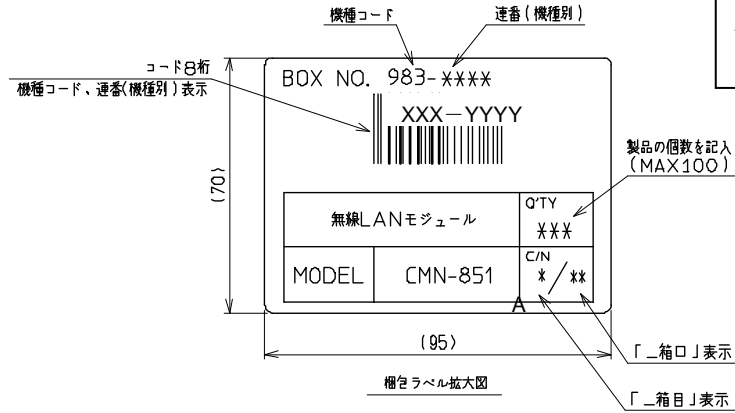
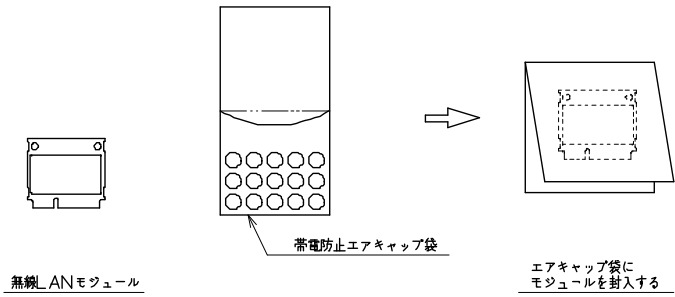
La bande 5 150-5 250 MHz est restreints à une utilisation à l'intérieur.

### **⚠ CAUTION**

This product which is intended for use in Japan, is a controlled product regulated under the Japanese Foreign Exchange and Foreign Trade Law. When you plan to export or take this product out of Japan, please obtain a permission, as required by the Law and related regulations, from the Japanese Government.



# Appendix 1



# Appendix2

## CMN-851A Parts list

Reference Designator	Vendor	Vendor Part Number	Description
BAL101	Murata	LDB182G4510G-120	BALUN, 2.45 GHz, 50-100 OHM
BAL102	Murata	LDB182G4510G-120	BALUN, 2.45 GHz, 50-100 OHM
C101	Murata	GRM033B11A103KA01D	CAP, 0603, B, 0.01uF
C102	Murata	GRM033B11A103KA01D	CAP, 0603, B, 0.01uF
C103	Murata	GRM033B11A103KA01D	CAP, 0603, B, 0.01uF
C104	Murata	GRM033B30J104KE18D	CAP, 0603, B, 0.1uF
C105	Murata	GRM188B30J475KE18D	CAP, 1608, B, 4.7uF
C106	Murata	GRM188B30J106ME47D	CAP, 1608, B, 10uF
C107	Murata	GRM188B30J475KE18D	CAP, 1608, B, 4.7uF
C108	Murata	GRM033B30J104KE18D	CAP, 0603, B, 0.1uF
C109	Murata	GRM033B30J104KE18D	CAP, 0603, B, 0.1uF
C110	Murata	GRM033B30J104KE18D	CAP, 0603, B, 0.1uF
C111	Murata	GRM033B30J104KE18D	CAP, 0603, B, 0.1uF
C112	Murata	GRM033B30J104KE18D	CAP, 0603, B, 0.1uF
C113	Murata	GRM033B11A103KA01D	CAP, 0603, B, 0.01uF
C114	Murata	GRM033B30J104KE18D	CAP, 0603, B, 0.1uF
C115	Murata	GRM033B11A103KA01D	CAP, 0603, B, 0.01uF
C116	Murata	GRM21BB30J226ME38L	CAP, 2012, B, 22uF
C117	Murata	GRM21BB30J226ME38L	CAP, 2012, B, 22uF
C118	Murata	GRM033B30J104KE18D	CAP, 0603, B, 0.1uF
C119	Murata	GRM033B30J104KE18D	CAP, 0603, B, 0.1uF
C121	Murata	GRM0332C1E100GD01D	CAP, 0603, C0H, 10pF
C122	Murata	GRM0332C1E110GD01D	CAP, 0603, C0H, 11pF
C123	Murata	GRM0332C1E100JD01D	CAP, 0603, C0H, 10pF
C124	Murata	GRM0332C1E470JD01D	CAP, 0603, C0H, 47pF
C125	Murata	GRM0332C1E470JD01D	CAP, 0603, C0H, 47pF
C126	Murata	GRM0332C1E470JD01D	CAP, 0603, C0H, 47pF
C127	Murata	GRM0332C1E470JD01D	CAP, 0603, C0H, 47pF
C128	Murata	GRM033B30J104KE18D	CAP, 0603, B, 0.1uF
C129	Murata	GRM0332C1E100JD01D	CAP, 0603, C0H, 10pF
C130	Murata	GRM033B30J104KE18D	CAP, 0603, B, 0.1uF
C131	Murata	GRM0332C1E100JD01D	CAP, 0603, C0H, 10pF
C132	Murata	GRM033B30J104KE18D	CAP, 0603, B, 0.1uF
C133	Murata	GRM155B30J105KE18D	CAP, 1005, B, 1uF
C134	Murata	GRM155B31A224KE18D	CAP, 1005, B, 0.22uF
C135	Murata	GRM033B30J104KE18D	CAP, 0603, B, 0.1uF
C136	Murata	GRM155B30J105KE18D	CAP, 1005, B, 1uF
C137	Murata	GRM155B31A224KE18D	CAP, 1005, B, 0.22uF
C138	Murata	GRM033B30J104KE18D	CAP, 0603, B, 0.1uF
C139	Murata	GRM033B30J104KE18D	CAP, 0603, B, 0.1uF
C140	Murata	GRM033B30J104KE18D	CAP, 0603, B, 0.1uF
C141	Murata	GRM033B30J104KE18D	CAP, 0603, B, 0.1uF

C142	Murata	GRM033B11A103KA01D	CAP, 0603, B, 0.01uF
C143	Murata	GRM033B30J104KE18D	CAP, 0603, B, 0.1uF
C144	Murata	GRM0332C1E100JD01D	CAP, 0603, C0H, 10pF
C145	Murata	GRM0332C1E100JD01D	CAP, 0603, C0H, 10pF
C146	Murata	GRM0332C1E100JD01D	CAP, 0603, C0H, 10pF
C147	Murata	GRM0334C1ER50WZ01D	CAP, 0603, C0K, 0.5pF
C148	Murata	GRM0334C1ER50WZ01D	CAP, 0603, C0K, 0.5pF
C149	Murata	GRM0332C1E1R0CD01D	CAP, 0603, C0H, 1pF
C150	Murata	GRM0333C1E2R2CD01D	CAP, 0603, C0J, 2.2pF
C151	Murata	GRM0333C1E2R2CD01D	CAP, 0603, C0J, 2.2pF
C152	Murata	GRM0332C1E470JD01D	CAP, 0603, C0H, 47pF
C153	Murata	GRM0333C1E3R9BD01D	CAP, 0603, C0J, 3.9pF
C154	Murata	GRM0334C1ER50WZ01D	CAP, 0603, C0K, 0.5pF
C157	Murata	GRM0332C1E100JD01D	CAP, 0603, C0H, 10pF
C158	Murata	GRM0332C1E100JD01D	CAP, 0603, C0H, 10pF
C159	Murata	GRM0332C1E100JD01D	CAP, 0603, C0H, 10pF
C160	Murata	GRM0334C1ER50WZ01D	CAP, 0603, C0K, 0.5pF
C161	Murata	GRM0334C1ER50WZ01D	CAP, 0603, C0K, 0.5pF
C162	Murata	GRM0332C1E1R0CD01D	CAP, 0603, C0H, 1pF
C163	Murata	GRM0333C1E2R2CD01D	CAP, 0603, C0J, 2.2pF
C164	Murata	GRM0333C1E2R2CD01D	CAP, 0603, C0J, 2.2pF
C165	Murata	GRM0332C1E470JD01D	CAP, 0603, C0H, 47pF
C166	Murata	GRM0333C1E3R9BD01D	CAP, 0603, C0J, 3.9pF
C167	Murata	GRM0333C1E3R9BD01D	CAP, 0603, C0J, 3.9pF
C201	Murata	GRM0332C1E470JD01D	CAP, 0603, C0H, 47pF
C202	Murata	GRM0332C1E100JD01D	CAP, 0603, C0H, 10pF
C203	Murata	GRM0332C1E100JD01D	CAP, 0603, C0H, 10pF
C204	Murata	GRM033B30J104KE18D	CAP, 0603, B, 0.1uF
C205	Murata	GRM188B30J475KE18D	CAP, 1608, B, 4.7uF
C206	Murata	GRM0332C1E100JD01D	CAP, 0603, C0H, 10pF
C207	Murata	GRM0332C1E470JD01D	CAP, 0603, C0H, 47pF
C208	Murata	GRM0332C1E100JD01D	CAP, 0603, C0H, 10pF
C209	Murata	GRM0332C1E100JD01D	CAP, 0603, C0H, 10pF
C210	Murata	GRM033B30J104KE18D	CAP, 0603, B, 0.1uF
C211	Murata	GRM188B30J475KE18D	CAP, 1608, B, 4.7uF
C212	Murata	GRM0332C1E100JD01D	CAP, 0603, C0H, 10pF
IC101	Atheros	AR9280-AL1A	IC, 802.11a/b/g/n in BGA
IC102	ROHM	BR24G32FJ-WE2	IC,Memory,Serial 32Kbit EEPROM
IC103	RICOH	RP501K121B-TR	REG,1A,PWM STEP-DWN DC/DC CONV
IC201	SiGe_Semiconductor	SE2595L-R	IC, Dual Band 802.11n Wireless LAN FEM
IC202	SiGe_Semiconductor	SE2595L-R	IC, Dual Band 802.11n Wireless LAN FEM
J201	I-PEX	20441-001E-01	CONNECTOR, Ultra-Miniature Coax
J202	I-PEX	20441-001E-01	CONNECTOR, Ultra-Miniature Coax
L101	Murata	LQM2HPN2R2MJ0L	IND, 2520, 2.2uH
L102	Murata	LQP03TN4N7H00D	IND, 0603, 4.7nH
L104	Murata	LQP03TN1N0B00D	IND, 0603, 1.0nH

L105	Murata	LQP03TN4N7H00D	IND, 0603, 4.7nH
L107	Murata	LQP03TN1N0B00D	IND, 0603, 1.0nH
PC101	Fujitsu Interconnect Technologies	H-7PCWN0070A	PCB, 6-LAYERS
R101	Panasonic	ERJ2GE0R00X	RES, 1005, 0 OHMS
R102	Panasonic	ERJ1GE0R00C	RES, 0603, 0 OHMS
R104	Panasonic	ERJ2GE0R00X	RES, 1005, 0 OHMS
R105	Panasonic	ERJ2GE0R00X	RES, 1005, 0 OHMS
R106	Panasonic	ERJ1GE0R00C	RES, 0603, 0 OHMS
R107	Panasonic	ERJ1GEF1002C	RES, 0603, 10K OHMS
R108	Panasonic	ERJ1GEF1002C	RES, 0603, 10K OHMS
R109	Panasonic	ERJ1GEF10R0C	RES, 0603, 10 OHMS
R110	Panasonic	ERJ1GEF49R9C	RES, 0603, 49.9 OHMS
R115	Panasonic	ERJ1GE0R00C	RES, 0603, 0 OHMS
R116	Panasonic	ERJ1GE0R00C	RES, 0603, 0 OHMS
R117	Panasonic	ERJ1GEF6191C	RES, 0603, 6.19K OHMS
R121	Panasonic	ERJ1GEF51R0C	RES, 0603, 51 OHMS
R122	Panasonic	ERJ1GEF49R9C	RES, 0603, 49.9 OHMS
R124	Panasonic	ERJ1GEF51R0C	RES, 0603, 51 OHMS
R125	Panasonic	ERJ1GEF49R9C	RES, 0603, 49.9 OHMS
R126	Panasonic	ERJ1GEF1002C	RES, 0603, 10K OHMS
R127	Panasonic	ERJ1GEF1002C	RES, 0603, 10K OHMS
R201	Panasonic	ERJ1GEF1200C	RES, 0603, 120 OHMS
R202	Panasonic	ERJ1GEF51R0C	RES, 0603, 51 OHMS
R203	Panasonic	ERJ1GEF1200C	RES, 0603, 120 OHMS
R204	Panasonic	ERJ1GEF22R0C	RES, 0603, 22 OHMS
R205	Panasonic	ERJ1GEF22R0C	RES, 0603, 22 OHMS
R206	Panasonic	ERJ1GEF22R0C	RES, 0603, 22 OHMS
R207	Panasonic	ERJ1GE0R00C	RES, 0603, 0 OHMS
R208	Panasonic	ERJ1GEF3011C	RES, 0603, 3.01K OHMS
R210	Panasonic	ERJ1GEF1002C	RES, 0603, 10K OHMS
R211	Panasonic	ERJ1GEF1002C	RES, 0603, 10K OHMS
R212	Panasonic	ERJ1GEF1200C	RES, 0603, 120 OHMS
R213	Panasonic	ERJ1GEF51R0C	RES, 0603, 51 OHMS
R214	Panasonic	ERJ1GEF1200C	RES, 0603, 120 OHMS
R215	Panasonic	ERJ1GEF22R0C	RES, 0603, 22 OHMS
R216	Panasonic	ERJ1GEF22R0C	RES, 0603, 22 OHMS
R217	Panasonic	ERJ1GEF22R0C	RES, 0603, 22 OHMS
R218	Panasonic	ERJ1GE0R00C	RES, 0603, 0 OHMS
R219	Panasonic	ERJ1GEF3011C	RES, 0603, 3.01K OHMS
R221	Panasonic	ERJ1GEF1002C	RES, 0603, 10K OHMS
R222	Panasonic	ERJ1GEF1002C	RES, 0603, 10K OHMS
X101	NDK	NX3225SA	XTAL, 40MHz
—	Hohnan	MTD301926B	Upper case
—	Hohnan	MTD301927B	Lower case
—	Kasahara	MPNN39625	Label