



COMPANY CONFIDENTIAL

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J26H006 Delivery Specification

Function	802.11b/g/n(1x1) WiFi+ Bluetooth 2.1/4.2 Combo
Project Name	11n+BT Combo Module
Part No.	J26H006
Delivery Specification Rev.	1.1

Prepared by	Reviewed by	Approved by



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0. Revision History

Date	Document revision	Version	Author	Change Description
2017/08/25	1.0	NA	Fly Huang	Initial released
2017/9/20	1.1	NA	Fly Huang	Update 4.1 Schematic Part

1. Introduction

Project Name: J26H006

This documentation describes the engineering requirements specification of RTL8723DU 11n+BT Combo Module. It is a confidential document of Foxconn.

1.1 Scope

This module design is based on Realtek RTL8723DU chipset .The RTL8723DU is a highly integrated single-chip 802.11b/g/n 1T1R WLAN, and an integrated Bluetooth 2.1/4.2 single chip with USB 2.0 multi-function. It provides a complete solution for a high performance integrated wireless LAN and Bluetooth controller. The RTL8723DU WLAN baseband implements Orthogonal Frequency Division Multiplexing (OFDM) with 1 transmit and 1 receive path and is compatible with the 802.11n specification. Features include one spatial stream transmission, spatial spreading, and transmission over 20MHz bandwidth. This module support antenna diversity for better coverage

This specification is applied at the product to deliver to Seiko Epson group (including an overseas subsidiary),and EMS, the outsourcer to utilize in the company.

1.2 Function

- USB2.0 interface for WLAN and BT.
- Support single-band WLAN 20MHz at 2.4GHz
- Support BT4.2+HS , BLE and be backwards compatible with BT1.x,2.x+EDR.
- Support BT-WLAN coexistence.
- Support Antenna diversity.
- GP compliance

In accordance with SEIKO EPSON Group's requirements specified by the latest "Green Purchasing Standard for Production Materials", all production materials shall conform to SEIKO Epson's policy about chemical substances already banned or to be eliminated and shall be controlled by "4M Variation Management".

1.3 Specification by Model

EPSON Parts Name	EPSON Parts Code	Foxconn Parts Name	Connecter	Regulatory countries	LOT No.				Remark
					U	S	W	I	
J26H006.C01	2187150-00	J26H006.00	WTB (Right Angle)	None	C	0	A	A	PVT
J26H006.B01	2187151-00	J26H006.02	BTB (Vertical)	None	B	0	A	A	PVT

1.4 Module Weight

	Module Weight	
Model	J26H006.C01	J26H006.B01
Sample 1	2.6g	2.6g
Sample 2	2.6g	2.6g
Sample 3	2.6g	2.6g

1.5 Product Regulatory

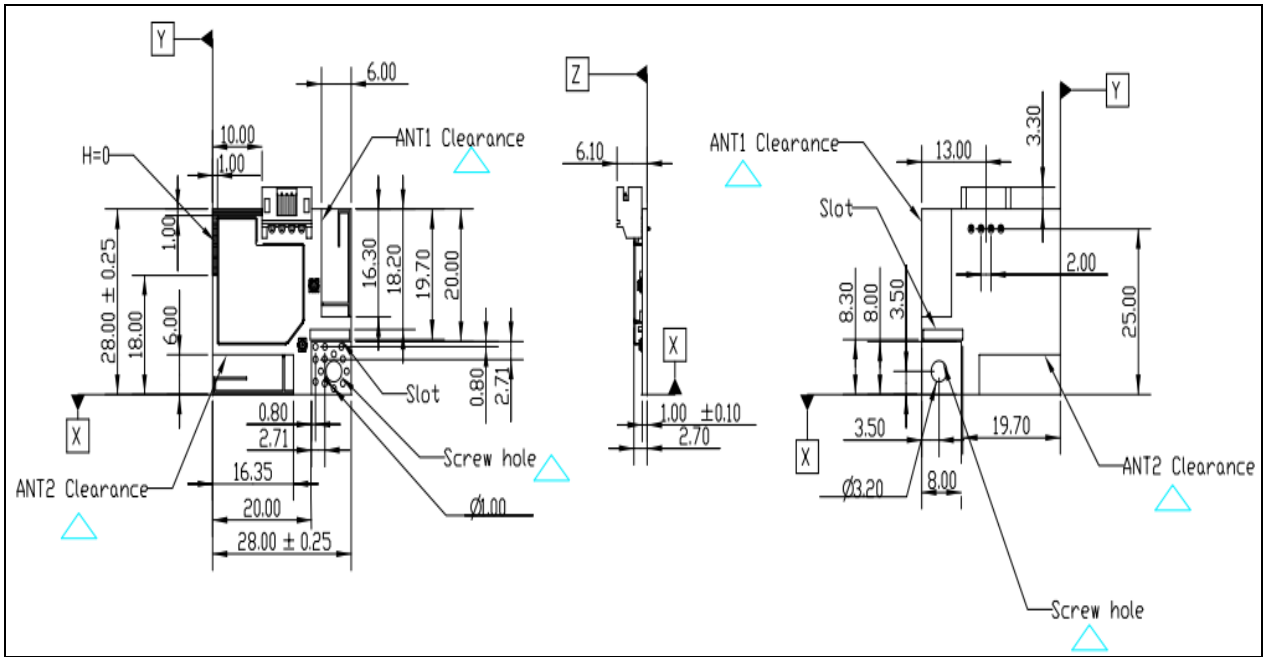
Regulatory countries/IDs

Country	Approval	Certification	Certification No.	Remark
USA	NO	FCC	TBD	
Canada	NO	IC	TBD	
EU	NO	CE	TBD	
Japan	NO	TELEC	TBD	
....				

2. Mechanical Specification

2.1 Module Mechanical Drawing

I .For J26H006.C01: Typical module dimension (W x L) is 28mmx28mm.

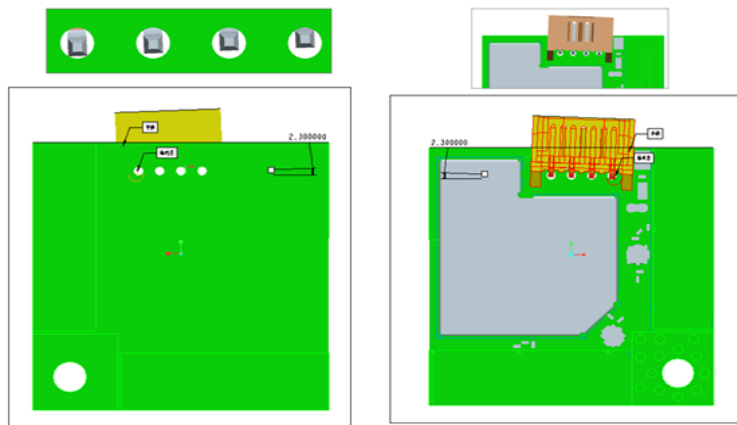


Unit: mm

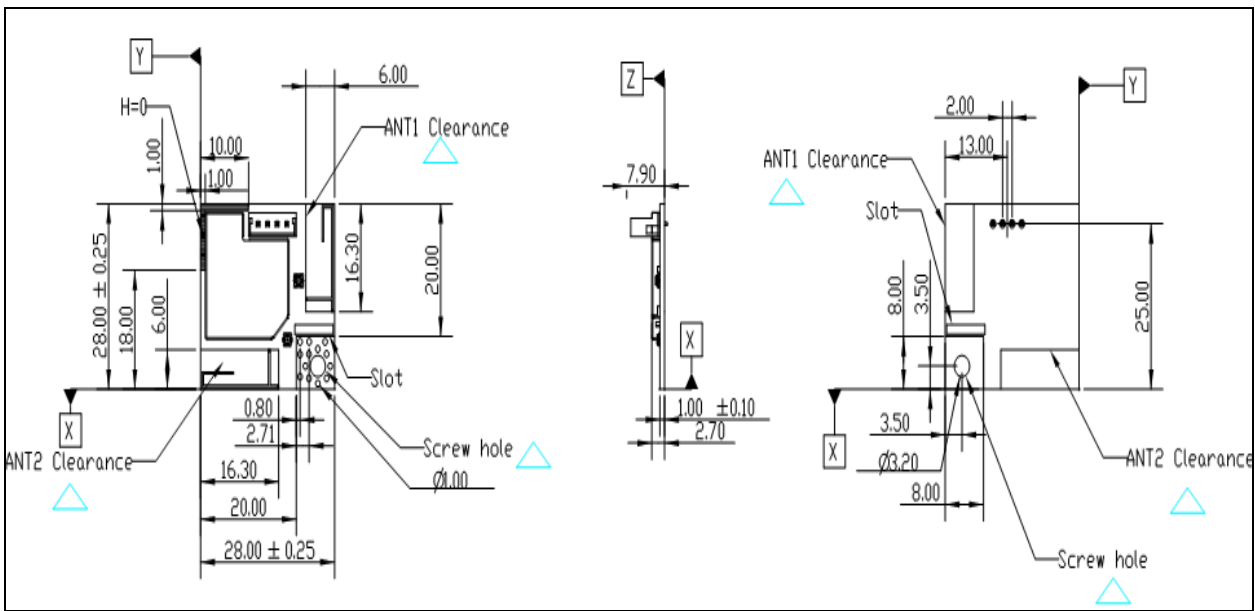
The tolerance for each mechanical dimension

MATERIAL(SPEC.)										SCALE 1:1
FINISH										SHEET 1 / 1
Select	V									UNIT
Dim.	Tol.	A	B	C	EPS	EPE	BAG	CTN	LABEL	USR
0~6	0.05	0.05	0.10						0.20	0.05
6~30	0.10	0.15	0.20	0.50	0.50	3.00			0.20	0.05
30~120	0.15	0.20	0.30	0.50	0.50	5.00	2.00		0.25	0.10
120~300	0.20	0.30	0.40	1.00	1.00	10.00	3.00		0.30	0.15
300~450	0.25	0.40	0.50	2.00	2.00	15.00	5.00		0.50	0.20
450~600	0.30	0.50	0.60	3.00	3.00	20.00	5.00		0.80	0.20
DRAFT TOLERANCE				±0.2°		CRITICAL DIM. MARK				⊗/⊕

Note¹: The max shift degree of WTB connector is 2.3degree.



II. For J26H006.B01: Typical module dimension (W x L) is 28mmx28mm.

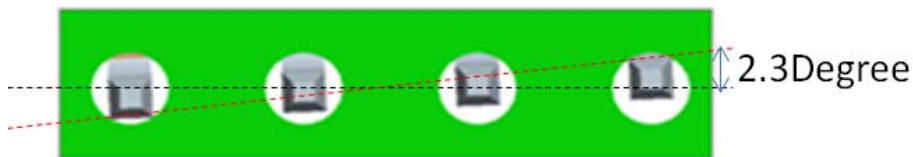


Unit: mm

The tolerance for each mechanical dimension

MATERIAL(SPEC.)										SCALE 1:1
FINISH										SHEET 1 / 1
Select	V									UNIT
Dim.	Tot.	A	B	C	EPS	EPE	BAG	CTN	LABEL	USR
0~6		0.05	0.05	0.10					0.20	0.05
6~30		0.10	0.15	0.20	0.50	0.50	3.00		0.20	0.05
30~120		0.15	0.20	0.30	0.50	0.50	5.00	2.00	0.25	0.10
120~300		0.20	0.30	0.40	1.00	1.00	10.00	3.00	0.30	0.15
300~450		0.25	0.40	0.50	2.00	2.00	15.00	5.00	0.50	0.20
450~600		0.30	0.50	0.60	3.00	3.00	20.00	5.00	0.80	0.20
DRAFT TOLERANCE					±0.2°		CRITICAL DIM. MARK			* / (P)

Note²: The max shift degree of BTB connector is 2.3degree.



2.2 USB Connector

I .For J26H006.C01:WTB Connector

- 4pin, 2.0mm pitch, Right angle type
- Part number: HFK2040-G1C3K-8F
- Vendor: Foxconn FIT
- High temperature plastic PA9T which meet SMT reflow profile(PIP)

NOTE:

- DIMENSIONS SHALL BE INTERPRETED PER ASME Y14.5M-2009.
- MATERIALS ARE SHOWN ON DRAWING "307-0500-1699".
- SPECIFICATIONS OF PRODUCT ARE SHOWN ON DRAWING "307-0300-1699".
- HARMFUL MATERIAL CONTROL PLEASE FOLLOW FOXCONN'S DOC. "EPI12".
- KINK: FOR 2 POS., THERE ARE NONE KINK.
FOR 3 POS., THE POS. NO. 1 AND 2 ARE KINKED.
FOR 4~15 POS., THE POS. NO. 1, 2, N-1 ARE KINKED.

△ THE RIBS DESCRIPTION:
FOR 2~7 POS., THE RIBS IS SHOWN ON PAGE 2/2;
FOR 8~12 POS., THE RIBS LIE IN POS. NO. 1 AND 2, POS. NO. 3 AND 4,
POS. NO. (N-2) AND (N-3), POS. NO. (N-1) AND N, TOTAL 4 RIBS.
FOR 13~15 POS., THE RIBS LIE IN POS. NO. 1 AND 2, POS. NO. 4 AND 5,
POS. NO. (N-4) AND (N-3), POS. NO. (N-1) AND N, TOTAL 4 RIBS.

△ THE "■" LOGO IS LOCATED APPROX. AS SHOWN.

△ PRODUCT NO. MATRIX: PLEASE SEE DRAWING "307-0500-1699".

△ ONLY FOR 2 POS., DIM.G=1.10; FOR OTHERS, DIM.G=1.00.

10. PLEASE CONTACT FOXCONN SALES REPRESENTATIVE TO VERIFY PRODUCT DETAILS & AVAILABILITY.

11. THE CONCENTRATIONS OF BR&CL CAN SATISFY THE REQUIREMENTS OF HALOGEN-FREE IN DOCUMENT "EP112"

REV.	ECN. NO.	APPD.
X1	BS-15-233600	Yen-chih Chang

PROD. NO.	NO. OF POS.	DIM. A	DIM. B	DIM. C
HFK216	16	30.00	34.0	28.0
HFK215	15	28.00	32.0	26.0
HFK214	14	26.00	30.0	24.0
HFK213	13	24.00	28.0	22.0
HFK212	12	22.00	26.0	20.0
HFK211	11	20.00	24.0	18.0
HFK210	10	18.00	22.0	16.0
HFK209	9	16.00	20.0	14.0
HFK208	8	14.00	18.0	12.0
HFK207	7	12.00	16.0	10.0
HFK206	6	10.00	14.0	8.0
HFK205	5	8.00	12.0	6.0
HFK204	4	6.00	10.0	4.0
HFK203	3	4.00	8.0	2.0
HFK202	2	2.00	6.0	0.8

X.±	X.* ±	UNITS	mm	NAME(INTENDED USE)	FOXCONN
.X± 0.38	.X.* ±	MATL		FRICITION HEADER	FOXCONN INTERCONNECT TECHNOLOGY LIMITED
.XX± 0.25	.XX.* ±	FINISH		PART NO.(INTENDED USE)	CLASS: □CONFIDENTIAL □SECRET □GENERAL
.XXX±	.XXX.* ±	QTY		HFK2 SERIES	TITLE: CUSTOMER DRAWING
				APPD: Shih-Wei Hsiao	DWG NO.: 307-0000-1699
				CHKD: Yen-chih Chang	SCALE: 1:1
				DRAW: Betty xi.Liu 08/07/14	SHEET: 1/2
					REV: X1

II. For J26H006.B01: BTB Connector

- 4pin, 2.0mm pitch, Vertical type
- Part number: HFL1040-G1C3K-9F
- Vendor: Foxconn FIT
- High temperature plastic PA9T which meet SMT reflow profile(PIP)

NOTE: UNLESS OTHERWISE SPECIFIED

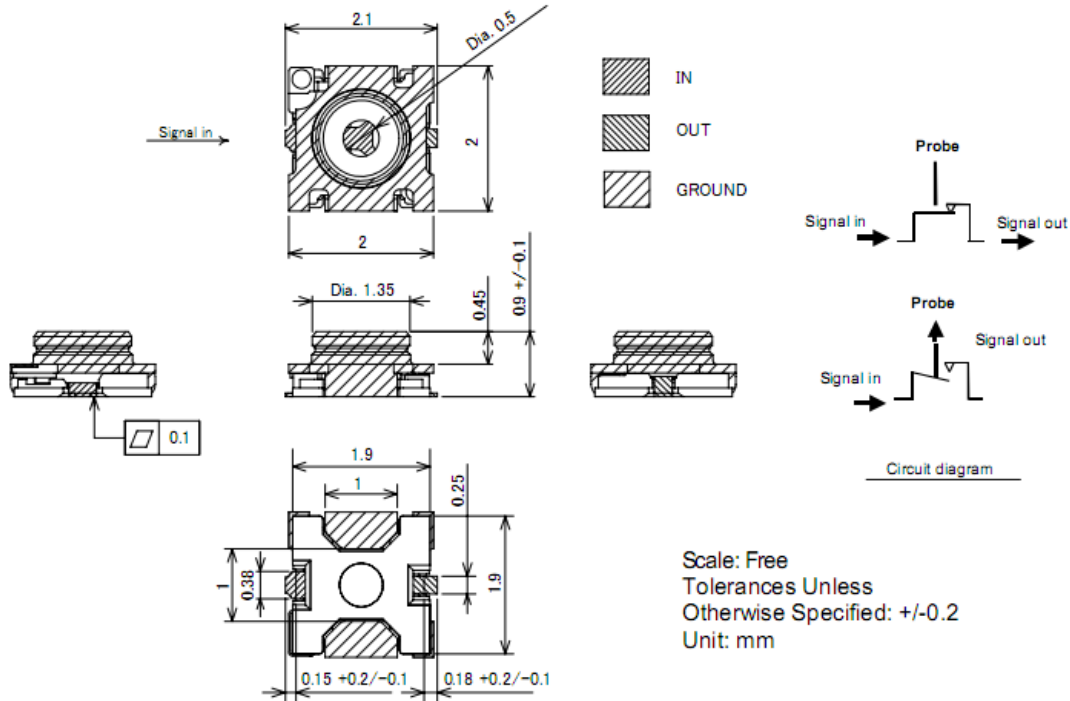
- DIMENSIONS SHALL BE INTERPRETED PER ASME Y14.5-2009.
- SPEC. OF PROD. ARE SHOWN ON DRAWING "307-0300-1813".
- MATERIALS OF PARTS ARE SHOWN ON DRAWING "307-0500-1813".
- PRODUCT NO. MATRIX: PLEASE REFER TO DRAWING "307-0500-1813".
- HARMFUL MATERIAL CONTROL PLEASE FOLLOW FOXCONN'S DOC. "EPI12".
- PLEASE CONTACT FOXCONN SALES REPRESENTATIVE TO VERIFY PRODUCT DETAIL & AVAILABILITY.

POS.	DIM.A	DIM.B	DIM.C	DIM.G
06	10.0	13.20	14.0	12.50
05	8.0	11.20	12.0	10.50
04	6.0	9.20	10.0	8.50
03	4.0	7.20	8.0	6.50

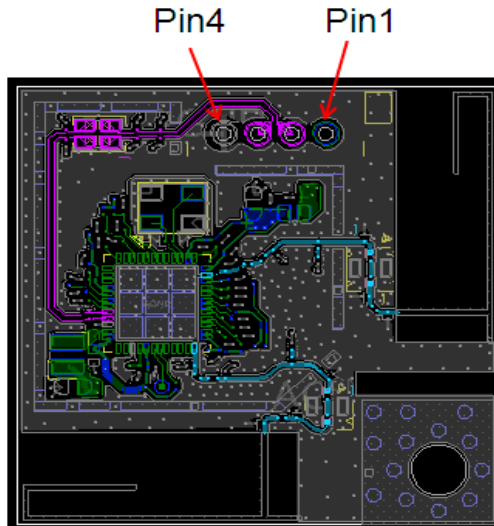
X.±	X.* ±	UNITS	mm	NAME(INTENDED USE)	FOXCONN
.X± 0.30	.X.* ±	MATL		FRICITION HEADER	FOXCONN INTERCONNECT TECHNOLOGY LIMITED
.XX± 0.25	.XX.* ±	FINISH		PART NO.(INTENDED USE)	CLASS: □CONFIDENTIAL □SECRET □GENERAL
.XXX±	.XXX.* ±	QTY		HFL1 SERIES	TITLE: CUSTOMER DRAWING
				APPD: Shih-Wei Hsiao	DWG NO.: 307-0000-1813
				CHKD: Yen-Chih Chang	SCALE: N/A
				DRAW: Xu Liu 01/12/17	SHEET: 1/2
					REV: X1

2.3 RF Switch Connector

- Part number: MM8030-2610RJ3
- Vendor: Murata



3.USB Connector Pin-out



Pin Number	Pin Name	I/O	Description
1	VDD33	I	DC 3.3V source input
2	USB_DN	I/O	USB D- Signal
3	USB_DP	I/O	USB D+ Signal
4	GND	--	Ground

5. Electrical Specification

5.1 Recommended Operating Condition

Symbol	Condition	Min.	Typ.	Max	Unit
3.3v(VDD33)	Respect to GND	3.0	3.3	3.6	V
Max Ripple on Supplied Voltage	3.3V @full loading		95	330	mVpp
DC current @3.3V at full loading (WiFi @TX and BT @ TX)		-	257	500	mA
USB Suspend current		--	3.6	6	mA
Operating Temperature		0	+25	+70	°C
Storage Temperature		-25	25	+85	°C
Operating Humidity			30~50%	90%	RH
ESD HBM(contact)	Standard:MIL-STD-883H		+/-1.5		KV
ESD (indirect)	Standard:EN61000-4-2		+/-4		KV

Function operation is not guaranteed outside of this limit, and operation outside of this limit for extended period can adversely affect long-term reliability of the device.

5.2 RF Characteristics

All typical performance specification are measured at RF connector port operating in +25°C@3.3V

Note³: The target power table is just defined for board level.

Note⁴: Power is compliance with EVM IEEE spec based-on the parameter “disable full packet”

WiFi	Standard	IEEE802.11b/g/n
	Data Rate	802.11b: 11, 5.5, 2, 1 Mbps; 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11n: HT20 mode: MCS0~MCS7, up to 72.2Mbps
	Bandwidth	20MHz for 2.4GHz,
	Modulation Techniques	802.11b: CCK, DQPSK, DBPSK 802.11g: 64QAM, 16QAM, QPSK, BPSK 802.11n: 64QAM, 16QAM, QPSK, BPSK
	Operating Frequency	2.412GHz~2.462GHz,
	Media Access Control	CSMA/CA with ACK
	Transmit Output Power	11b CCK_11Mbps: 23dBm+/-1.5dB 11g 54Mbps: 25dBm+/-1.5dB 11n HT20_MCS7: 25dBm+/-1.5dB
	Frequency error	+/-10ppm
	Receiver Sensitivity	11b 11Mbps: -83dBm@PER<=8% 11g 54Mbps: -70dBm@PER<=10% 11n HT20 MCS7: -67dBm@PER<=10%
	Radio Modulation	FHSS
Operating Frequency	2.402GHz ~ 2.480GHz	
Channel Numbers	79 channels with 1MHz BW	
BDR Transmitter Output Power	0~+14dBm	
BDR Power Control	2dB≤Power Control Step≤8dB	
BDR Initial Carrier Freq. Tolerance	≤ ± 75 kHz	

BT	BDR Carrier Frequency Drift	Drift Rate/50us $\leq \pm 20\text{kHz}$ DH1: +/- 25kHz, DH3: +/- 40kHz, DH5: +/- 40kHz
	BDR Modulation Characteristics	$140\text{kHz} \leq \Delta f_{1\text{avg}} \leq 175\text{kHz}$ $\Delta f_{2\text{max}} \geq 115\text{kHz}$ $\Delta f_{2\text{avg}}/\Delta f_{1\text{avg}} \geq 0.8$
	BDR Maximum Receiver Signal	-20dBm @ BER $\leq 0.1\%$ at 1Mbps
	BDR Sensitivity	-85dBm @ BER $\leq 0.1\%$ at 1Mbps
	EDR Relative Power	$P[\text{GFSK}] - 4\text{dB} < P[\text{DPSK}] < P[\text{GFSK}] + 1\text{dB}$
	EDR Stability and Mod Accuracy	$-75\text{kHz} < \omega_i < 75\text{kHz}$ $-10\text{kHz} < \omega_0 < 10\text{kHz}$ RMS DEVM ≤ 0.13 for all 8DPSK @3Mbps Peak DEVM ≤ 0.25 for all 8DPSK @3Mbps 99% DEVM ≤ 0.2 for 99% 8DPSK @3Mbps
	BDR Frequency Range	FL > 2.4GHz, FH < 2.4835GHz
	EDR Sensitivity	-80dBm @ BER $\leq 0.01\%$ at 2Mbps -80dBm @ BER $\leq 0.01\%$ at 3Mbps
	BDR TX Output Spectrum -20dB Bandwidth	$\leq 1\text{MHz}$
	LE Output Power	0 ~ +14dBm
	LE Modulation Characteristics	$225\text{kHz} \leq \Delta f_{1\text{avg}} \leq 275\text{kHz}$; $\Delta f_{2\text{max}} \geq 185\text{kHz}$ for at least 99.9% test packets; $\Delta f_{2\text{avg}}/\Delta f_{1\text{avg}} \geq 0.8$
	LE Carrier frequency offset and drift	Carrier frequency offset: $\pm 150\text{kHz}$ Carrier Drift: $\leq 50\text{kHz}$ Drift rate: $\leq 20\text{kHz}/50\text{us}$
	LE Receiver Sensitivity	-90dBm @ PER $\leq 30.8\%$, GFSK, 1Mbps

5.3 Current consumption

5.3.1 WiFi current consumption

Throughput mode	Mode	LINK RATE	Throughput result (Mbps)		RMS Current at 3.3V(mA)		Spec
			25°C		Avg.	max	
	11g	54Mbps	TX	29.3	229.6	232	$\leq 500\text{mA}$
			RX	29.6	119.7	121.9	$\leq 500\text{mA}$
	11n_HT20	72Mbps	TX	50.4	242.2	246.8	$\leq 500\text{mA}$
			RX	61	84.7	95.8	$\leq 500\text{mA}$
Standby mode			NA	NA	65	72	$\leq 500\text{mA}$

Remark: Base-on Win7 OS to do WiFi only throughput tests. The Standby mode means “module connect to AP only, and don’t transfer the data.”

5.3.2 Bluetooth current consumption

Test Condition	Avg. Current at 3.3V			Unit
	Min	Typ.	Max	
Idle mode(power on only)		63.7		mA
BT BDR 1DH5 TX@6dBm		115		mA
BT BDR 1DH5 Rx		87		mA
BT EDR 2DH5 TX@6dBm		116		mA
BT EDR 2DH5 Rx		87		mA
BLE TX@6dBm		78		mA
BLE Rx		87		mA
Standby mode*		69		mA

Remark: The result is base-on Win7 driver.

The Idle mode means “ module power on only, don’t open any testing tool”

The standby mode means “module connect to BT device only, and don’t transfer the data”



5.4 eFuse Content

5.4.1 WiFi eFuse

Revision Note

EEPROM address	Version Value	Chang Lists	Owner	Date	Remark
0xC4	0x01	for WiFi Efuse address 0xC4, change value from 0x00 to 0x01	Fly. Huang	2017/08/11	PVT

address	eFuse for WiFi																eFuse address		
0	29	81	00	7C	01	88	07	00	A0	04	EC	35	12	C0	A2	D8		Path A cck TX calibration power index	
1	16	14	13	12	12	12	19	18	17	16	16	02	FF	FF	FF	FF		Path A 11n HT40 mcs7 TX calibration	
2	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF			
3	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	14	14	14	13	12	12	0x1B	Path A power diff index (offset)	fixed value
4	17	17	17	16	15	02	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF		Path B cck TX power calibration index	
5	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF		Path B 11n HT40 mcs7 TX calibration power index	
6	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF			
7	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF			
8	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF			
9	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	0x45	Path B power diff index(offset)	fixed value
A	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF			
B	FF	FF	FF	FF	FF	FF	FF	20	1F	1A	00	00	00	FF	FF	FF	0xB8	channel plan:0x20	fixed value
C	FF	29	20	50	01	00	00	FF	00	FF	11	FF	FF	FF	FF	FF		Crystal calibration data	
D	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF			
E	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF			
F	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	0xBA	Thermal meter	
10	DA	0B	23	D7	E7	46	07	D8	0F	99	16	57	F3	09	03	52			
11	65	61	6C	74	65	6B	16	03	38	30	32	2E	31	31	6E	20	0xC3	Antanna setting	fixed value
12	57	4C	41	4E	20	41	64	61	70	74	65	72	00	FF	FF	FF	0xC4	EEPROM version: 0x01	fixed value
13	FF	FF	FF	FF	FF	FF	FF	0F	FF	FF	FF	FF	FF	FF	FF	FF		VID:0x0BDA	fixed value
14	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF		PID:0xD723	fixed value
15	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF			
16	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF			
17	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF			
18	FF	FF	FF	FF	FF	FF	FF	6B	41	22	DD	53	59	86	D1				
19	70	8F	00	00	10	16	40	00	FC	8C	00	11	9B	00	00	0A	0x107-0x10C	WiFi MAC: D80F991657F3	consistency
1A	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF			
1B	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	0x00-0x0F	other config	fixed vuale
1C	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	0xBB-0xBD		
1D	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	0xC1-0xC2		
1E	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	0xC4-0xC6		
1F	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	0xC8-0xCa		
																	0x104-0x12C		
																	0x147		
																	0x188-0x19F		

Note:
USB Vendor ID (VID): 0x0BDA
USB Product ID (PID): 0xD723



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5.4.2 BT eFuse

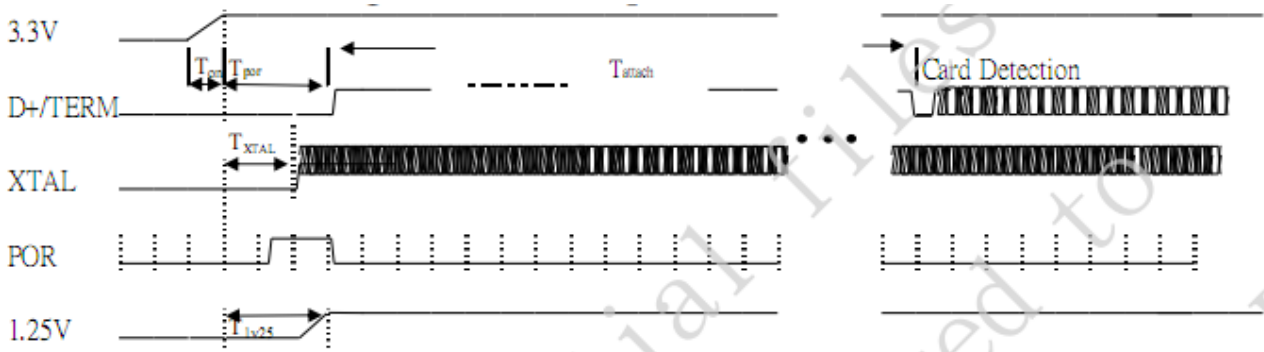


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eFuse for BT																Efuse address	description	Value				
address	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F						
0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
1	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF		0x44-0x49	BT MAC address	F8DA0C5D2618	Not fixed value	
2	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
3	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF		0xDA-0xDB	default value from IC	10,D8	Fixed value	
4	FF	FF	FF	FF	18	26	5D	0C	DA	F8	FF	FF	FF	FF	FF	FF		0x1F4-0x1F7	default value from IC	94,80,06,00	Fixed value	
5	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
6	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF		0x15B-0x15E	BT TX power calibration index		Not fixed value	
7	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF		0x15B	1M power index	1E		
8	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF		0x15C	2M power index	1F		
9	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF		0x15D	3M power index	1F		
A	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF		0x15E	LE power index	1F		
B	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
C	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF		0x15F	BT Tx gain step	01	Fixed value	
D	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	10	D8	FF	FF	FF	FF						
E	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF		0x188-0x189	BT Thermal value index	00,1F	Not fixed value	
F	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
10	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF		0x1CE-0x1CF	BT Antenna info	F7,3E	Fixed value	
11	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
12	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF		0x1E4-0x1E5	BT Modem tx gain compensatio	33,33	Not fixed value	
13	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
14	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF		0x1E6	BT Xtal cap	1E	Not fixed value	
15	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	27	1E	1F	1F	1F	01						
16	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
17	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
18	FF	FF	FF	FF	FF	FF	FF	FF	FF	00	1F	FF	FF	FF	FF	FF						
19	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
1A	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
1B	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
1C	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	F7	3E					
1D	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
1E	FF	FF	FF	FF	33	33	1E	FF	FF	FF	FF	FF	FF	FF	FF	FF						
1F	FF	FF	FF	FF	94	80	06	00	FF	FF	FF	FF	FF	FF	FF	FF						
20	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
21	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
22	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
23	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
24	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
25	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
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27	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
28	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
29	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
2A	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
2B	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
2C	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
2D	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
2E	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
2F	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
30	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
31	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
32	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
33	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
31	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
35	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
36	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
37	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
38	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
39	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
40	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
41	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
42	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
43	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
44	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						
45	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF						

5.5 Power On/Off Sequence

5.5.1 Power On Sequence



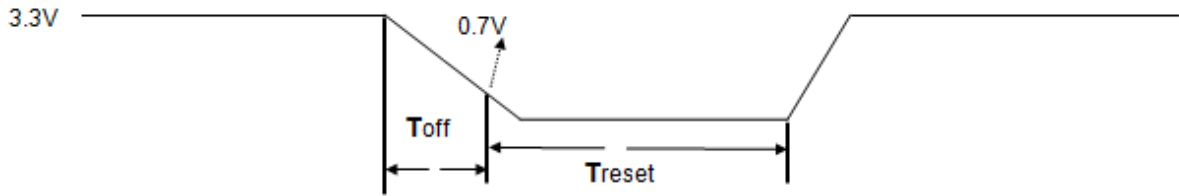
T_{ton} : The main power ramp up duration

T_{por} : The power on reset releases and power management unit executes power on tasks

T_{attach} : USB attach state

Item	Min.	Typ.	Max	Unit
T_{ton}	0.2	1.5	5	ms
T_{por}	--	2	10	ms
T_{xtal}	--	1.5	8	ms
T_{attach}	100	250	--	ms
T_{1v25}	--	2	5	ms

5.5.2 Power Off Sequence



T_{off} : The main power ramp down duration (from 3.3V fall to 0.7V).

VDD33(3.3V) is coming from system, different DC power supply's load cap value may cause the different discharge time.

T_{reset} : To assert Chip reset, keep the VDD33 under 0.7V for 100ms

Item	Min.	Typ.	Max	Unit
T_{off}	--	16	1000	ms
T_{reset}	100	--	--	ms

5.6 Floating pin status

Chip	Pin No.	Name	Type	status (High impedance or internal pull low or internal pull high?)	current leakage when floating? (Y/N)
8723DU	pin17	GPIO12/EEPROM_SEL	I	Internal pull low	N
	pin18	GPIO13	I	high impedance	N
	pin21	GPIO0	IO	high impedance	N
	pin23	GPIO2	IO	high impedance	N
	pin24	GPIO3	I	high impedance	N
	pin25	BT_GPIO12	IO	high impedance	N
	pin26	BT_GPIO14	IO	high impedance	N
	pin27	BT_GPIO15	IO	high impedance	N
	pin37	VBAT_OUT	P	external 3.3V	N
	pin38	VBAT_IN	P	external 3.3V	N
	pin42	GPIO7/BT_LED	I	high impedance	N
	pin44	GPIO8/WL_LED	O	/	N
	pin45	UART_RTS	I	high impedance	N
	pin46	GPIO5	IO	high impedance	N
pin47	GPIO4	IO	high impedance	N	

5.7 Antenna Specification

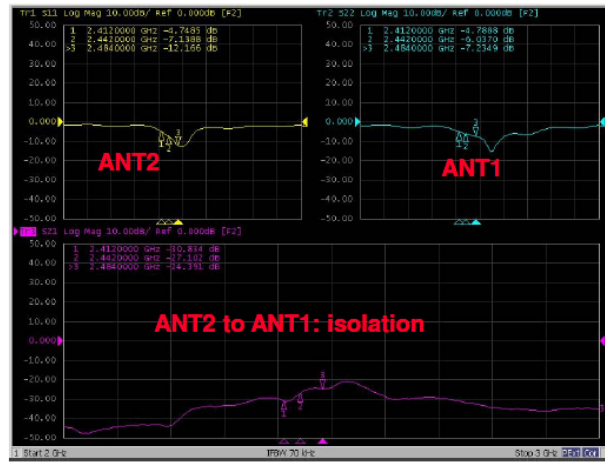
Measurement Antenna S-Parameter

Case 1 : module in Epson EP808AW Printer



Frequen cy	ANT2 to ANT1: isolation (dB)	ANT2 S11 (dB)	ANT1 S22 (dB)
2.412GH z	-20.05	-7.85	-13.38
2.442GH z	-17.58	-23.39	-19.28
2.484GH z	-16.93	-7.66	-16.48

Case 2 : module only

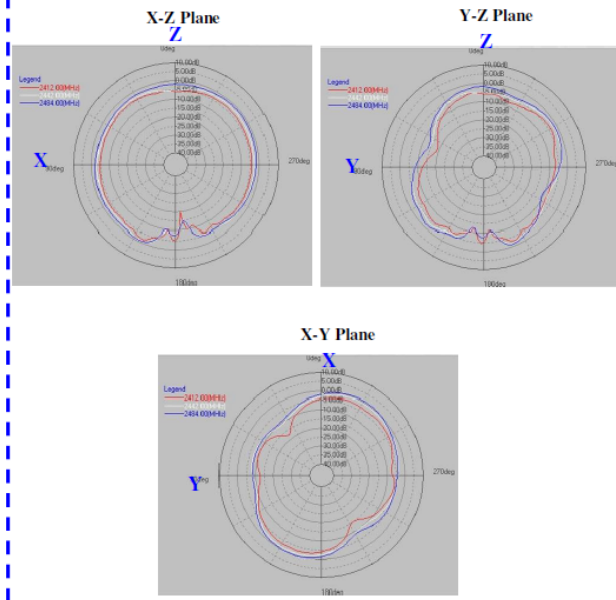
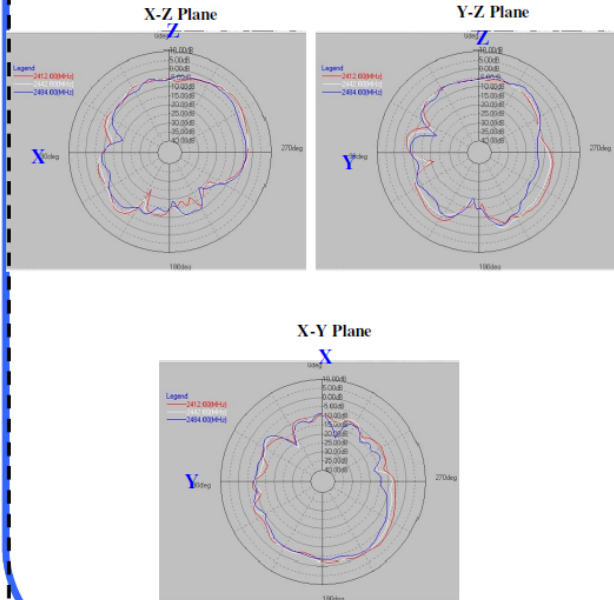


Frequen cy	ANT2 to ANT1: isolation (dB)	ANT2 S11 (dB)	ANT1 S22 (dB)
2.412GH z	-30.83	-4.74	-4.78
2.442GH z	-27.10	-7.13	-8.03
2.484GH z	-24.39	-12.16	-7.23

3. Measurement Ant. Radiation Patterns (ANT2)

Case 1 : module in Epson EP808AW Printer

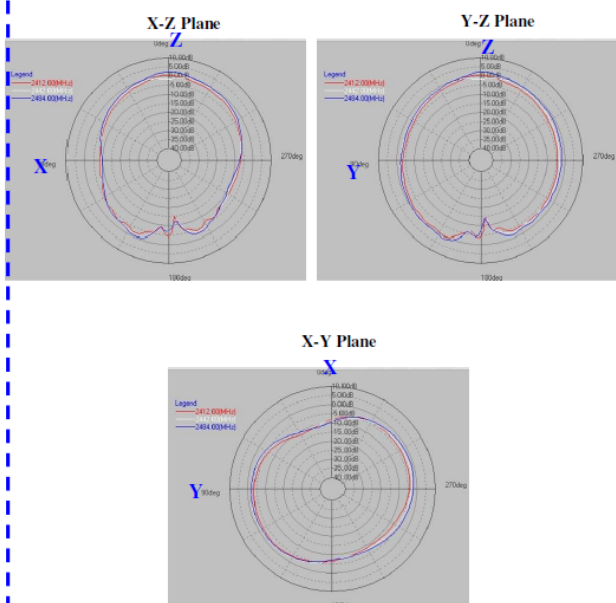
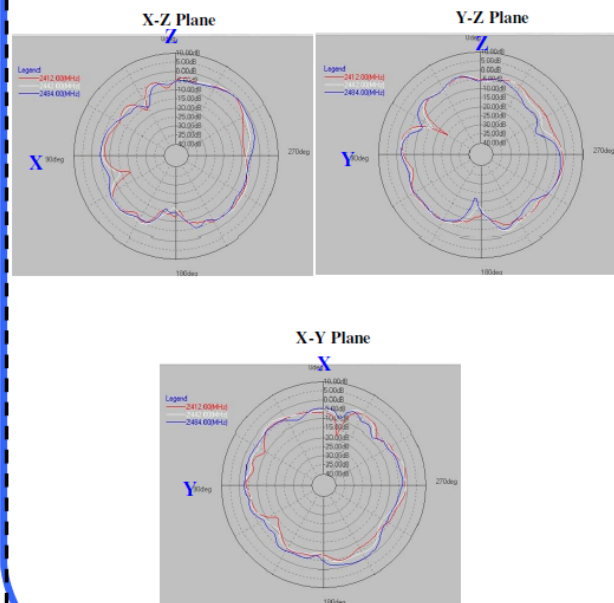
Case 2 : module only



3. Measurement Ant. Radiation Patterns (ANT1)

Case 1 : module in Epson EP808AW Printer

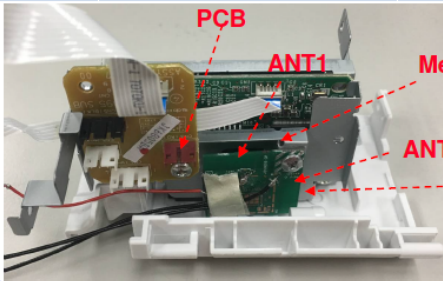
Case 2 : module only



Antenna performance table

Frequency	module in Epson EP808AW Printer			module only		
	ANT2 to ANT1: isolation (dB)	ANT2 S11 (dB)	ANT1 S22 (dB)	ANT2 to ANT1: isolation (dB)	ANT2 S11 (dB)	ANT1 S22 (dB)
2.412GHz	-20.05	-7.85	-13.38	-30.83	-4.74	-4.78
2.442GHz	-17.58	-23.39	-19.28	-27.10	-7.13	-8.03
2.484GHz	-16.93	-7.66	-16.48	-24.39	-12.16	-7.23

Frequency	module in Epson EP808AW Printer		module only	
	ANT2 Efficiency (%), Peak Gain (dBi)	ANT1 Efficiency (%), Peak Gain (dBi)	ANT2 Efficiency (%), Peak Gain (dBi)	ANT1 Efficiency (%), Peak Gain (dBi)
2.412GHz	Eff.: 25% , 0.38dBi	Eff.: 30% , -0.32dBi	Eff.: 38% , 0.13dBi	Eff.: 40% , 0.26dBi
2.442GHz	Eff.: 27% , 0.86dBi	Eff.: 34% , 0.25dBi	Eff.: 49% , 0.87dBi	Eff.: 48% , 1.14dBi
2.484GHz	Eff.: 24% , 0.40dBi	Eff.: 33% , 0.43dBi	Eff.: 62% , 1.1dBi	Eff.: 57% , 1.93dBi



Module in Epson EP808AW Printer antenna efficiency degrade because the Metal bracket and the another PCB as left figure show

5.8 Operating System Support

Support the Win7, Win8.1, Win10, Linux operating system on normal driver

6. Label Information

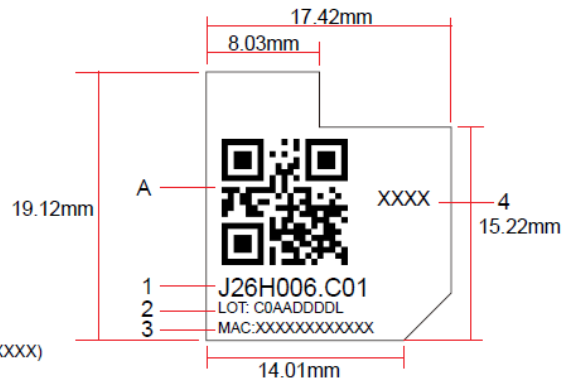
6.1 MAC-ID Label Laser Marking

All content is engraved by laser into shielding cover.

I .For J26H006.C01

Notes

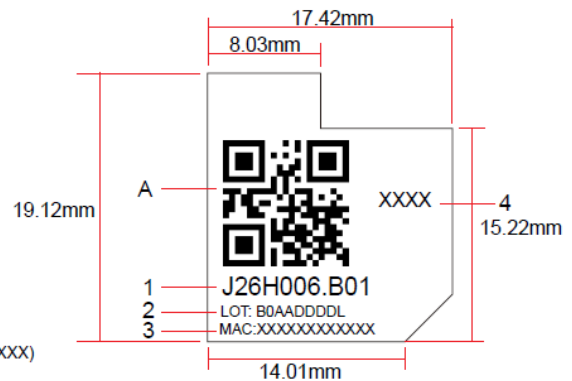
1. J26H006.C01
Customer Part number
 2. LOT number: C0AADDDDL
C: Wifi identification number (is fixed)
0: Safety identification number(is fixed)
A: Foxconn 4M version(is fixed)
A: IC 4M version(is fixed)
D:SMT year (last digit of year, like 2017 is "7")
DD:SMT week code
D:SMT date (like Monday"1",Tuesday"2",Wednesday"3"...Sundy"7")
L:SMT production line
 3. MAC : XXXXXXXXXXXX
MAC ID address
2 MAC/Product,MAC ID signature print
Odd number for Wifi MAC
Even number for BT MAC (Namely wifi MAC +1=BT MAC).
 4. XXXX
XXXX:The last four digit of MO-VVSS
VVSS-
VV:the engineering version
(refer to Foxconn label Rev column in the cover of the MFG document)
SS: the version of A300 /A400 product
(refer to Doc Rev.in the cover of MFG document)
- A. Barcode: QR code, Size: 8.12x8.12 mm
QR code scan content: C0AADDDDLXXXXXXXXXXXXX(LOT:C0AADDDDL MAC:XXXXXXXXXXXXX)



II . For J26H006.B01

Notes

1. J26H006.B01
Customer Part number
 2. LOT number: B000DDDDL
B: Wifi identification number (is fixed)
0: Safety identification number(is fixed)
0: Foxconn 4M version(is fixed)
0: IC 4M version(is fixed)
D:SMT year (last digit of year, like 2017 is "7")
DD:SMT week code
D:SMT date (like Monday"1",Tuesday"2",Wednesday"3"...Sundy"7")
L:SMT production line
 3. MAC : XXXXXXXXXXXX
MAC ID address
2 MAC/Product,MAC ID signature print
Odd number for Wifi MAC
Even number for BT MAC (Namely wifi MAC +1=BT MAC).
 4. XXXX
XXXX:The last four digit of MO-VVSS
VVSS-
VV:the engineering version
(refer to Foxconn label Rev column in the cover of the MFG document)
SS: the version of A300 /A400 product
(refer to Doc Rev.in the cover of MFG document)
- A. Barcode: QR code, Size: 8.12x8.12 mm
QR code scan content: B000DDDDLXXXXXXXXXXXXX(LOT:B000DDDDL MAC:XXXXXXXXXXXXX)



6.2 Regulatory Label

Regulatory label was printed on PCB Bottom side for PVT, it will be updated after get the official regulatory ID.

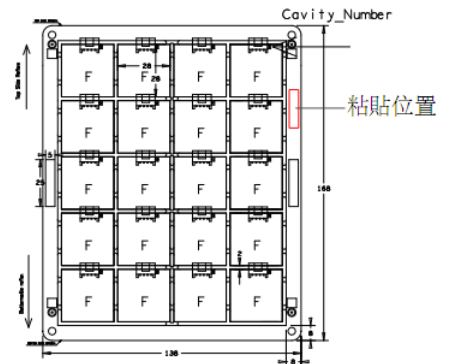


6.3 Panel Label

P:PCB label
 F:Foxconn location
 YMD:Year,month,day
 SSSSS:Serial number (00000-zzzzz)
 Barcode:128 code, 2.54mm height
 Font:Verdana,Bold,4pt



scale 3:1



Date code define

1st Character Year Codes

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
Code	6	7	8	9	0	1	2	3	4	5	6	So on

2nd Character Month codes

Month	January	February	March	April	May	June	July	August	September	October	November	December
Code	1	2	3	4	5	6	7	8	9	A	B	C

3rd Character Day Codes

Day	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th	12 th	13 th	14 th	15 th	16 th	17 th	18 th	19 th
Code	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G	H	I	J

Day	20 th	21 st	22 nd	23 rd	24 th	25 th	26 th	27 th	28 th	29 th	30 th	31 st
Code	K	L	M	N	O	P	Q	R	S	T	U	V

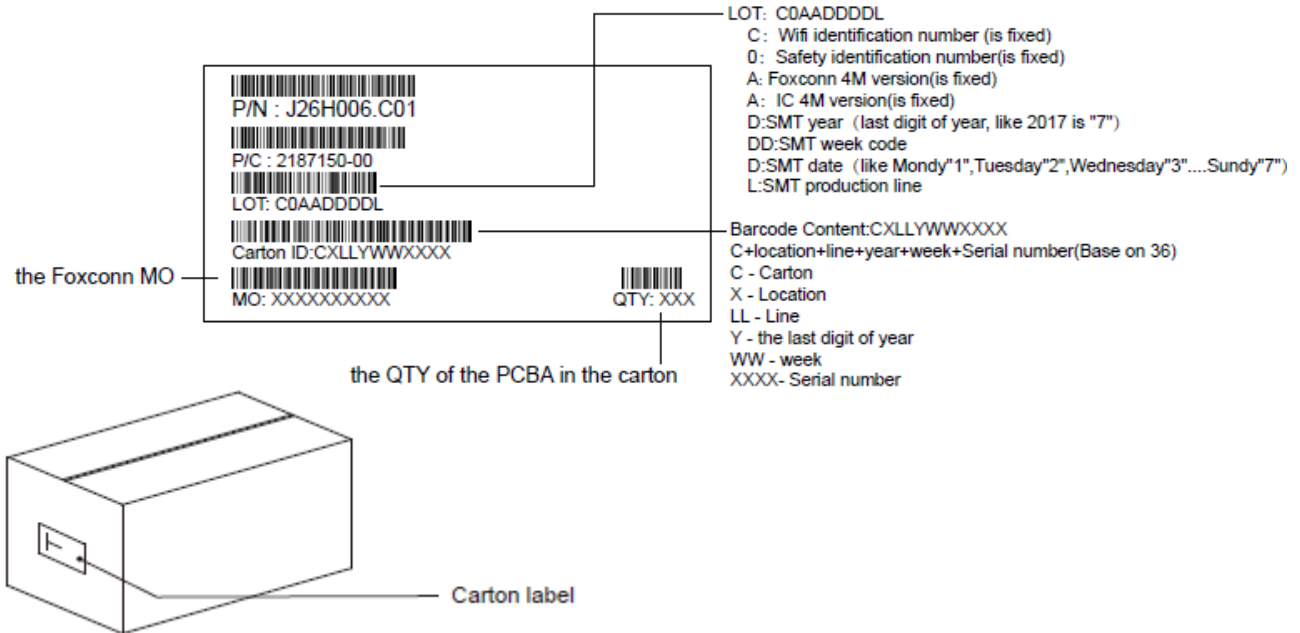
6.4 Carton Label

I .For J26H006.C01

Label size:100*50mm (503.00098.005)

All Barcode:128code,height:4mm,Type:CODE B

All font are Arial, 10 pt ,except 'P/N:J26H006.C01' is Arial,11 pt.

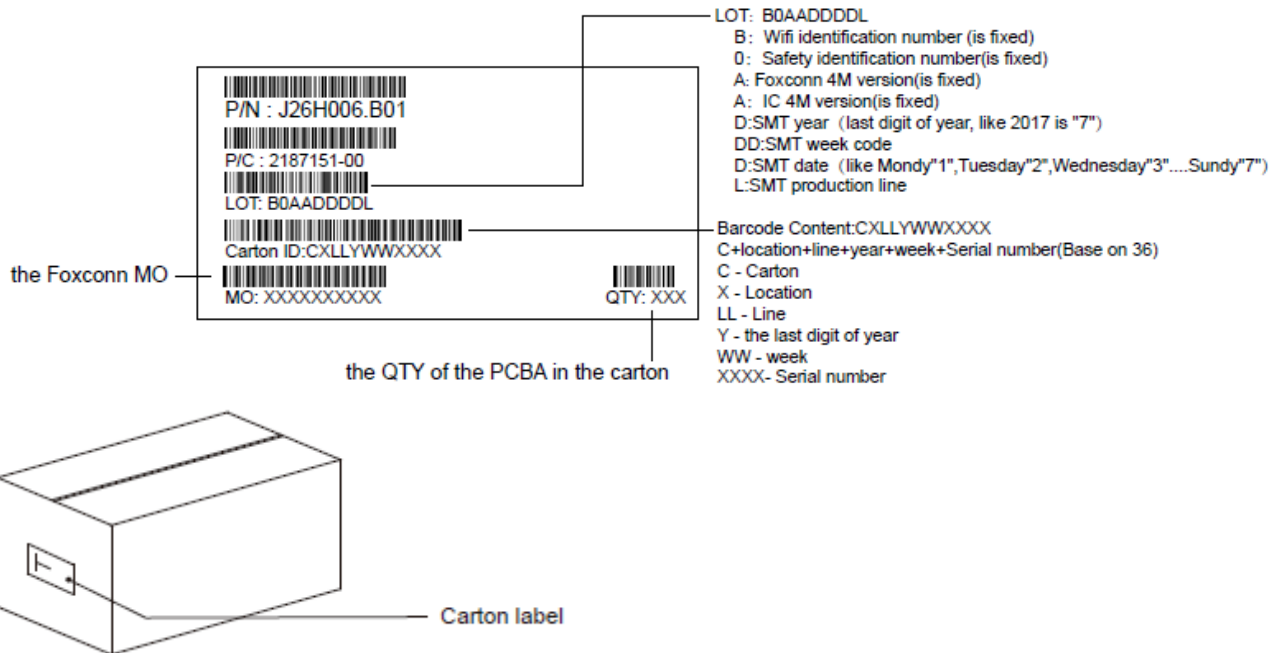


II . For J26H006.B01

Label size:100*50mm (503.00098.005)

All Barcode:128code,height:4mm,Type:CODE B

All font are Arial, 10 pt ,except 'P/N:J26H006.B01' is Arial,11 pt.



6.5 Pallet Label

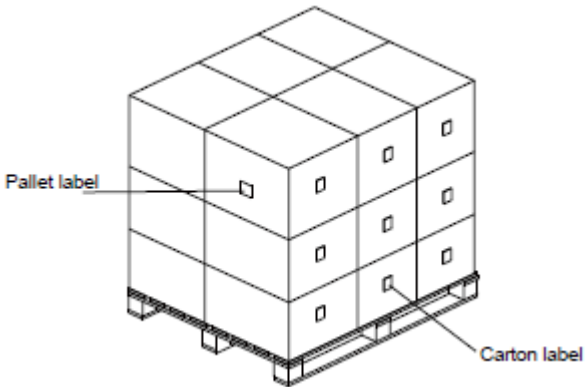
I .For J26H006.C01

Label size: 110*36mm

Barcode: 128code,height:10mm,Type:CODE B
 All text: Arial Bold , 18pt



Barcode content :PIPPYWWSSSS
 P+product line+package line+year+week+Serial number
 P: Pallet
 I: Product line
 PP: Package line
 Y: the last digit of year
 WW : Week
 SSSS: Serial number,every two week reset to 0001



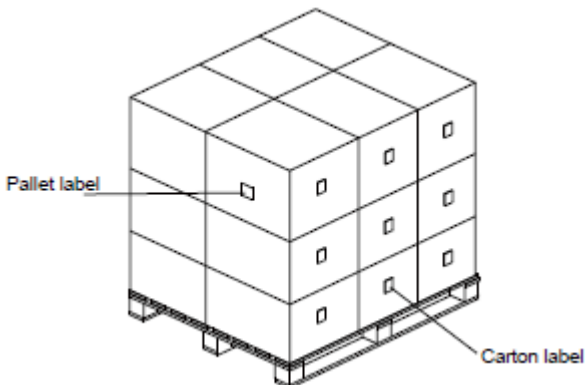
II .For J26H006.B01

Label size: 110*36mm

Barcode: 128code,height:10mm,Type:CODE B
 All text: Arial Bold , 18pt

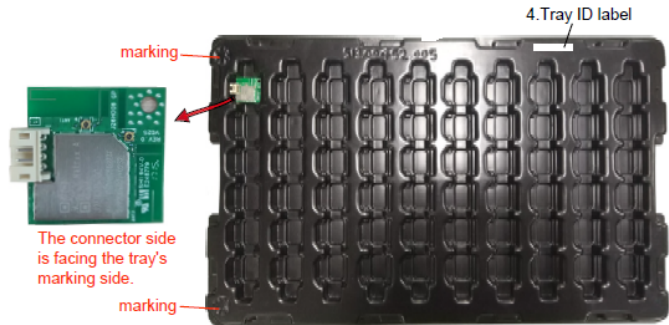
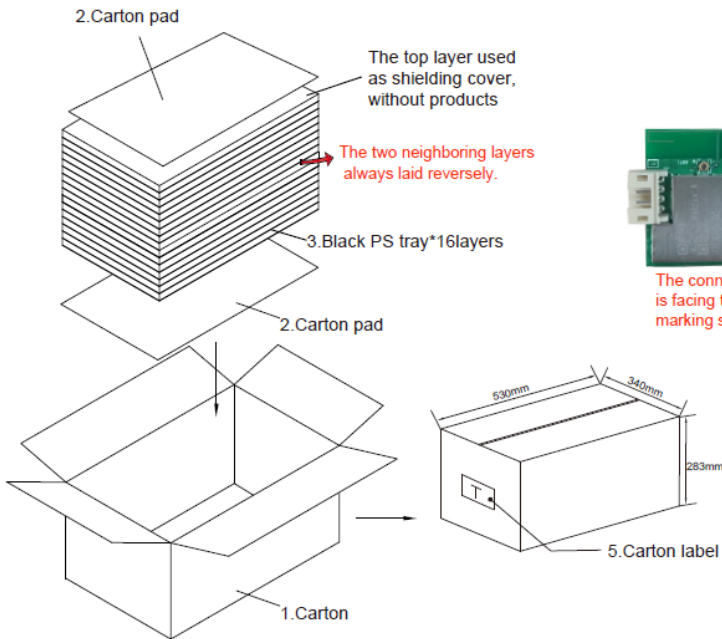


Barcode content :PIPPYWWSSSS
 P+product line+package line+year+week+Serial number
 P: Pallet
 I: Product line
 PP: Package line
 Y: the last digit of year
 WW : Week
 SSSS: Serial number,every two week reset to 0001



7. Packing Information

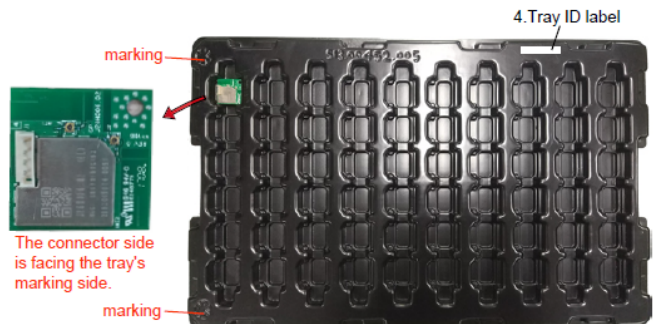
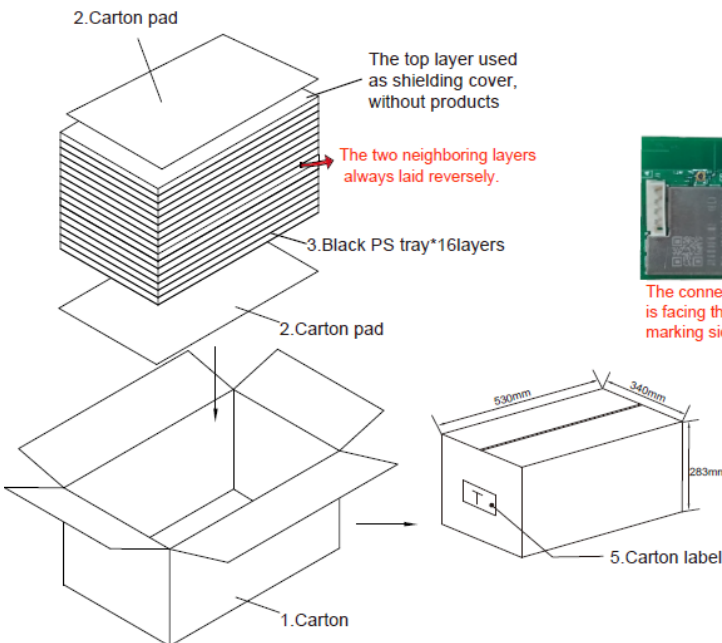
I: For J26H006.C01



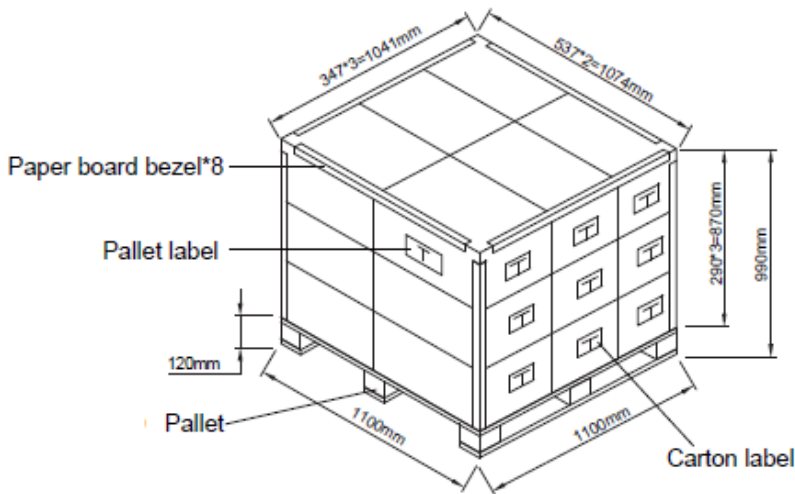
Notes:

1. 1 carton=1layer tray+15layer tray=15*60pcs=900pcs
2. 1 carton=2Carton Pad
3. The top layer used as shielding cover, without products.
4. The two neighboring layers always laid reversely.
5. Carton size: 530*340*283mm, Carton pad size: 520*330mm
Tray size: 520*330*23.5mm
6. The connector side is facing the tray's marking side.

II: For J26H006.B01



1. 1 carton=1layer tray+15layer tray=15*60pcs=900pcs
2. 1 carton=2Carton Pad
3. The top layer used as shielding cover, without products.
4. The two neighboring layers always laid reversely.
5. Carton size: 530*340*283mm, Carton pad size: 520*330mm
Tray size: 520*330*23.5mm
6. The connector side is facing the tray's marking side.



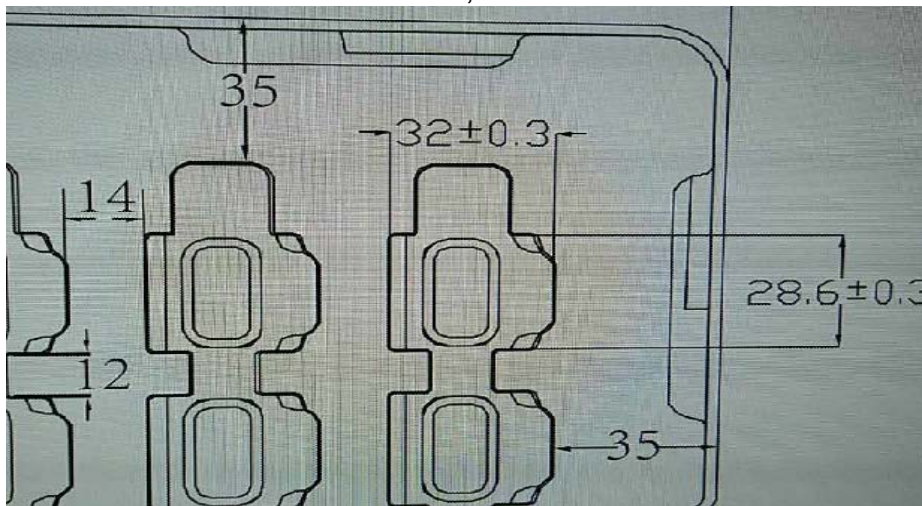
Notes:

- 1. Carton outside: 537*347*290
Pallet Size: 1100*1100*120mm
- 2.1 Pallet=(2*3*3) cartons x 900pcs=16200pcs
- 3. Each carton label should be face out

Item	Description	P/N	QTY
8	Paper board bezel	522.00216.005	8/16200
7	Pallet label	503.00089.005	1/16200
6	Pallet	527.00007.005	1/16200

The detailed dimension of the tray

- The hollow length and side value
- The distance between module and module, and between module and outline of tray



7.1 Module Scan Guide

1. Taking the module in declining way about 45° to prevent the shielding reflecting the lightness;



2. Taking the scanner and turning right in 45° angle;

Note: The distance between scanner and module is about 5-8cm



8. Reliability

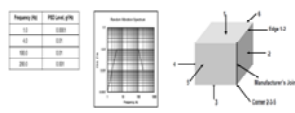
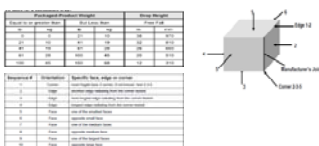
8.1 Hardware Reliability Test

No.	Item	Test Condition	Unit	Test Period	Test Criteria	Test result
1	High temperature operation test	1. Power on, operation 2. Temperature: 70°C 3. Duration: 96hrs	ZDT:2pcs VGT:2pcs	10 Days	1. Visual Inspection – Match with IPC-A-610E. 2. Function test pass	Pass
2	Low temperature operation test	1. Power on, operation 2. Temperature: 0°C 3. Duration: 96hrs	ZDT:2pcs VGT:2pcs	10 Days	1. Visual Inspection – Match with IPC-A-610E. 2. Function test pass	Pass
3	High temperature storage test	1. Power off, storage 2. Temperature: 70°C 3. Duration: 96hrs	ZDT:2pcs VGT:2pcs	5 Days	1. Visual Inspection – Match with IPC-A-610E. 2. Function test pass	Pass
4	Low temperature storage test	1. Power off, storage 2. Temperature: -25°C 3. Duration: 96hrs	ZDT:2pcs VGT:2pcs	5 Days	1. Visual Inspection – Match with IPC-A-610E. 2. Function test pass	Pass
5	Hot start test	1. Power off 2. Temperature: 70°C 3. Duration: 72hrs 4. After 72hrs, power on/off 3times and activate in full function.	ZDT:2pcs VGT:2pcs	4 Days	1. Visual Inspection – Match with IPC-A-610E. 2. Function test pass	Pass
6	Cold start test	1. Power off 2. Temperature: 0°C 3. Duration: 72hrs 4. After 72hrs, power on/off 3times and activate in full function.	ZDT:2pcs VGT:2pcs	4 Days	1. Visual Inspection – Match with IPC-A-610E. 2. Function test pass	Pass
7	Temperature & humidity cycle test	1. Power on, operation 2. Temperature: 25°C, humidity: 50%R.H. for 2hrs. 3. Temperature: 70°C, humidity: 90%R.H. for 10hrs. 4. Temperature: 25°C, humidity: 50%R.H. for 2hrs. 5. Temperature: 0°C, for 10hrs 6. Repeat step2~5 for total 3cycles	ZDT:2pcs VGT:2pcs	8 Days	1. Visual Inspection – Match with IPC-A-610E. 2. Function test pass	Pass
8	Thermal Shock test	1. Power off, storage 2. -25°C/30mins 3. 70°C/30mins 4. Transfer time:5mins 5. Total 100cycles 6. Cross section location:U1/Y1	ZDT:5pcs VGT:5pcs	5 Days	1. Visual Inspection – Match with IPC-A-610E. 2. Function test pass 3. Cross section -No separation - Allowable Crack Length: Max. 25% of pad diameter	Pass
9	Againg test	70C, 90%R.H,1000h, check function@100H,300H,500h,800H,1000H.Apply voltage only. Cross-section location:U1/Y1	ZDT:5pcs VGT:5pcs	42 Days	1. Visual Inspection – Match with IPC-A-610E. 2. Function test pass 3. Cross section -No separation - Allowable Crack Length: Max. 25% of pad diameter	Pass

10	Thermal profile test	1. Power on, operation 6hrs at 70°C then record thermal data	ZDT:1pcs VGT:1pcs	3 Days	1. Visual Inspection – Match with IPC-A-610E. 2. Function test pass	Pass
11	Sine Vibration operational test	1. Power on, operation 2. Frequency: 5-500-5Hz 3. Acceleration: 2G 4. Velocity: 0.443oct/min 5. Test: x, y, z axis. 6. 30mins/axis.	ZDT:2pcs VGT:2pcs	4 Days	1. Visual Inspection – Match with IPC-A-610E. 2. Function test pass	Pass
12	Shock test (Non-operation)	1. 1/2sine wave ,230G , 3msec 2. Test : +/- x, y, z axis 3. 3times/axis	ZDT:2pcs VGT:2pcs	4 Days	1. Visual Inspection – Match with IPC-A-610E. 2. Function test pass	Pass

8.2 Package Reliability Test (TBD)

The product shall pass below package reliability test plan.

No	Test Items	Description	Test Criteria	Reference	Qty'	Result
1	Atmospheric Conditioning	Test Temperature: 38°C Test humidity: 85%R.H. Dwell time: 72hours	No obvious visible damage on boxes after temperature and humidity test.	ISTA-2A	1carton	TBD
2	Static Compression Test	Units are packaged Compression load=Wt x (S - 1) x F Wt: Total weight of the packaged-product S: Total number of packaged-products in a stack 1: Represents the bottom container in a Stack Compression Test duration: 1hour	No obvious visible damage on boxes after static compression test.	ISTA-2A	1carton	TBD
3	Random Vibration Test	The following breakpoints shall be programmed into the vibration controller to produce the acceleration versus frequency profile (spectrum) below with an overall Grm s level of 1.15. Face 3: 30mins, Face1: 10mins, Face 2 or 4: 10mins, Face 5 or 6: 10mins 	No obvious visible damage on boxes after random vibration test.	ISTA-2A	1carton	TBD
4	Package drop test	The test drop height varies with the weight of the packaged-product. Find the weight of the packaged-product in the following chart to determine a drop height or an equivalent impact velocity to be used for a substituted drop: 	No obvious visible damage on boxes after packaged drop test.	ISTA-2A	1carton	TBD
5	Fix displacement Test	Displacement: 25mm Duration: 14200times	No obvious visible damage on boxes after fixed displacement test.	ISTA-2A	1carton	TBD

9. Quality

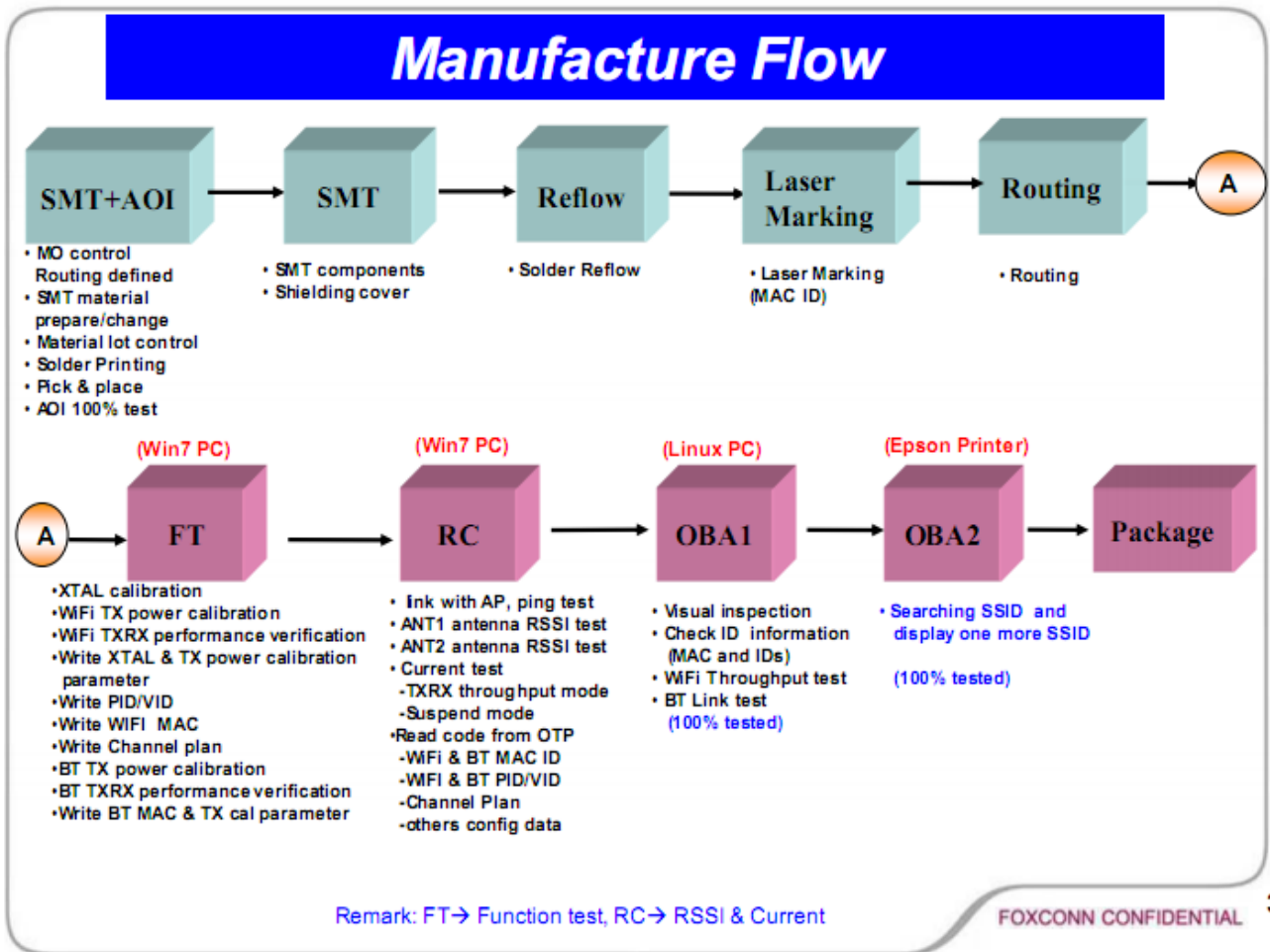
The product quality must be followed-up by Foxconn factory quality control system. In accordance with SEIKO EPSON Group's requirements specified by the latest "Electronic Component Quality Requirements Standard" and "WiFi+BT Combo Module Quality Requirements Specification Rev.B" , the product shall be managed Quality control.

9.1 QC Flow Chart

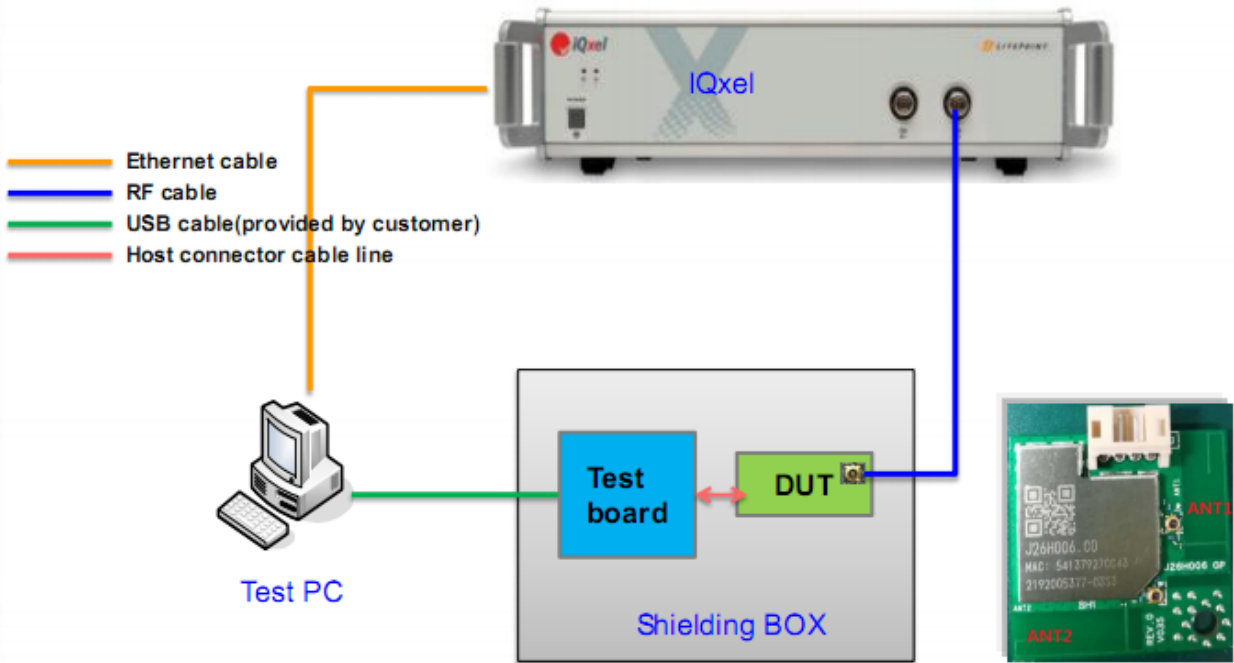
9.2 Visual Inspection Standard

9.3 PVT Mfg. Test Plan

Date	Version	Author	Change Description
2017/08/3	V1.7	Fly Huang	Initial released



FT Test setup



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FT Wi-Fi Test Item and Spec

Station	Test Items	Channel	Data Rate	ANT	Spec
FT Calibration	Crystal CAL	Single Tone		ANT1	+/-2ppm
	2.4GHz TX power CAL	CH1/CH7/CH13	HT40_MCS7	ANT1&ANT2	13dBm±0.5dB
		CH1/CH7/CH13	11b_11Mbps	ANT1&ANT2	16dBm±0.5dB
FT Verification 2.4GHz 11b/g/n	TX Power Verification	CH1/CH7/CH13	11b_11Mbps	ANT1&ANT2	16dBm±1.5dB
		CH1/CH7/CH13	11g_6Mbps	ANT1&ANT2	16dBm±1.5dB
		CH1/CH7/CH13	11g_54Mbps	ANT1&ANT2	14dBm±1.5dB
		CH1/CH7/CH13	HT20_MCS0	ANT1&ANT2	15dBm±1.5dB
		CH1/CH7/CH13	HT20_MCS7	ANT1&ANT2	13dBm±1.5dB
		CH1/CH7/CH13	11b_11Mbps	ANT1&ANT2	margin delta >0dB than IEEE spec
	TX Mask	CH1/CH7/CH13	11g_6Mbps&54Mbps	ANT1&ANT2	
		CH1/CH7/CH13	HT20_MCS0&MCS7	ANT1&ANT2	
		TX EVM	CH1/CH7/CH13	11b_11Mbps	ANT1&ANT2
	CH1/CH7/CH13		11g_6Mbps	ANT1&ANT2	≤ -5dB
	CH1/CH7/CH13		11g_54Mbps	ANT1&ANT2	≤ -25dB
	CH1/CH7/CH13		HT20_MCS0	ANT1&ANT2	≤ -5dB
	CH1/CH7/CH13		HT20_MCS7	ANT1&ANT2	≤ -27dB
	TX Frequency test	CH1/CH7/CH13	11b_11Mbps	ANT1&ANT2	±10 ppm
		CH1/CH7/CH13	11g_6Mbps&54Mbps	ANT1&ANT2	±10 ppm
CH1/CH7/CH13		HT20_MCS0&MCS7	ANT1&ANT2	±10 ppm	
RX Sensitivity	CH1/CH7/CH13	11b_11Mbps	ANT1&ANT2	-83dBm@PER ≤ 8%	
	CH1/CH7/CH13	11g_54Mbps	ANT1&ANT2	-70dBm@PER ≤ 10%	
	CH1/CH7/CH13	HT20_MCS7	ANT1&ANT2	-67dBm@PER ≤ 10%	
FT_ WiFi eFuse program		XTAL & power cal data, Write WIFI MAC, Customer ID (PID/VID&Channel plan) or other configure code			Should pass

5

FT BT Test Item and Spec

Station	Test Items	Channel	Condition	Spec
FT Verification Bluetooth BDR mode	BT TX power calibration	TX channel:CH39 Single tone channel: 10,32,52,72	1Mbps/2Mbps/3Mbps/LE	Should PASS
	Output power test	CH0/CH39/CH78	DH5@ANT1	0~+6dBm
	Initial Carrier Frequency Tolerance	CH0/CH39/CH78	DH5@ANT1	-25KHz ≤ f0 ≤ 25KHz
	Carrier Frequency Drift Test	CH0/CH39/CH78	DH5@ANT1	Max Drift Rate with 50us: <20kHz DH5: +/- 40kHz
	Modulation Characteristics Test	CH0/CH39/CH78	DH5@ANT1	140kHz ≤ Δf1avg ≤ 175kHz Δf2max ≥ 115kHz Δf2avg/Δf1avg ≥ 0.8
	20dB Bandwidth Test	CH0/CH39/CH78	DH5@ANT1	Δf = fH - fL ≤ 1.0 MHz
	BDR Sensitivity	CH0/CH39/CH78	DH5@ANT1	≤ -85dBm@BER<0.1%
FT Verification Bluetooth EDR mode	Output power test	CH0/CH39/CH78	2DH5; 3DH5@ANT1	0~6dBm
	Modulation Characteristics	CH0/CH39/CH78	2DH5; 3DH5@ANT1	-10kHz ≤ ω0 ≤ 10kHz -75 kHz ≤ ω1 ≤ 75 kHz -75 kHz ≤ (ω1 + ω0) ≤ 75 kHz
		CH0/CH39/CH78	2DH5@ANT1	RMS DEVM ≤ 0.20, for all π/4-DQPSK blocks Peak DEVM ≤ 0.35, for all π/4-DQPSK symbols
		CH0/CH39/CH78	3DH5@ANT1	RMS DEVM ≤ 0.13, for all 8DPSK blocks Peak DEVMs 0.25, for all 8DPSK symbols
	EDR Sensitivity	CH0/CH39/CH78	2DH5@ANT1	-80dBm@BER<0.01%
3DH5@ANT1			-80dBm@BER<0.01%	

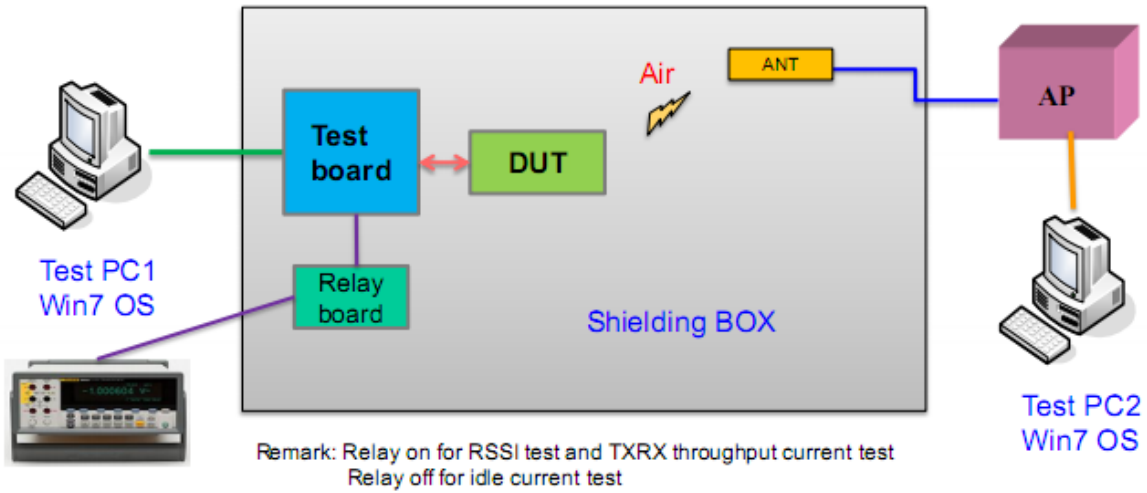
Remark: BT BDR/EDR Channel CH0=2402MHz;CH39=2441MHz; CH78=2480MHz;
For WiFi channel, CH1=2412MHz;CH7=2442MHz; CH13=2472MHz;

FT BT Test Item and Spec

Station	Test Items	Channel	Condition	Spec
FT Verification Bluetooth LE mode	Output power test	CH0/CH19/CH39	LE_1Mbps@ANT1	0~+6dBm
	Modulation Characteristics	CH0/CH19/CH39	LE_1Mbps@ANT1	DELTA_F1_AVG : 225 kHz ≤ Δf1avg ≤ 275 kHz
		CH0/CH19/CH39	LE_1Mbps@ANT1	DELTA_F2_MAX : >185KHz
		CH0/CH19/CH39	LE_1Mbps@ANT1	DELTA_F2_F1_AV_RATIO : > 0.8
		CH0/CH19/CH39	LE_1Mbps@ANT1	DELTA_F2_AVERAGE: (185, 275)KHz
	Frequency offset and drift test	CH0/CH19/CH39	LE_1Mbps@ANT1	FREQ_OFFSET: (-150, 150) KHz
		CH0/CH19/CH39	LE_1Mbps@ANT1	f0 - fn ≤ 50 kHz
		CH0/CH19/CH39	LE_1Mbps@ANT1	f1 - f0 ≤ 20 kHz fn - fn-5 ≤ 20 kHz
LE Sensitivity	CH0/CH19/CH39	LE_1Mbps@ANT1	-90dBm@PER<30.8%	
FT BT_eFuse programming	BT MAC, BT TX power calibration data Other config data(thermal index/BT Modem tx gain compensation etc.)			Should pass

Remark: BT BLE Channel CH0=2402MHz;CH19=2440MHz; CH39=2480MHz;

RC Test Setup

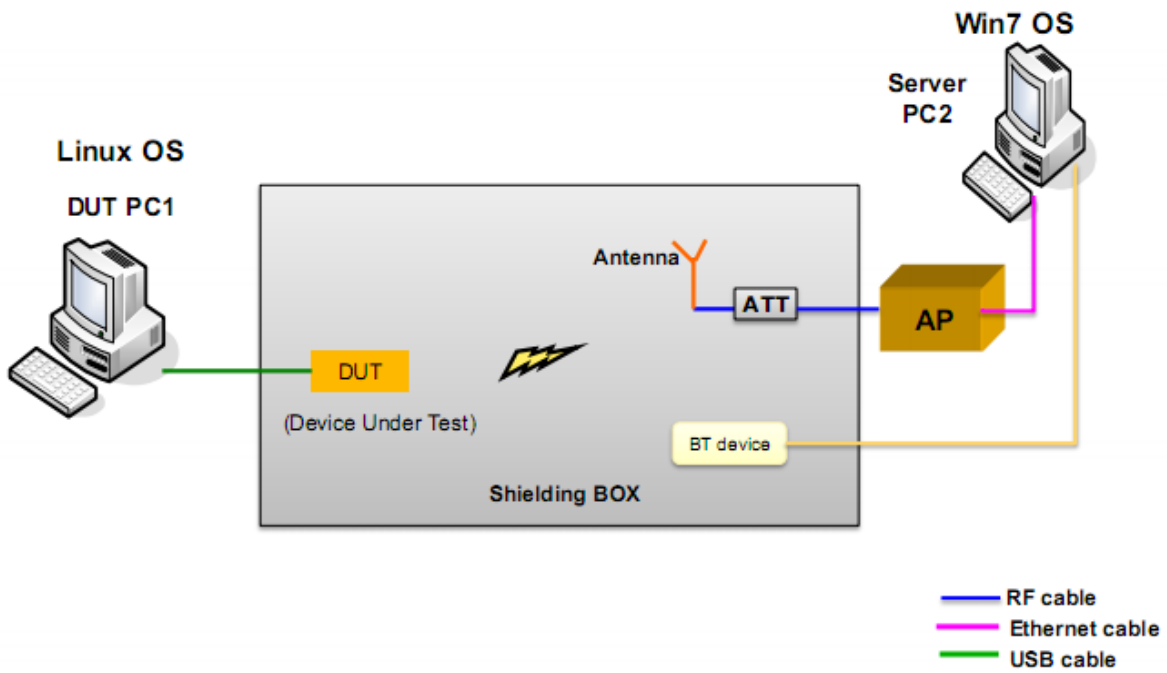


- Ethernet cable
- RF cable
- USB cable(Provided by customer)
- Host connector cable line
- DC power cable

RC Test Item and Spec

Station	Test items	ANT	Channel	Rate	Condition	Spec
RC	WiFi_RSSI test	ANT1	CH9	11n HT20	Link AP and ping testing ok	-50dBm ± 6dB
		ANT2	CH9	11n HT20		-50dBm ± 6dB
	TX/RX current test	Auto	CH9	11n HT20	Link AP and TXRX throughput testing	<=400mA
	Suspend current Test	Disable WIFI & BT in normal driver				<=6mA
	Read code from eFuse	Wi-Fi MAC		Random value		Confirm MAC ID consistency in eFuse
		BT MAC		Random value		Confirm MAC ID consistency in eFuse
		Calibration data(crystal/power)		Random value		Confirm eFuse Content not blank
		Other config code		Fix value		Confirm consistency PASS
		PID:0xD723 VD:0x0BDA		Fix value		Confirm consistency PASS
		Channel plan:0x20		Fix value		

OBA1 Test Diagram



Remark: when measure WIFI throughput, BT just enable and NOT link to any other BT device(No traffic data from BT)

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OBA1 Test Item and Spec

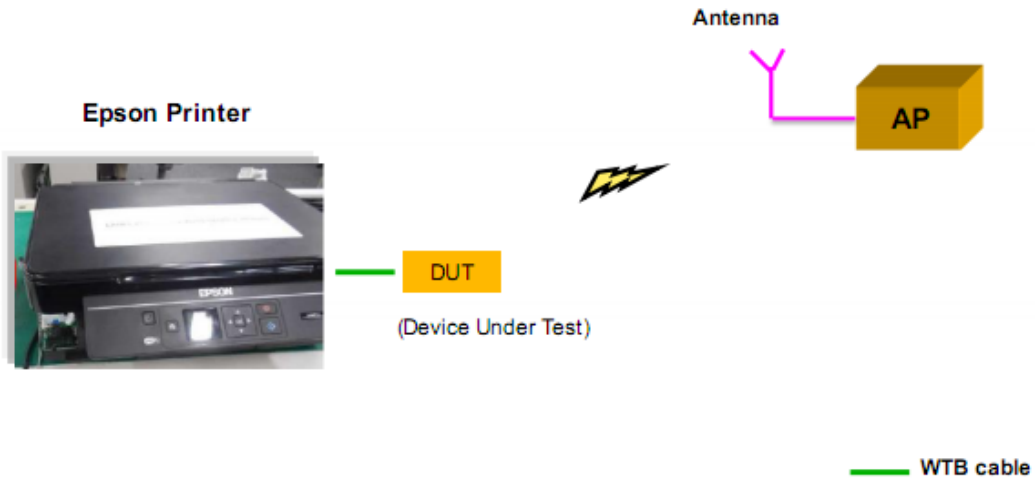
Test Station	Test Items	Test Condition	Test Spec and Comment
OBA 1	CHECK MAC ID		Make sure consistency between programmed content and content of label on module
	CHECK VID & PID		PASS
	WiFi Throughput Test	1. Client PC: Linux OS (Ubuntu 16.04, kernel: 4.4.27) Server PC with Gigabit LAN port: Win7 OS 2. Tool: Iperf 3. AP: 2.4GHz 11n or 11ac 2x2 4. AP setting: Channel: Auto Data rate: 2.4G : 11n HT20 5. BT enable and No traffic data from BT	11n-2.4G: Tx >= 40Mbps Rx >= 40Mbps
BT Link Test	Scan other BT device and connected successfully	BT ping test pass	

OBA will base on C=0, AQL = 0.65 for sampling inspection from MP
 Sampling Plan:

Lot	2-8	9-15	16-25	26-50	51-90	91-150	151-280	281-500	501-1200	1201-3200	3201-10000	10001-35000	35001-150000
0.65	*	*	20	20	20	20	20	47	47	53	68	77	96

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OBA2 Test Diagram



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OBA2 Test Item and Spec

Test Station	Test Items	Test Condition	Test Spec and Comment
OBA2	Searching SSID Test	1. Epson printer: L485; 2. AP setting: Channel: Auto Data rate: Auto	1. Searching SSID 5 times and every time display one more SSID. → Follow Epson's spec. <Printer Check Inspection Standard Rev02> 2. 100% tested for PVT

OBA will base on C=0, AQL = 0.65 for sampling inspection from MP
 Sampling Plan:

Lot	2-8	9-15	16-25	26-50	51-90	91-150	151-280	281-500	501-1200	1201-3200	3201-10000	10001-35000	35001-150000
0.65	*	*	20	20	20	20	20	47	47	53	68	77	96

FOXCONN CONFIDENTIAL 13

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 20cm 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 re-evaluating 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: BKMFBJ26H006". 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.

This device complies with ISED's licence-exempt RSSs. 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.

Le présent appareil est conforme aux CNR d'ISED applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

Radiation Exposure Statement:

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

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

**This device is intended only for OEM integrators under the following conditions:
(For module device use)**

- 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.

Cet appareil est conçu uniquement pour les intégrateurs OEM dans les conditions suivantes: (Pour utilisation de dispositif module)

- 1) L'antenne doit être installée de telle sorte qu'une distance de 20 cm est respectée entre l'antenne et les utilisateurs, et
- 2) Le module émetteur peut ne pas être coïmplanté avec un autre émetteur ou antenne.

Tant que les **2** conditions ci-dessus sont remplies, des essais supplémentaires sur l'émetteur ne seront pas nécessaires. Toutefois, l'intégrateur OEM est toujours responsable des essais sur son produit final pour toutes exigences de conformité supplémentaires requis pour ce module installé.

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 Canada authorization is no longer considered valid and the IC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate Canada authorization.

NOTE IMPORTANTE:

Dans le cas où ces conditions ne peuvent être satisfaites (par exemple pour certaines configurations d'ordinateur portable ou de certaines co-localisation avec un autre émetteur), l'autorisation du Canada n'est plus considéré comme valide et l'ID IC ne peut pas être utilisé sur le produit final. Dans ces circonstances, l'intégrateur OEM sera chargé de réévaluer le produit final (y compris l'émetteur) et l'obtention d'une autorisation distincte au Canada.

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 IC: 1052C-J26H006".

Plaque signalétique du produit final

Ce module émetteur est autorisé uniquement pour une utilisation dans un dispositif où l'antenne peut être installée de telle sorte qu'une distance de 20cm peut être maintenue entre l'antenne et les utilisateurs. Le produit final doit être étiqueté dans un endroit visible avec l'inscription suivante: "Contient des IC: 1052C-J26H006".

低功率電波輻射性電機管理辦法


第十二條 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。

第十四條 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。

模組認證：

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」字樣。

「電磁波曝露量MPE標準值 $1\text{mW}/\text{cm}^2$ ，本產品使用時建議應距離人體 20 cm」