A2D-HD Project specification

Customer name: GUANGZHOU HEYGEARS IMC.INC

Customer name: A2D-HD

Product name: FPC + common-axis welding

Product specification: See the BOM list for details

Material code: WIFI antenna assembly: 13300200017; NFC tag: 13300200018

Change Content CV:

order number	edition	state	Start and end date	person liable	page number	remarks
1	editio princeps	editio princeps	2024-11-13	Li Jieyi	12	

The Supplier acknowledges the signature of the following documents:

Responsible person / date		IQC/ date	Review / Date	Approval / Date
MD				
RF				

The Demander acknowledges the signature (please send it back after the confirmation):

The demanders judgment result: □ qualified □ unqualified			
Development & Design Engineer / Date	SQE Engineer / Date	Purchasing Leader / Date	Development Manager approval / date

catalogue

1. Overview

1.1 Scope of application

This requirement specifies the antenna technical requirements and material requirements specifications for the product A2D-HD.

This requirement applies to the selection, testing and acceptance of A2D-HD antennas.

1.2 Project basic information

Antenna name:	A2D-HD
Antenna frequency:	WIFI:2.4G/5G NFC:13.56MHz
Antenna material:	FPC+ coaxial cable

2. Technical index requirements

2.1 Introduction of test items and equipment

inventory	test item	equipment
S11 parameter	Standing wave ratio, echo loss	network analyzer
Active test	TRP,TIS	Integrated tester, microwave darkroom
Passive test	Gain, efficiency	network analyzer

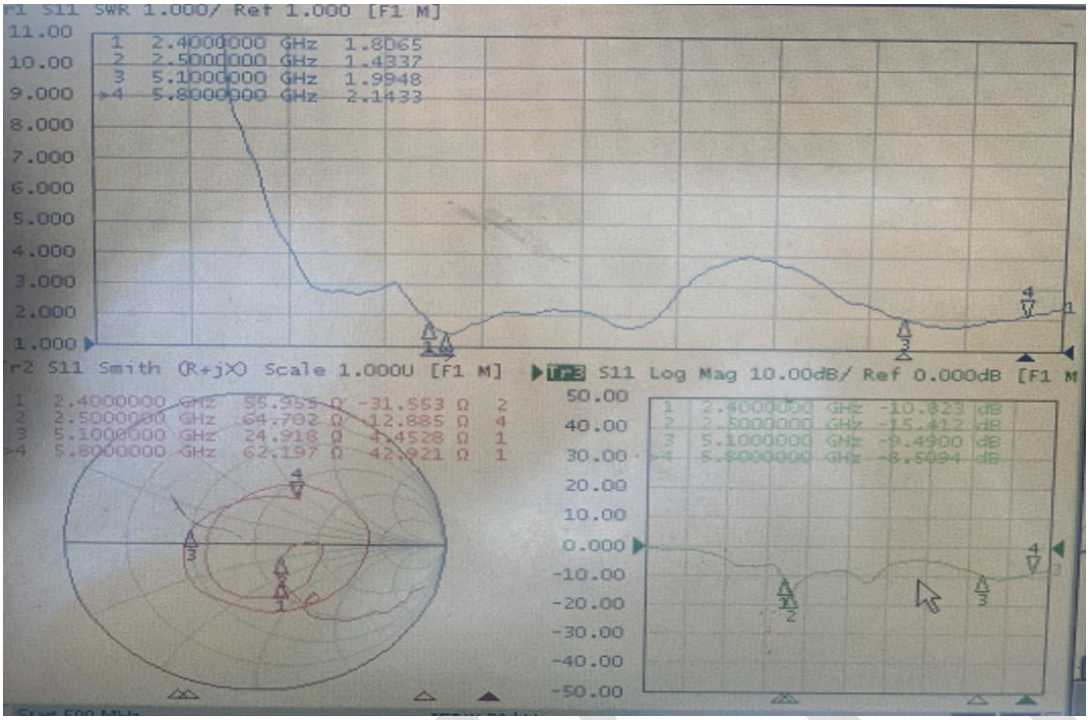
2.2 No-Source Report

2.2.1 Instructions for passive testing

Test equipment: network analyzer

Test method: Export a 50 Ohm from the instrument test port with a CABLE cable, use the SMA connector of the hand mechanism after the calibrator, and record the echo loss or standing wave ratio corresponding to the relevant frequency point.

2.2.2 Antenna passive parameters

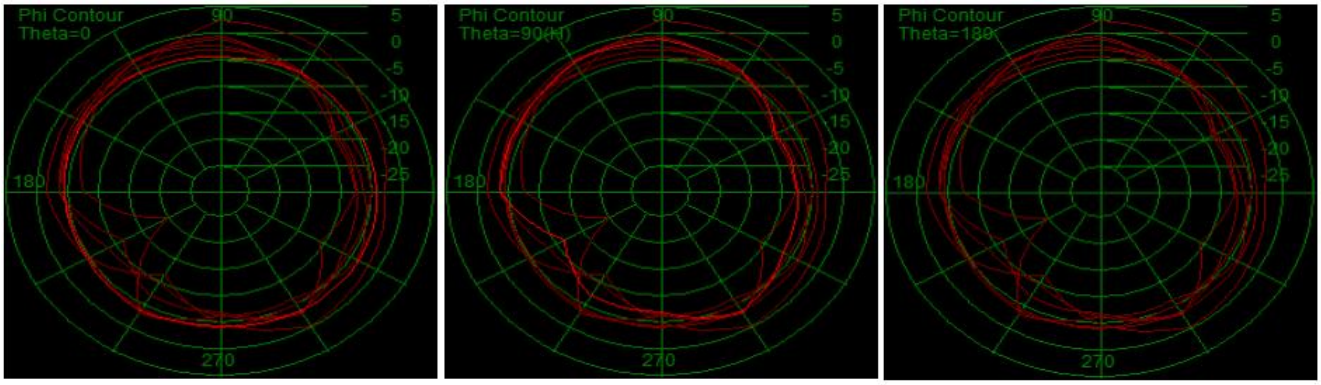


2.2.3 Antenna efficiency and gain

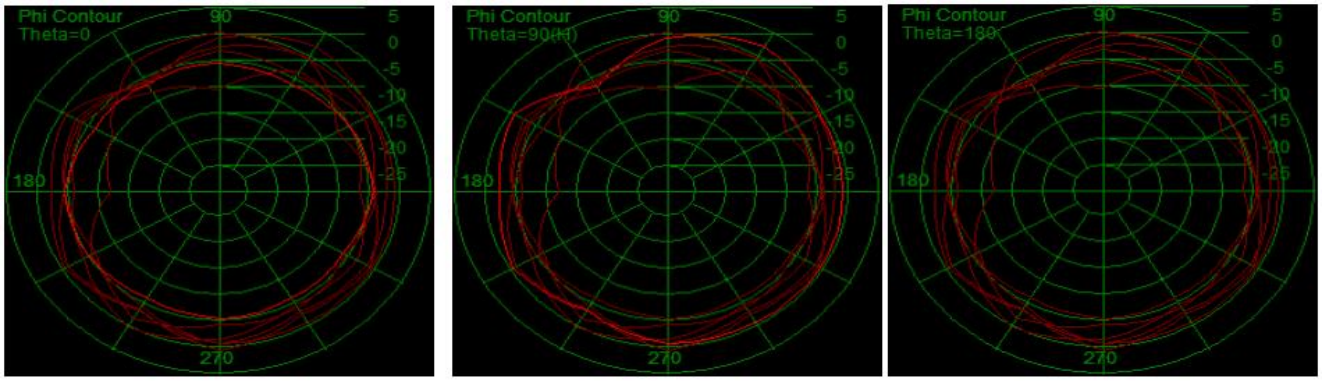
Freq (MHz)	Effi (%)	Gain (dBi)
2400MHz	51.7	1.89
2410MHz	52.1	1.95
2420MHz	53.4	2.03
2430MHz	53.8	2.11
2440MHz	54.6	2.16
2450MHz	54.5	2.20
2460MHz	55.2	2.25
2470MHz	54.7	2.18
2480MHz	54.1	2.16
2490MHz	53.5	2.10
2500MHz	52.3	2.13

Freq (MHz)	Effi (%)	Gain (dBi)
5100MHz	48.5	2.12
5150MHz	50.2	2.25
5200MHz	50.9	2.27
5250MHz	51.1	2.30
5300MHz	52.4	2.34
5350MHz	52.1	2.35
5400MHz	53.9	2.48
5450MHz	52.8	2.41
5500MHz	51.6	2.29
5550MHz	52.6	2.23
5600MHz	51.4	2.15
5650MHz	50.6	2.08
5700MHz	49.6	2.12
5750MHz	49.1	2.31
5800MHz	48.7	2.25

2.2.4 2.4G antenna direction diagram



2.2.5 5G antenna direction diagram

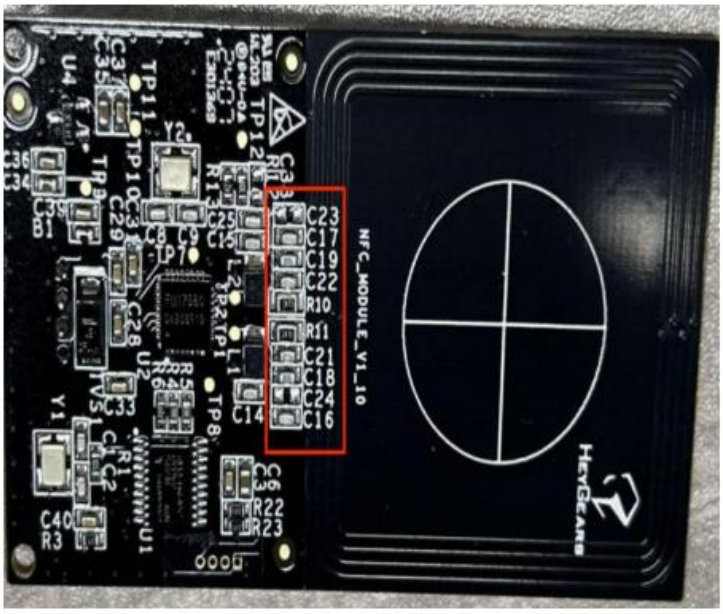


2.2.6 Antenna active parameters

	802.11	CH	TRP(db)	TIS(dbm)
WiFi	11a (54M)	36	11.86	-71.19
		149	12.21	-71.34
		165	12.17	-70.65
	11b (11M)	1	14.03	-84.19
		6	14.15	-84.36
		11	13.75	-83.82

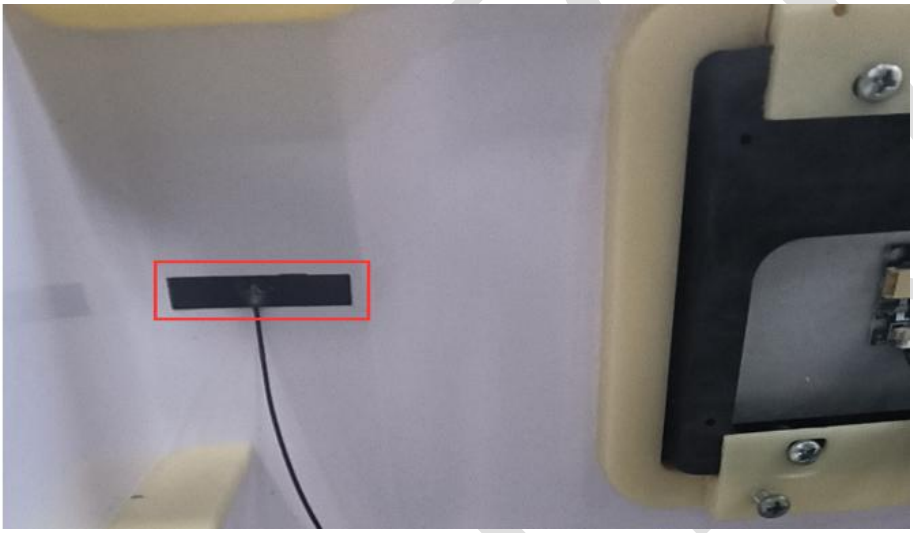
2.2.7 NFC circuit parameter change

Element	NFC
	Value
R1	10Ω
C4	3PF
C3	68PF
C2	5.6PF
C1	62PF

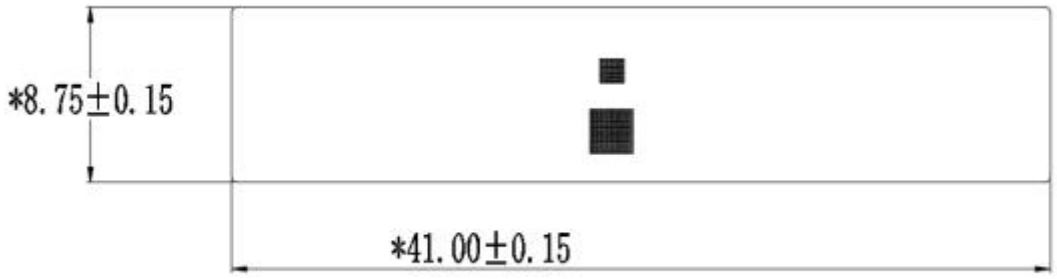


Element	NFC
	Value
C23	NC
C17	33PF
C19	150PF
C22	6.8PF
C21	6.8PF
C18	150PF
C24	NC
C16	33PF

2.2.8 Position of the antenna

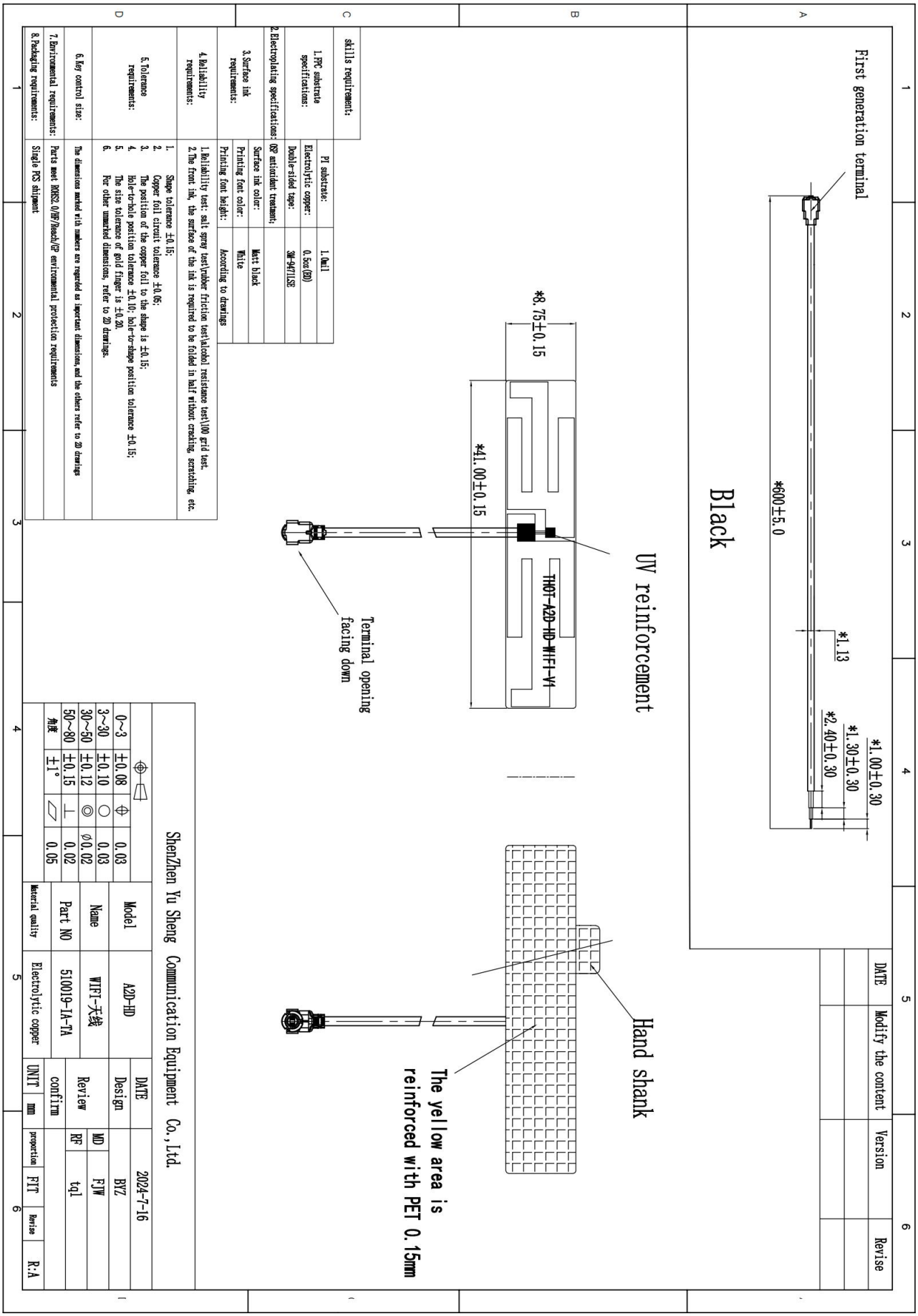


2.2.9 Antenna dimensions



Antenna coaxial line length 600mm

3.Structural drawing



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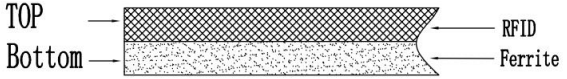
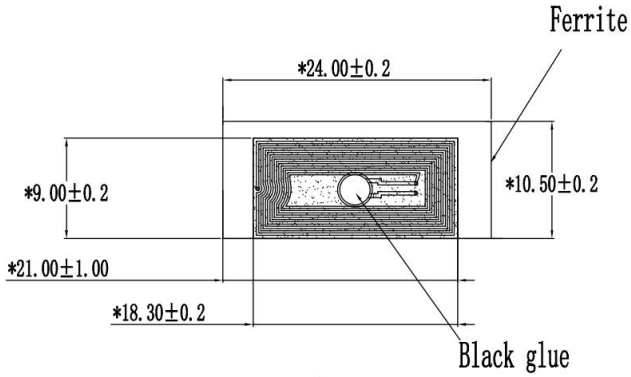
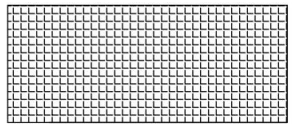
Stack





Front



Reverse side

skills requirement:		
1. FPC substrate specifications:	PI substrate:	0.5mil
	Electrolytic copper:	0.5oz(ED)
	Double-sided tape:	3M-9471LSE
2. Electroplating specifications:	/	/
3. Surface ink requirements:	Surface ink color:	Black covering film
	Printing font color:	/
	Printing font height:	/
4. Reliability requirements:	1. Reliability test: salt spray test\rubber friction test\alcohol resistance test\100 grid test. 2. The front ink, the surface of the ink is required to be folded in half without cracking, scratching, etc.	
5. Tolerance requirements:	1. Shape tolerance ±0.20; 2. Copper foil circuit tolerance ±0.05; 3. The position of the copper foil to the shape is ±0.15; 4. Hole-to-hole position tolerance ±0.10; hole-to-shape position tolerance ±0.15; 5. The size tolerance of gold finger is ±0.20. 6. For other unmarked dimensions, refer to 2D drawings.	
6. Key control size:	The dimensions marked with numbers are regarded as important dimensions, and the others refer to 2D drawings	
7. Environmental requirements:	Parts meet ROHS2.0/HF/Reach/GP environmental protection requirements	
8. Packaging requirements:	Single PCS shipment	

0~3	±0.08	⌖	0.03
3~30	±0.10	○	0.03
30~50	±0.12	◎	∅0.02
50~80	±0.15	⊥	0.02
角度	±1°	▱	0.05

ShenZhen Yu Sheng Communication Equipment Co.,Ltd.

Model	A2D-HD	DATE	2024-11-06		
		Design	BYZ		
Name	RFID-Module	Review	MD	FJW	
			RF	tql	
Part NO	510019-IB-TB	confirm			
Material quality	FPC+Ferrite	UNIT	mm	proportion	FIT
				Revise	R:A

4. Bill of materials

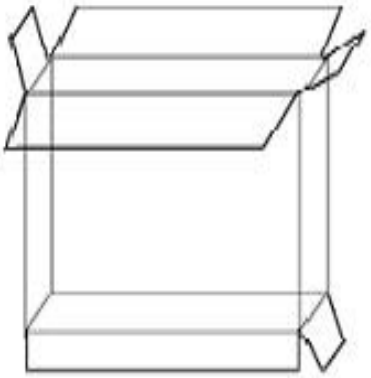
Shenzhen Yusheng Communication Equipment Co.,LTD

510019-(A2D-HD)-BOM

Edition : T:B　　client : 510　　Type of aircTCft : 510019　　Set a date : 2024/7/23

Item number	*Material code	*Material name	name	*Machine type	Specification and model	colour	*UNIT.	dosage	remark
1	510019-IA-TA	WIFI antenna assembly		A2D-HD	Black WIFI-FPC welding coaxial line	black	PCS	1	
1.1	510019-IA-01-TA	WIFI-FPC		A2D-HD	Black WIFI-FPC electrolytic copper half and half 8.75* 41.0.12mm	black	PCS	1	
1.2	510019-IA-02-TA	WIFI-CABLE		A2D-HD	Single-head first-generation terminal φ1.13*600 mm	black	PCS	1	
1.3	510019-IA-03-TA	Assemble		A2D-HD	weld	black	PCS	1	
2	510019-IC-TB	RFID antenna assembly		A2D-HD	RFID-FPC, Ferrite, fit	black	PCS	1	
2.1	510019-IC-01-TB	RFID-Ferrite		A2D-HD	Ferrite 24.00*10.50*0.12MM	black	PCS	1	
2.2	510018-IC-02-RB	RFID-FPC		A2D-HD	Yellow RFID-FPC electrolytic copper half and half 18.3*9.00*0.16MM	black	PCS	1	
2.3	510019-IC-03-TA	Fit		A2D-HD	Fit	black	PCS	1	
verify :			examine :			manufacture : BYZ			

5. Package schematic diagram

<table>
<tr><td colspan="3">Packaging method diagram</td></tr>
<tr><td>product name</td><td colspan="2">Antenna components</td></tr>
<tr><td>P / N</td><td colspan="2">510019</td></tr>
<tr><td>Project model</td><td colspan="2">A2D-HD</td></tr>
<tr><td rowspan="3">File details</td><td>Carton Size 1:270 * 260 * 200MM Carton Size 2:260 * 200 * 200MM Carton Size 3: by order quantity / volume</td><td>  </td></tr>
<tr><td>Boating method</td><td>Packaging by order quantity</td></tr>
<tr><td>Total number of binning</td><td>Packaging by order quantity</td></tr>
<tr><td>labeling requirement</td><td>Label size 1: General 100 * 100mm Label size 2: according to customer requirements</td><td></td></tr>
<tr><td colspan="3">matters need attention</td></tr>
<tr><td colspan="3">1. Due to the limitation of order quantity, the packing method of each material is the size of the box according to the total quantity of the order or the physical volume</td></tr>
<tr><td colspan="3">2. Storage temperature: room temperature</td></tr>
<tr><td colspan="3">3. Preservation conditions: store them in a cool and dry place</td></tr>
</table>

6. Manufacturer Information

6.1 Manufacturer name

SHENZHEN YUSHENG COMMUNICATION EQUIPMENT CO., LTD

6.2 Manufacturers address

407-411, Floor 4, Building 2, South Taiyun Chuanggu Park, Southeast of intersection of Guangming Avenue and Dongchang Road, Guangming District, Shenzhen