

IEEE 802.11 a/b/g/n/ac 2T/2R Dual Band Module

Model Number: WC0DR2611

HUIZHOU GAOSHENGDA TECHNOLOGY CO.,LTD

HUA YU RD., NO.75, ZHONGKAI HIGH-TECH DEVELOPMENT AREA, HUIZHOU, CHINA

TEL: (0752) 2096698



PRODUCTS SPECIFICATION

WC0DR2611

Document revision history

Revision	Date	Approved by	Remarks
Version 1.0	2016-05-25		Draft
Version 1.1	2016-05-26		1、 Connector :change 6PIN to 5PIN 2、 ADD Mechanical Dimensions: Module A ,Module B
Version 1.2	2016-05-31		1、 Modify Mechanical Dimensions 2、 Modify ANT2 SPEC
Version 1.3	2016-06-07		3、 Modify Connector SPEC 4、 Modify ANT2 SPEC

1.2 General Requirements

1.2.1 IEEE 802.11b Section

	Feature	Detailed Description
1.2.1.1	Standard	<ul style="list-style-type: none"> IEEE 802.11b
1.2.1.2	Radio and Modulation Schemes	<ul style="list-style-type: none"> DQPSK , DBPSK , DSSS , and CCK
1.2.1.3	Operating Frequency	<ul style="list-style-type: none"> 2400 ~ 2483.5MHz ISM band
1.2.1.4	Channel Numbers	<ul style="list-style-type: none"> 11 channels for United States 13 channels for Europe Countries 14 channels for Japan
1.2.1.5	Data Rate	<ul style="list-style-type: none"> 11,5.5,2,and 1Mbps
1.2.1.6	Media Access Protocol	<ul style="list-style-type: none"> CSMA/CA with ACK
1.2.1.7	Transmitter Output Power at Antenna Connector	<ul style="list-style-type: none"> Typical RF Output Power(tolerance±2dB) at each RF chain,Data Rate and at room Temp. 25°C +19 dBm at 1Mbps +18 dBm at 2Mbps +17 dBm at 5.5Mbps +16 dBm at 11Mbps
1.2.1.8	Receiver Sensitivity at Antenna Connector	<ul style="list-style-type: none"> Typical Sensitivity at Which Frame(1000-byte PDUs)Error Rate=8% -88 dBm at 1Mbps -82 dBm for 11Mbps

1.2.2 IEEE 802.11g Section

	Feature	Detailed Description
1.2.2.1	Standard	<ul style="list-style-type: none"> IEEE 802.11g
1.2.2.2	Radio and Modulation Type	<ul style="list-style-type: none"> QPSK , BPSK , 16QAM ,64QAM with OFDM
1.2.2.3	Operating Frequency	<ul style="list-style-type: none"> 2400 ~ 2483.5MHz ISM band
1.2.2.4	Channel Numbers	<ul style="list-style-type: none"> 11 channels for United States 13 channels for Europe Countries 13 channels for Japan
1.2.2.5	Data Rate	<ul style="list-style-type: none"> 6,9,12,18,24,36,48,54Mbps
1.2.2.6	Media Access Protocol	<ul style="list-style-type: none"> CSMA/CA with ACK
1.2.2.7	Transmitter Output Power at Antenna Connector	<ul style="list-style-type: none"> Typical RF Output Power(tolerance±2dB) at each RF chain, Data Rate and at roomTemp. 25°C +18dBm at 6Mbps +14dBm at 54Mbps
1.2.2.8	Receiver Sensitivity at Antenna Connector	<ul style="list-style-type: none"> Typical Sensitivity at each RF chain. Frame(1000-byte PDUs)Error Rate<10% at room Temp 25°C -86 dBm at 6Mbps -73 dBm at 54Mbps



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1.2.3 IEEE 802.11a Section

	Feature	Detailed Description
1.2.3.1	Standard	<ul style="list-style-type: none"> IEEE 802.11a
1.2.1.2	Radio and Modulation Type	<ul style="list-style-type: none"> QPSK , BPSK , 16QAM ,64QAM with OFDM
1.2.3.3	Operating Frequency	<ul style="list-style-type: none"> 5.15~5.25GHz and 5.725~5.825GHz for US and Canada 5.15~5.25GHz for Japan 5.15~5.25GHz for Europe 5.725~5.825GHz for China
1.2.3.4	Channel Numbers	<ul style="list-style-type: none"> 12 non-overlapping channels for US and Canada 8 non-overlapping channels for Japan 19 non-overlapping channels for Europe 4 non-overlapping channels for China
1.2.3.5	Data Rate	<ul style="list-style-type: none"> 6,9,12,18,24,36,48,54Mbps
1.2.3.6	Media Access Protocol	<ul style="list-style-type: none"> CSMA/CA with ACK
1.2.3.7	Transmitter Output Power at Antenna Connector	<ul style="list-style-type: none"> Typical RF Output Power(tolerance ± 2dB) at each RF chain, Data Rate and at roomTemp. 25°C +18 dBm at 6Mbps +14 dBm at 54Mbps
1.2.3.8	Receiver Sensitivity at Antenna Connector	<ul style="list-style-type: none"> Typical Sensitivity at each RF chain. Frame(1000-byte PDUs)Error Rate<10% at room Temp 25°C -86 dBm at 6Mbps -74 dBm at 54Mbps

1.2.4 IEEE 802.11n Section

	Feature	Detailed Description																																																	
1.2.4.1	Standard	<ul style="list-style-type: none"> IEEE 802.11n 																																																	
1.2.2.2	Radio and Modulation Type	<ul style="list-style-type: none"> BPSK , QPSK , 16QAM ,64QAM with OFDM 																																																	
1.2.4.3	Operating Frequency	<ul style="list-style-type: none"> 2.4GHz band:2400 ~ 2483.5MHz 5150~5250MHz, 5725~5850MHz 																																																	
1.2.4.4	Data Rate	<table border="1"> <thead> <tr> <th rowspan="2">MCS</th> <th colspan="2">GI=800ns</th> <th colspan="2">GI=400ns</th> </tr> <tr> <th>20MHz</th> <th>40MH</th> <th>20MHz</th> <th>40MHz</th> </tr> </thead> <tbody> <tr> <td>8</td> <td>13</td> <td>27</td> <td>14.4</td> <td>30</td> </tr> <tr> <td>9</td> <td>26</td> <td>54</td> <td>28.9</td> <td>60</td> </tr> <tr> <td>10</td> <td>39</td> <td>81</td> <td>43.3</td> <td>90</td> </tr> <tr> <td>11</td> <td>52</td> <td>108</td> <td>57.8</td> <td>120</td> </tr> <tr> <td>12</td> <td>78</td> <td>162</td> <td>86.7</td> <td>180</td> </tr> <tr> <td>13</td> <td>104</td> <td>216</td> <td>115.6</td> <td>240</td> </tr> <tr> <td>14</td> <td>117</td> <td>243</td> <td>130</td> <td>170</td> </tr> <tr> <td>15</td> <td>130</td> <td>270</td> <td>144.4</td> <td>300</td> </tr> </tbody> </table>	MCS	GI=800ns		GI=400ns		20MHz	40MH	20MHz	40MHz	8	13	27	14.4	30	9	26	54	28.9	60	10	39	81	43.3	90	11	52	108	57.8	120	12	78	162	86.7	180	13	104	216	115.6	240	14	117	243	130	170	15	130	270	144.4	300
		MCS		GI=800ns		GI=400ns																																													
			20MHz	40MH	20MHz	40MHz																																													
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		<ul style="list-style-type: none"> 5GHz Band/HT20 18 dBm at MCS8 12 dBm at MCS15 	<ul style="list-style-type: none"> 5GHz Band/HT40 18 dBm at MCS8 12 dBm at MCS15
1.2.4.7	Receiver Sensitivity at Antenna Connector	Typical Sensitivity at each RF chain at Which Frame (1000-byte PDUs) Error Rate=10% and at room Temp. 25°C	
		2.4GHz Band/HT20 <ul style="list-style-type: none"> -86 dBm at MCS8 -70 dBm at MCS15 	2.4GHz Band/HT40 <ul style="list-style-type: none"> -83 dBm at MCS8 -66 dBm at MCS15
		5GHz Band/HT20 <ul style="list-style-type: none"> -86 dBm at MCS8 -71 dBm at MCS15 	5GHz Band/HT40 <ul style="list-style-type: none"> -83 dBm at MCS8 -67 dBm at MCS15

1.2.5 IEEE 802.11ac Section

	Feature	Detailed Description		
1.2.5.1	Standard	<ul style="list-style-type: none"> IEEE 802.11ac 		
1.2.5.2	Radio and Modulation Type	<ul style="list-style-type: none"> QPSK , BPSK , 16QAM ,64QAM,256QAM with OFDM 		
1.2.5.3	Operating Frequency	<ul style="list-style-type: none"> 5.15~5.25GHz and 5.725~5.825GHz for US and Canada 5.15~5.25GHz for Japan 5.15~5.25GHz for Europe 5.725~5.825GHz for China 		
1.2.5.4	Channel Numbers	<ul style="list-style-type: none"> 12 non-overlapping channels for US and Canada 8 non-overlapping channels for Japan 19 non-overlapping channels for Europe 4 non-overlapping channels for China 		
1.2.5.5	Data Rate	<ul style="list-style-type: none"> at most 866.7 Mbps 		
1.2.5.6	Media Access Protocol	<ul style="list-style-type: none"> CSMA/CA with ACK 		
1.2.5.7	Transmitter Output Power at Antenna Connector	<ul style="list-style-type: none"> Typical RF Output Power(tolerance ± 2dB) at each RF chain, Data Rate and at roomTemp. 25°C 		
		<ul style="list-style-type: none"> HT80 18 dBm at MCS0 12 dBm at MCS8 11 dBm at MCS9 		
1.2.5.8	Receiver Sensitivity at Antenna Connector	<ul style="list-style-type: none"> Typical Sensitivity at each RF chain. Frame(1000-byte PDUs)Error Rate<10% at room Temp 25°C <table border="1" style="width: 100%;"> <tr> <td>5GHz Band / HT80</td> </tr> <tr> <td> <ul style="list-style-type: none"> -58 dBm at MCS9 </td> </tr> </table>	5GHz Band / HT80	<ul style="list-style-type: none"> -58 dBm at MCS9
5GHz Band / HT80				
<ul style="list-style-type: none"> -58 dBm at MCS9 				

2. Electrical and Thermal Characteristics

2.1 Temperature Limit Ratings

Parameter	Minimum	Maximum	Units
Storage Temperature	-40	+80	□ °C
Ambient Operating Temperature	0	60	□ °C
Junction Temperature	0	125	□ °C

2.2 General Section

	Feature	Detailed Description
2.2.1	Antenna Type	<ul style="list-style-type: none"> ANT1: Metal antenna ANT2: IPEX connector
2.2.2	Operating Voltage	<ul style="list-style-type: none"> 5V±10%
2.2.3	Current Consumption	<ul style="list-style-type: none"> <900mA
2.2.4	Form Factor and Interface	<ul style="list-style-type: none"> High Speed USB2.0 Interface

2.3 Software

Driver	Windows XP/ WinCE/ Vista,/ Win7, Linux, MAC
Security	64/128-bits WEP, WPA, WPA2

2.4 Mechanical Requirements

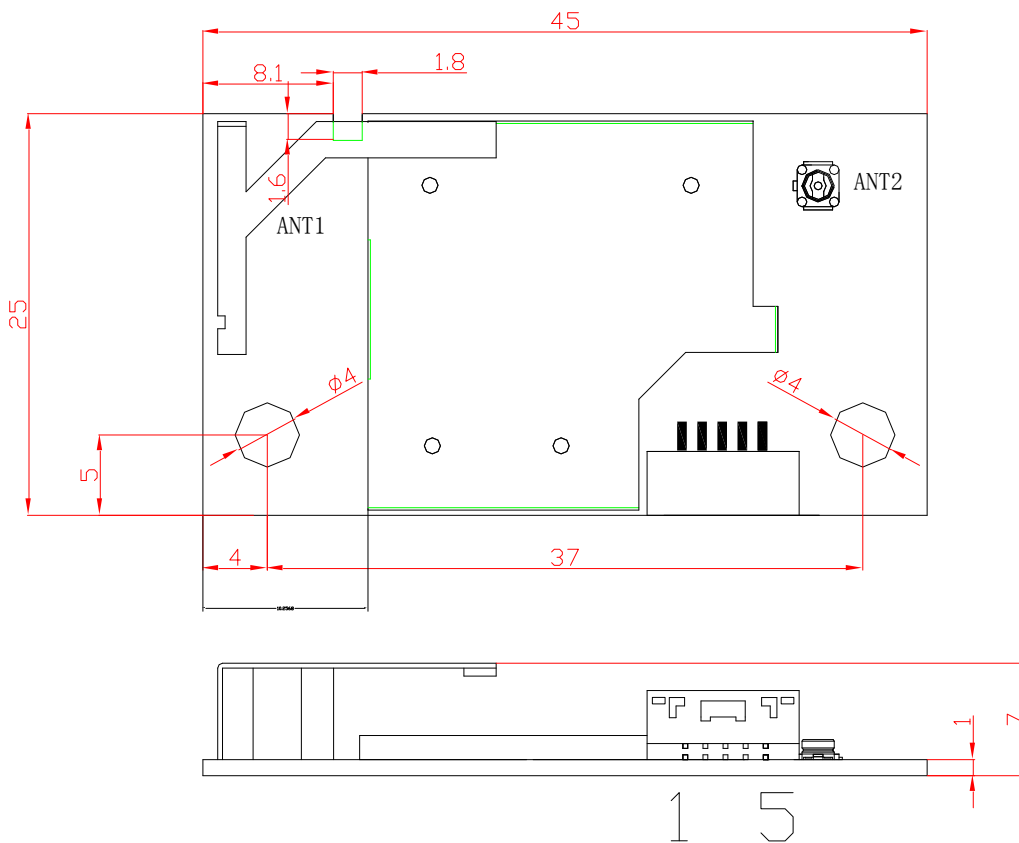
	Feature	Detailed Description
2.4.1	Length 长度	<ul style="list-style-type: none"> 45mm
2.4.2	Width 宽度	<ul style="list-style-type: none"> 25mm
2.4.3	High 高度	<ul style="list-style-type: none"> 7.0mm(PCB:1mm)

3. Connector Definition

5-Pin 1.25 mm connector (Horizontal Type)

Pin	Symbol
1	POWER_EN
2	GND
3	D+
4	D-
5	VCC (5V)

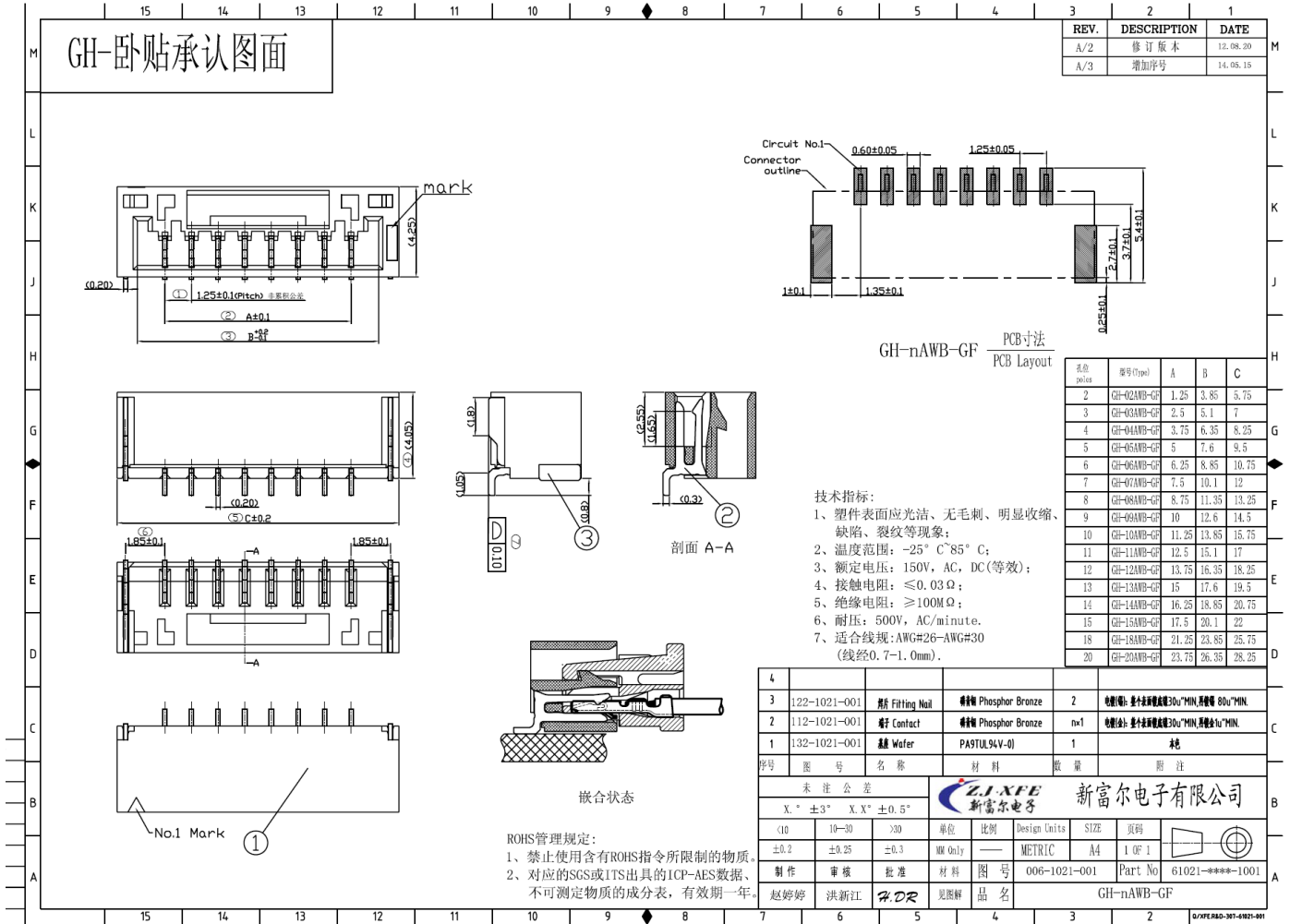
4 Mechanical Dimensions



*TOLERANCES ARE +/-0.5mm UNLESS OTHERWISE SPECIFIED
 *UNIT:mm

Appendix 1 : SMT connector GH-5AWB-GF

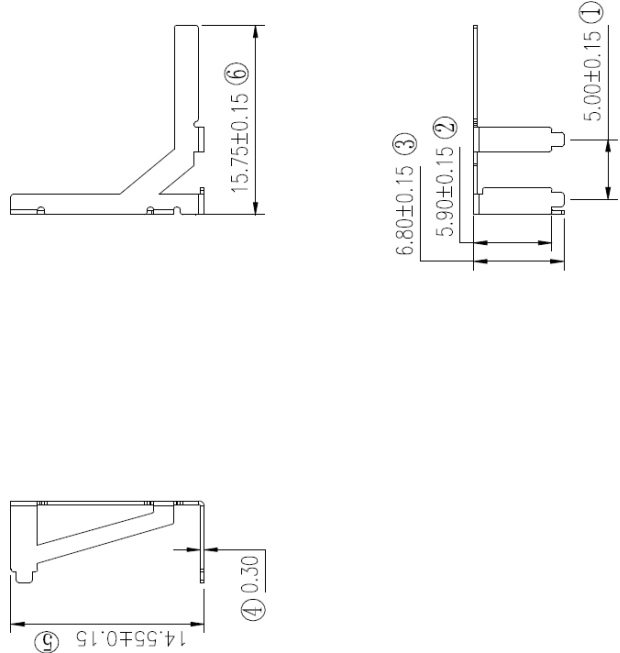
This is the N pin connector which is in common use. You can select 5pin according to your requirement.



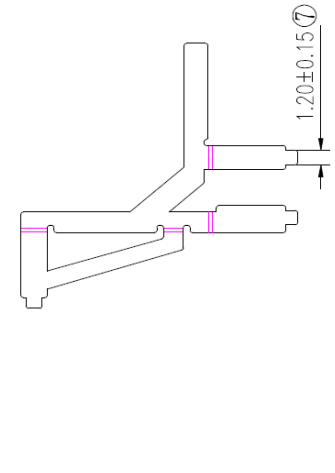


Appendix 2 : Antenna on board spec

版本	说明	审核	日期	批准	日期



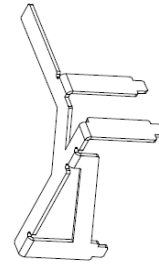
① 14.55±0.15
② 0.30
③ 15.75±0.15
④ 6.80±0.15
⑤ 5.90±0.15
⑥ 5.00±0.15



⑦ 1.20±0.15

展开图

粉红色线为折弯线



立体图

备注:

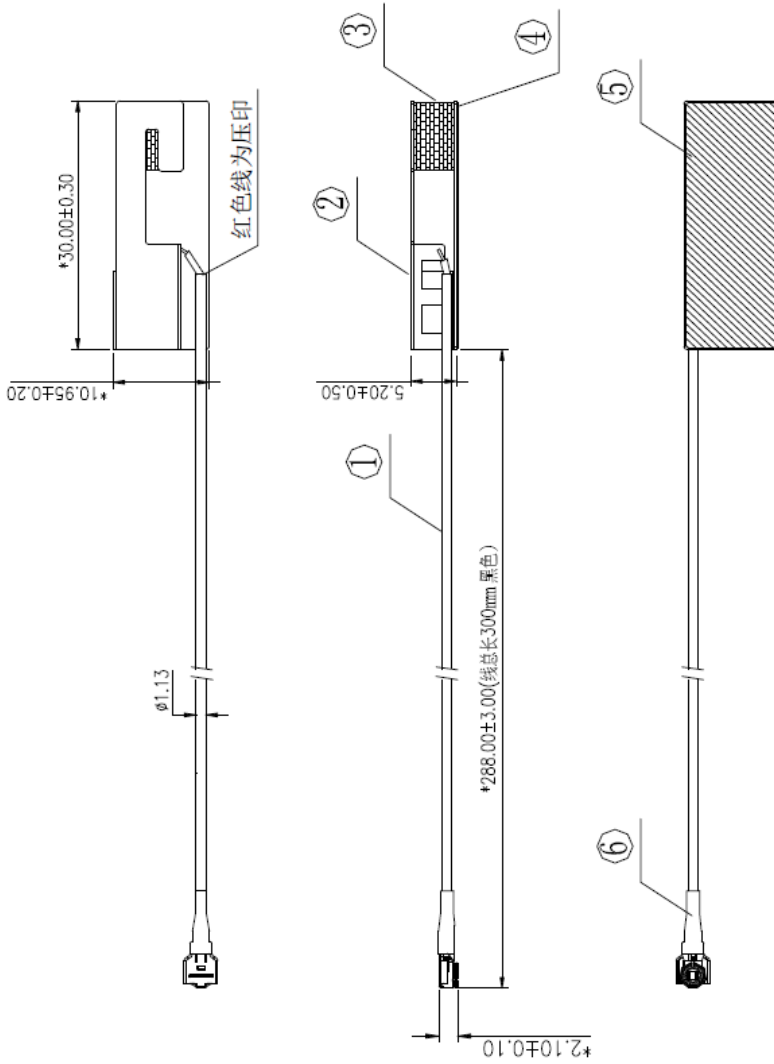
1. 角度尺寸模具设计时依图纸尺寸作参照,样品及量产实配即可;
2. 打“*”为严格控制尺寸 (IQC必测等级) ;
3. 材质说明: (SUS304 3/4H 硬度370°-430° 厚度0.30) ;
4. 字符说明 (采用宋体,要求字迹清晰,弹片无变形);
5. 产品不能有油污、毛刺、利边、缺料、变形、压印过深等不良;
6. 需通过48小时盐雾测试;
7. 包装时需用吸塑盒摆放整齐,运输过程中产品不能挤压碰撞等;
8. 未经过ZTX公司确认,材料不能随意更改;

未注明公差		中天迅通信技术有限公司	
5 LND	±0.08	制图	黄小宇
5-10	±0.10	射频	
10-35	±0.12	材料	SUS304 1#(0.30mm(镍板))
35-50	±0.15	审核	
50-100	±0.18	日期	
100 OVE	±0.20	批准	

RoHs (PPM)	环保要求:
CA	≤100
Pb	≤1000
Hg	≤1000
Cr6+	≤1000
PBB	≤1000
PBDE	≤1000

日期	2016.08.08	图号	
比例	1:1	物料号	
版本	A1	产地	
材料	SUS304 1#(0.30mm(镍板))	厚度	1/1
工艺		产品名称	WTSE-12 (WiFi)
规格	A1	图例号	ZTX-QR-RD-018

版本	说明	审核	日期	批准	日期



材质说明:

序号	结构说明	材质	工艺
①	RF同轴线	FEP (F46)	
②	WIFI弹片	SUS304 T=0.30mm	镀镍
③	支撑泡棉	EVA	
④	双面胶	3M 9448A	
⑤	固定泡棉	EVA 3M 9888T (29.6*10.3*1.2)	
⑥	护套	黑色热缩套管 (10.0)	

注: 带*尺寸为CPK检测尺寸

中天迅通信技术技术有限公司

未注明公差	制图	审核	日期	比例	图号
5 UNL ±0.08	范琦东			1:1	ZTC-OR-018
5-10 ±0.10	标题			1:1	
10-35 ±0.12	材料				
35-50 ±0.15	审核				
50-100 ±0.18	批准				
100.000 ±0.20					

RoHS (PPM)	
Cd	≤100
Pb	≤1000
Hg	≤1000
Cr+6	≤1000
PBB	≤1000
PBDE	≤1000

IC Radiation Exposure Statement for Canada

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux 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.

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.

User manuals for transmitters equipped with detachable antennas shall also contain the following notice in a conspicuous location:

This radio transmitter (identify the device by certification number, or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio (identifier le dispositif par son numéro de certification ou son numéro de modèle s'il fait partie du matériel de catégorie I) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

IMPORTANT NOTE:

Radiation Exposure Statement:

This equipment complies with "Industry Canada RSS-102 for radiation exposure limits set forth for an uncontrolled environment".

This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

The user manual for local area network devices shall contain instructions related to the restrictions mentioned in the above sections, namely that:

(i) the device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;

(iii) for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits specified for point-to-point and non-point-to-point operation as appropriate; and

(iv) the worst-case tilt angle(s) necessary to remain compliant with the e.i.r.p. elevation mask requirement set forth shall be clearly indicated.

Le guide d'utilisation des dispositifs pour réseaux locaux doit inclure des instructions précises sur les restrictions susmentionnées, notamment :

(I) l'appareil pour fonctionner dans la bande 5150-5250 MHz est réservé à une utilisation intérieure pour réduire le potentiel d'interférences nuisibles à la co-canal avec les systèmes mobiles par satellite;

(lii) pour les appareils avec antenne (s) détachable, le gain d'antenne maximal autorisé pour les appareils à la bande 5725-5850 MHz doit être telle que l'équipement satisfait encore la pire limites spécifiées pour le point-à-point et non point-à-point de l'opération, le cas échéant; et

(Iv) l'angle d'inclinaison du pire (s) nécessaire pour rester conforme à la pire masque d'élévation condition énoncée doit être clairement indiqué.

Host Product Labelling Requirements:

This transmitter module is authorization only for use in device where the antenna may be installed such that 20cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following "Contains IC: 12290A-WC0DR2611"
"Contains FCC ID: 2AC23-WC0DR2611"

Federal Communications Commission (FCC) Interference

Statement

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 generate, 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.

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.

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.

RF exposure warning

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This equipment must not be collocated or operating in conjunction with any other antenna or transmitter.