

5) 24Mbps (PER $\leq 10\%$)	-	-	-74	dBm	
6) 36Mbps (PER $\leq 10\%$)	-	-	-70	dBm	
7) 48Mbps (PER $\leq 10\%$)	-	-	-66	dBm	
8) 54Mbps (PER $\leq 10\%$)	-	-	-65	dBm	
6. Maximum Input Level (PER $\leq 10\%$)	-30	-	-	dBm	

8.7 IEEE 802.11n HT20 Section(5GHz)

Items	Contents				
Specification	IEEE802.11n HT20 @ 5GHz				
Mode	BPSK, QPSK, 16QAM, 64QAM and OFDM				
Channel	CH36 to CH165				
TX Characteristics	Min.	Typ.	Max.	Unit	
1. Power Levels (Calibrated)					
1) For antenna port (MCS7)	12	14	16	dBm	
2. Spectrum Mask @target power					
1) at fc +/-11MHz	-	-	-20	dBr	
2) at fc +/-20MHz	-	-	-28	dBr	
3) at fc > +/-30MHz	-	-	-45	dBr	
3. Constellation Error(EVM)@ target power					
1) MCS0	-	-	-5	dB	
2) MCS1	-	-	-10	dB	
3) MCS2	-	-	-13	dB	
4) MCS3	-	-	-16	dB	
5) MCS4	-	-	-19	dB	
6) MCS5	-	-	-22	dB	
7) MCS6	-	-	-25	dB	
8) MCS7	-	-	-28	dB	
4. Frequency Error	-20	-	20	ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
6. Minimum Input Level Sensitivity (each chain)					
1) MCS0 (PER $\leq 10\%$)	-	-	-82	dBm	
2) MCS1 (PER $\leq 10\%$)	-	-	-79	dBm	
3) MCS2 (PER $\leq 10\%$)	-	-	-77	dBm	
4) MCS3 (PER $\leq 10\%$)	-	-	-74	dBm	
5) MCS4 (PER $\leq 10\%$)	-	-	-70	dBm	
6) MCS5 (PER $\leq 10\%$)	-	-	-66	dBm	
7) MCS6 (PER $\leq 10\%$)	-	-	-65	dBm	
8) MCS7 (PER $\leq 10\%$)	-	-	-64	dBm	
6. Maximum Input Level (PER $\leq 10\%$)	-30	-	-	dBm	

8.8 IEEE 802.11n HT40 Section(5GHz)

Items	Contents				
Specification	IEEE802.11n HT40 @ 5GHz				
Mode	BPSK, QPSK, 16QAM, 64QAM and OFDM				
Channel	CH38 to CH163				
TX Characteristics	Min.	Typ.	Max.	Unit	
1. Power Levels (Calibrated)					
1) For antenna port (MCS7)	12	14	16	dBm	
2. Spectrum Mask @target power					
1) at fc +/-21MHz	-	-	-20	dBm	
2) at fc +/-40MHz	-	-	-28	dBm	
3) at fc > +/-60MHz	-	-	-45	dBm	
3. Constellation Error(EVM)@ target power					
1) MCS0	-	-	-5	dB	
2) MCS1	-	-	-10	dB	
3) MCS2	-	-	-13	dB	
4) MCS3	-	-	-16	dB	
5) MCS4	-	-	-19	dB	
6) MCS5	-	-	-22	dB	
7) MCS6	-	-	-25	dB	
8) MCS7	-	-	-28	dB	
4. Frequency Error	-20	-	20	ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
7. Minimum Input Level Sensitivity (each chain)					
1) MCS0 (PER ≤10%)	-	-	-79	dBm	
2) MCS1 (PER ≤10%)	-	-	-76	dBm	
3) MCS2 (PER ≤10%)	-	-	-74	dBm	
4) MCS3 (PER ≤10%)	-	-	-71	dBm	
5) MCS4 (PER ≤10%)	-	-	-67	dBm	
6) MCS5 (PER ≤10%)	-	-	-63	dBm	
7) MCS6 (PER ≤10%)	-	-	-62	dBm	
8) MCS7 (PER ≤10%)	-	-	-61	dBm	
6. Maximum Input Level (PER ≤10%)	-30	-	-	dBm	

8.9 IEEE 802.11ac Section(5GHz)

Items	Contents					
Specification	IEEE802.11ac					
Mode	BPSK, QPSK, 16QAM, 64QAM ,256QAM and OFDM					
Channel	CH36 to CH165 VHT20 CH38 to CH163 VHT40 CH42 to CH157 VHT80					
TX Characteristics	Min.	Typ.	Max.		Unit	
1. Power Levels (Calibrated)						
1) For antenna port (MCS9)	12	14	16		dBm	
2. Spectrum Mask @VHT20/VHT40/VHT80 target power						
1) at fc +/-11MHz/21MHz/41MHz	-	-	-20		dBr	
2) at fc +/-20MHz/40MHz/80MHz	-	-	-28		dBr	
3) at fc +/-30MHz/60MHz/120MHz	-	-	-40		dBr	
3. Constellation Error(EVM)@ target power						
1) MCS0	-	-	-5		dB	
2) MCS1	-	-	-10		dB	
3) MCS2	-	-	-13		dB	
4) MCS3	-	-	-16		dB	
5) MCS4	-	-	-19		dB	
6) MCS5	-	-	-22		dB	
7) MCS6	-	-	-25		dB	
8) MCS7	-	-	-27		dB	
9) MCS8	-	-	-30		dB	
10) MCS9	-	-	-32		dB	
4. Frequency Error	-20	-	20		ppm	
RX Characteristics	Min.	Typ.	Max.		Unit	
5.Minimum Input Level Sensitivity (each chain)			VHT 20	VHT 40	VHT 80	
1) MCS0 (PER ≤10%)	-	-	-82	-79	-76	dBm
2) MCS1 (PER ≤10%)	-	-	-79	-76	-73	dBm
3) MCS2 (PER ≤10%)	-	-	-77	-74	-71	dBm
4) MCS3 (PER ≤10%)	-	-	-74	-71	-68	dBm
5) MCS4 (PER ≤10%)	-	-	-70	-67	-64	dBm
6) MCS5 (PER ≤10%)	-	-	-66	-63	-60	dBm
7) MCS6 (PER ≤10%)	-	-	-65	-62	-59	dBm
8) MCS7 (PER ≤10%)	-	-	-64	-61	-58	dBm
9) MCS8(PER ≤10%)	-	-	-59	-56	-53	dBm
10) MCS9(PER ≤10%)	-	-	-57	-54	-51	dBm

6. Maximum Input Level (PER $\leq 10\%$)	-30	-	-	dBm	
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8.10 IEEE 802.11ax Section(5GHz)

Items	Contents					
Specification	IEEE802.11ax					
Mode	BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM and OFDMA					
Channel	CH36 to CH165 HE20 CH38 to CH163 HE40 CH42 to CH157 HE80					
TX Characteristics	Min.	Typ.	Max.			Unit
1. Power Levels (Calibrated)						
1) For antenna port (MCS11)	9	11	13			dBm
2. Spectrum Mask @HE20/HE40/HE80 target power						
1) at fc +/-11MHz/21MHz/41MHz	-	-	-20			dBr
2) at fc +/-20MHz/40MHz/80MHz	-	-	-28			dBr
3) at fc +/-30MHz/60MHz/120MHz	-	-	-40			dBr
3. Constellation Error(EVM)@ target power						
1) MCS0	-	-	-5			dB
2) MCS1	-	-	-10			dB
3) MCS2	-	-	-13			dB
4) MCS3	-	-	-16			dB
5) MCS4	-	-	-19			dB
6) MCS5	-	-	-22			dB
7) MCS6	-	-	-25			dB
8) MCS7	-	-	-27			dB
9) MCS8	-	-	-30			dB
10) MCS9	-	-	-32			dB
11) MCS10			-34			dB
12) MCS11			-35			dB
4. Frequency Error	-20	-	20			ppm
RX Characteristics	Min.	Typ.	Max.			Unit
5. Minimum Input Level Sensitivity (each chain)			HE 20	HE 40	HE 80	
1) MCS0 (PER $\leq 10\%$)	-	-	-82	-79	-76	dBm
2) MCS1 (PER $\leq 10\%$)	-	-	-79	-76	-73	dBm
3) MCS2 (PER $\leq 10\%$)	-	-	-77	-74	-71	dBm
4) MCS3 (PER $\leq 10\%$)	-	-	-74	-71	-68	dBm
5) MCS4 (PER $\leq 10\%$)	-	-	-70	-67	-64	dBm
6) MCS5 (PER $\leq 10\%$)	-	-	-66	-63	-60	dBm

7) MCS6 (PER $\leq 10\%$)	-	-	-65	-62	-59	dBm	
8) MCS7 (PER $\leq 10\%$)	-	-	-64	-61	-58	dBm	
9) MCS8(PER $\leq 10\%$)	-	-	-59	-56	-53	dBm	
10) MCS9(PER $\leq 10\%$)	-	-	-57	-54	-51	dBm	
11) MCS10(PER $\leq 10\%$)	-	-	-54	-51	-48	dBm	
12) MCS11(PER $\leq 10\%$)	-	-	-52	-49	-46	dBm	
6. Maximum Input Level (PER $\leq 10\%$)	-30	-	-			dBm	

8.11 Bluetooth Section

Items	Contents					
Specification	BT2.1+EDR/4.2/5.2 with BLE					
Mode	FHSS,GFSK,DPSK,DQPSK					
Number of Channel	79 Channels					
Frequency Band	2.402 GHz ~2.480GHz					
	Min.	Typ.	Max.	Unit	Remark	
1. Output Power	-	5	-	dBm		
2. Gain step	-	1	-	dB		
3. Receiver sensitivity (BER $\leq 0.1\%$)	-	-93.5	-80	dBm		
4. Maximum usable signal (BER $\leq 0.1\%$)	-	-5	-			
5. C/I co-channel (BER $<0.1\%$)	-	4	11	dB		
6. C/I 1MHz (BER $<0.1\%$)	-	-14	0	dB		
7. C/I 2MHz (BER $<0.1\%$)	-	-42	-30	dB		
8. C/I ≥ 3 MHz (BER $<0.1\%$)	-	-49	-40	dB		
9. C/I Image channel (BER $<0.1\%$)	-	-25	-9	dB		
10. C/I Image 1MHz (BER $<0.1\%$)	-	-50	-20	dB		
11. Inter-modulation	-	-13	-	dB		
12. Out-of-band blocking						
1). 30MHz to 2000MHz	-10	-	-	dBm		
2). 2000MHz to 2399MHz	-27	-	-	dBm		
3). 2498MHz to 3000MHz	-27	-	-	dBm		
4). 3000MHz to 12.75GHz	-10	-	-	dBm		
13. Modulation characteristics						
1). Δf_{1avg}	140	157	175	KHz		
2). Δf_{2max} (For at least 99.9% of all Δf_{2max})	115	140	-	KHz		
3). $\Delta f_{1avg} / \Delta f_{2avg}$	0.8	0.98	-	KHz		
14. ICFT	-75	± 20	+75	KHz		
15. Carrier frequency drift						
1). One slot packet (DH1)	-25	± 15	+25	KHz		
2). Two slot packet (DH3)	-40	± 15	+40	KHz		
3). Five slot packet (DH5)	-40	± 15	+40	KHz		
4). Max drift rate	-	6	20	KHz/50us		

16. TX output spectrum(20dB bandwidth)	-	922	1000	KHz	
17. In-Band spurious emission					
1). ± 2 MHz offset	-	-45	-20	dBm	
2). ± 3 MHz offset	-	-48	-40	dBm	
3). $> \pm 3$ MHz offset	-	-48	-40	dBm	

8.12 IEEE 802.11ax Section(6GHz)

说明：WiFi 6E 部分性能参数暂定如下

Items	Contents					
Specification	IEEE802.11ax					
Mode	BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM and OFDMA					
Channel	HE20 频段: 5955MHz to 7055MHz HE40 频段: 5965MHz to 7045MHz HE80 频段: 5985MHz to 7025MHz					
TX Characteristics	Min.	Typ.	Max.		Unit	
1. Power Levels (Calibrated)						
1) For antenna port (MCS11)	9	11	13		dBm	
2. Spectrum Mask @HE20/HE40/HE80 target power						
1) at fc ± 11 MHz/21MHz/41MHz	-	-	-20		dBr	
2) at fc ± 20 MHz/40MHz/80MHz	-	-	-28		dBr	
3) at fc ± 30 MHz/60MHz/120MHz	-	-	-40		dBr	
3. Constellation Error(EVM)@ target power						
1) MCS0	-	-	-5		dB	
2) MCS1	-	-	-10		dB	
3) MCS2	-	-	-13		dB	
4) MCS3	-	-	-16		dB	
5) MCS4	-	-	-19		dB	
6) MCS5	-	-	-22		dB	
7) MCS6	-	-	-25		dB	
8) MCS7	-	-	-27		dB	
9) MCS8	-	-	-30		dB	
10) MCS9	-	-	-32		dB	
11) MCS10			-34		dB	
12) MCS11			-35		dB	
4. Frequency Error	-20	-	20		ppm	
RX Characteristics	Min.	Typ.	Max.		Unit	
5. Minimum Input Level Sensitivity (each chain)			HE 20	HE 40	HE 80	
1) MCS0 (PER $\leq 10\%$)	-	-	-82	-79	-76	dBm

2) MCS1 (PER $\leq 10\%$)	-	-	-79	-76	-73	dBm	
3) MCS2 (PER $\leq 10\%$)	-	-	-77	-74	-71	dBm	
4) MCS3 (PER $\leq 10\%$)	-	-	-74	-71	-68	dBm	
5) MCS4 (PER $\leq 10\%$)	-	-	-70	-67	-64	dBm	
6) MCS5 (PER $\leq 10\%$)	-	-	-66	-63	-60	dBm	
7) MCS6 (PER $\leq 10\%$)	-	-	-65	-62	-59	dBm	
8) MCS7 (PER $\leq 10\%$)	-	-	-64	-61	-58	dBm	
9) MCS8 (PER $\leq 10\%$)	-	-	-59	-56	-53	dBm	
10) MCS9 (PER $\leq 10\%$)	-	-	-57	-54	-51	dBm	
11) MCS10 (PER $\leq 10\%$)	-	-	-54	-51	-48	dBm	
12) MCS11 (PER $\leq 10\%$)	-	-	-52	-49	-46	dBm	
6. Maximum Input Level (PER $\leq 10\%$)	-30	-	-			dBm	

10. Mechanical, Environmental and Reliability Tests

(机械、环境和可靠性测试)

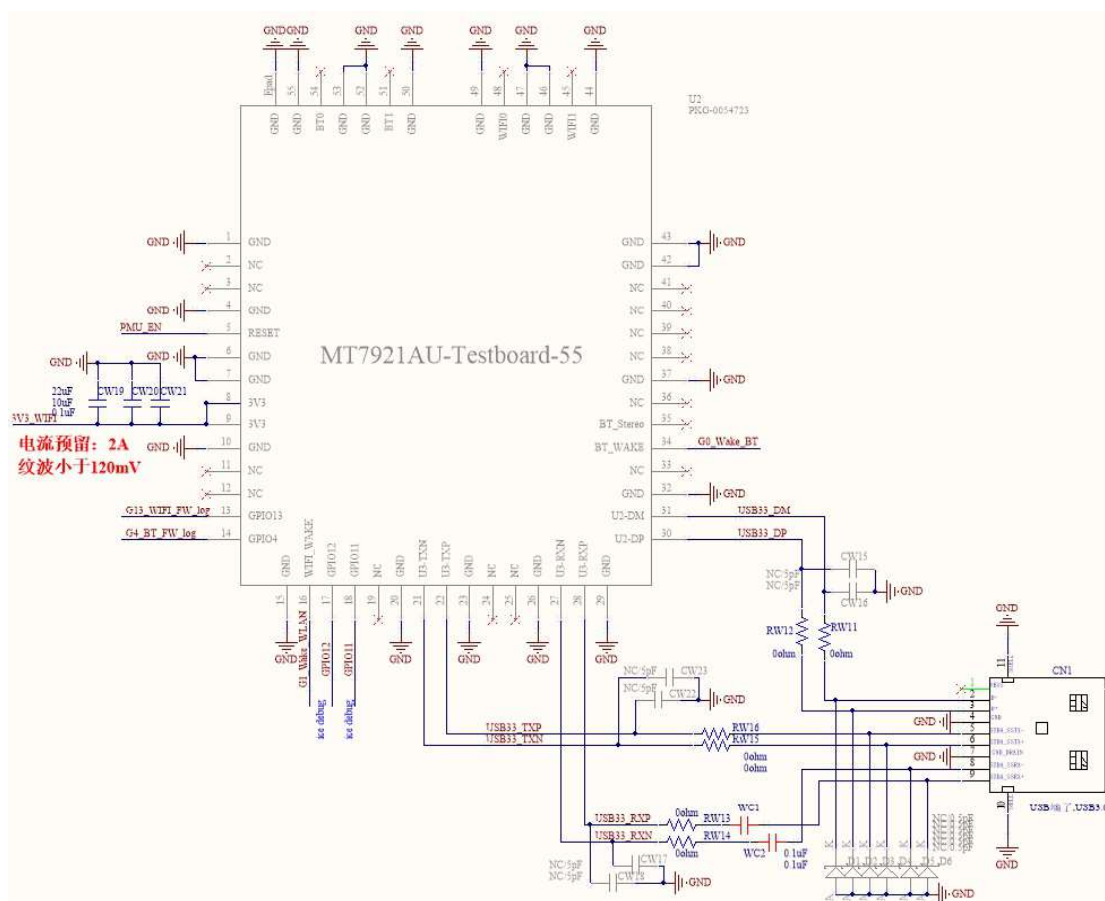
Test Items		Test Conditions	Qty	Criteria Condition
9-1	Drop test	The packed samples was tested at below condition: Drop height: 760mm(0.5~9.5kg) 610mm(9.5~18.5kg) Drop time: 1x corner, 3x edge and 6x face.	1xBox	After test, the outer box and inner box will not be broken by appearance visual inspection, and the products should be ok.
9-2	Vibration test	X-Y-Z direction, first Frequency changing from 10Hz to 30Hz to 10Hz, amplitude 2.0mm, 5 times vibrations, 5x times vibration.	1xBox	After test, the outer box and inner box will not be broken by appearance visual inspection and the products should be ok.
9-3	Soldering ability test (Only for SKI module)	Soldering temperature: 245 $\pm$ 5 $^{\circ}$ C Soldering duration: 3 $\pm$ 0.5S	3	1. After soldering, the soldered area must be covered by a smooth bright solder layer, some deficiencies such as a small amount of the pinhole, not wetting are allowed, but the deficiencies can not be in the same place; 2. At least 90% of soldered area shall be covered continuously by the soldering material.
9-4	High Temperature	Leave samples in 60 $^{\circ}$ C, 90% RH @ 24 hours	4	After test, the products appearance, power, EVM and frequency error

	and Humidity Operation Test			functional parameter shall be satisfied with the test specification.
9-5	Low Temperature Operation Test	Leave samples in -15℃ @24 hours	4	After test, the products appearance, power, EVM and frequency error functional parameter shall be satisfied with the test specification.
9-6	High Temperature and Humidity Start Test	Leave samples in 60℃, 90% RH for 4x hours	4	After test, power on and off the samples for 3x tiems, the samples should be able to start normally
9-7	Low temperature start test	Leave samples in -15℃ for 4x hours	4	After test, power on and off the samples for 3x tiems, the samples should be able to start normally
9-8	High Temperature and Humidity Storage Test	Leave samples in 85℃, 95% RH @ 48 hours	4	After test, the products appearance, power, EVM and frequency error functional parameter shall be satisfied with the test specification.
9-9	Low Temperature Storage Test	Leave samples in -40℃, @48 hours	4	After test, the products appearance, power, EVM and frequency error functional parameter shall be satisfied with the test specification.
9-10	Thermal Shock Test	-40~85℃, dwell time: 30min, 50cycles	4	After test, the products appearance, power, EVM and frequency error functional parameter shall be satisfied with the test specification.
9-11	Aging Test	60℃, 120Hrs	10	The products at high temperature for a long time can continuous work normally
9-12	Salt spray test	NSS,35C,PH:6.5~7.2, 24H	2	The Sample shall has no minor or major defects, such as physical damage, crack, corrosion, deformation etc;
9-13	ESD	Discharge voltage: 1kV C: 50pF Discharge resistance: 330Ω Positive10 times 1 time for each second	3	The products can recoverable smoothly after ESD test.

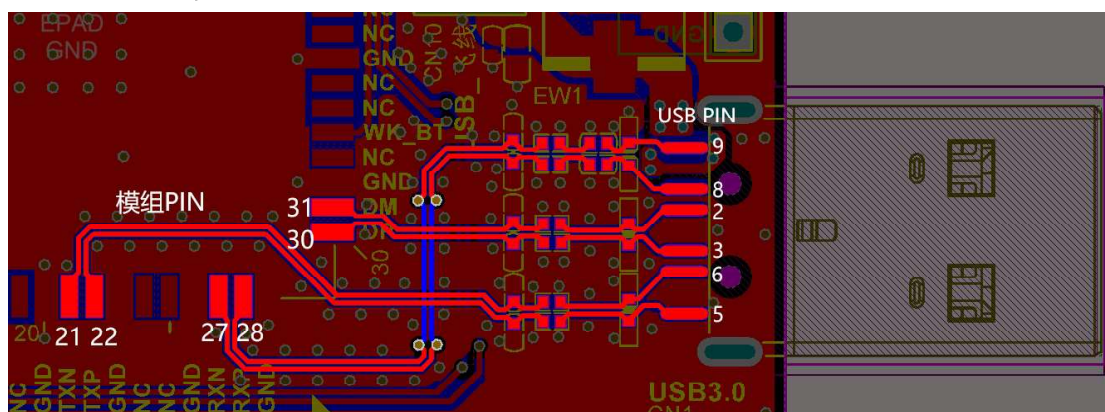
11. Reference Design（参考设计）

10.1 SCH 参考

需要注意：不同 USB3.0 端子的网络定义命名不一，请客户加以甄别，避免接线错误！

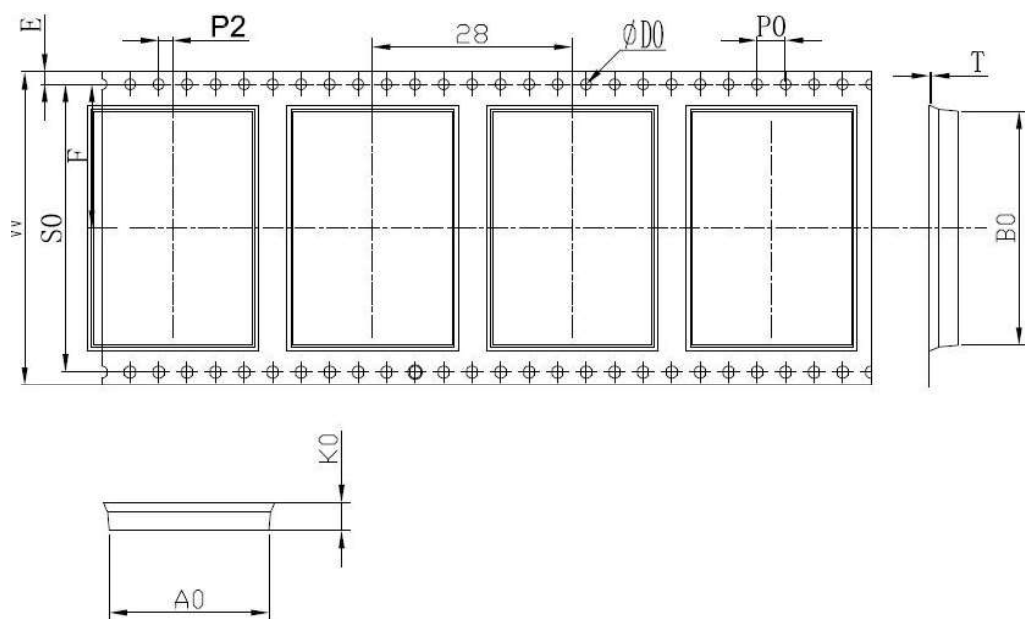


10.2 PCB 参考



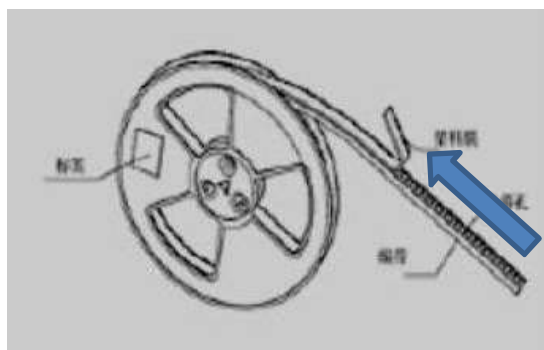
12. Package (包装)

(1) 编带尺寸



ITEM	W	A0	B0	K0	K1	P	F	E	D	P0	P2	T	胶盘	
DIM	56.00	23.50	30.50	3.50	0.00	32.00	26.20	1.75	1.50	4.00	2.00	0.40	长度/ 盘	数量/ 盘
TOLE	+0.30 -0.30	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.15 -0.15	+0.10 -0.10	14.4M	450pc s

(2) 编带方向：（箭头代表编带走向）

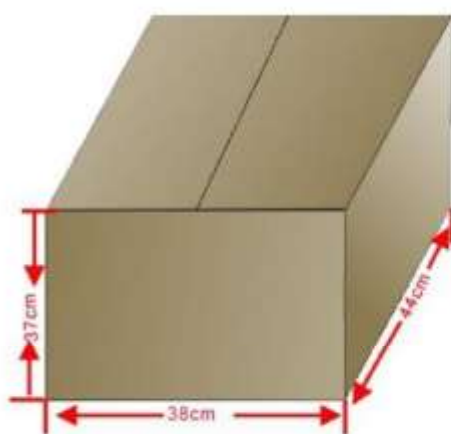




(3) 包装示意图:

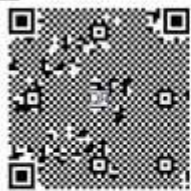


注：上图 3 个框示处为内盒标签粘贴位置。

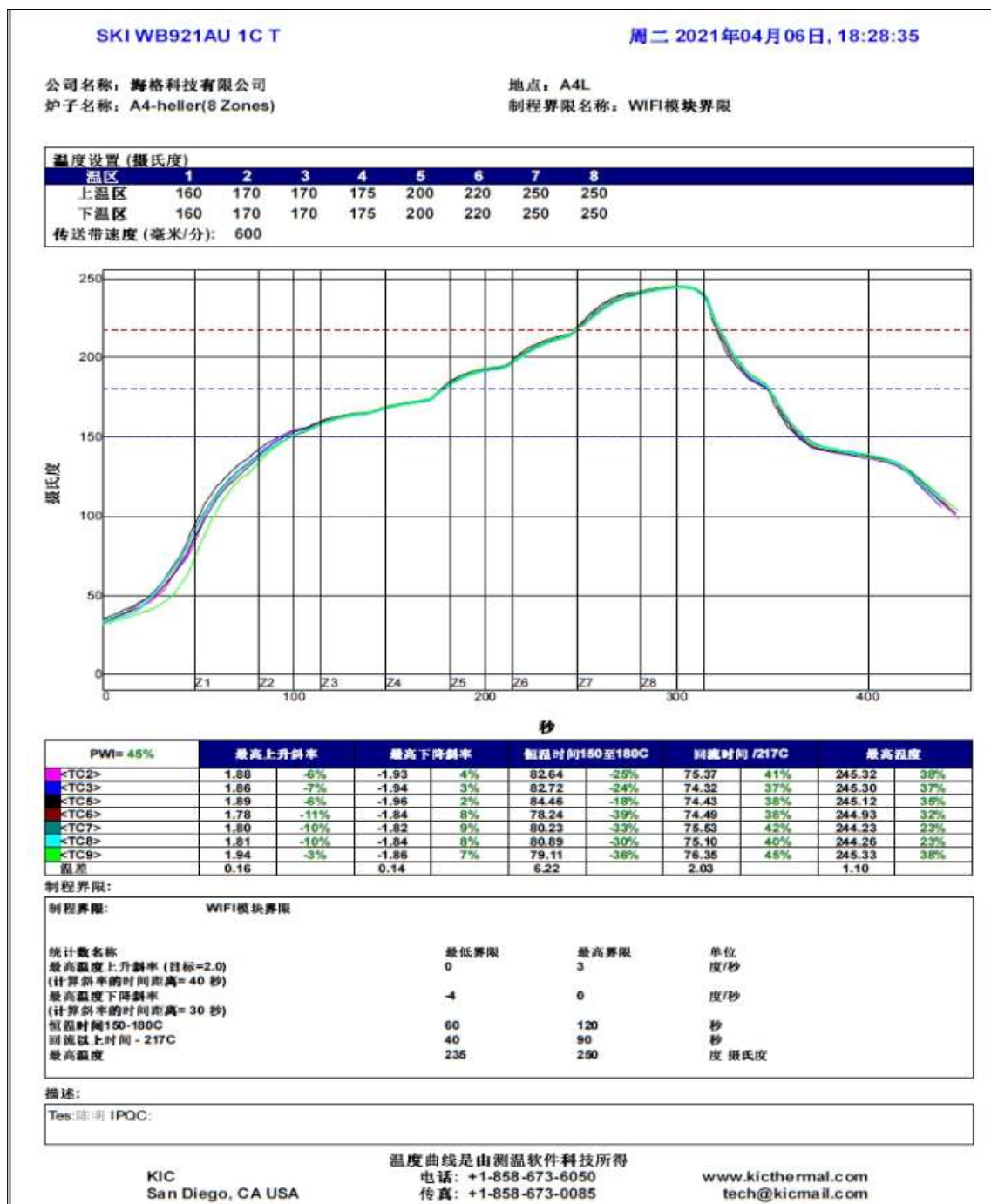


450pcs/盘* 8 盘/箱=3600pcs/箱

(4) 标签样式:

广州视琨电子科技有限公司[RoHS]	
PO	P/N: CustPN
	Cvte.Des: DESC
	D.C: DateCode
Month	LOT NO: LotNo
G.W(kg):	Q'ty: Qty
N.W(kg):	V.DES: Model
C.SIZE(mm): 440*380*370	
CVTE	

13. Reflow Profile (回流焊温度曲线)



14. RoHS certificate

Certificate of Compliance for REACH and RoHS

Company: Guangzhou Shikun electronics Co.,Ltd

We declare and warrant that: All finished products and CKD order material are in compliance with EU REACH law(1907/2006).

We declare and assure that all the products are in compliance with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU. The maximum concentrations of the prohibited substance specified in RoHS directive in all product, should not exceed the limits as below, except special exemption stipulated.

RoHS Restricted Substances	Concentration Limit
Pb	1000ppm
Cd	100ppm
Hg	1000ppm
Cr ⁶⁺	1000ppm
PBBs	1000ppm
PBDEs	1000ppm
DEHP	1000ppm
BBP	1000ppm
DBP	1000ppm
DIBP	1000ppm

Authorized Signature:

Date:

2019.6.24

