

KunShan Innwave Communication Technology CO.,Ltd.

【Material acknowledgement】

CUSTOMER NAME: ShenZhen Azroad Technology Incorporated CO LTD

PRODUCT NAME: KD89 (F003D8913910002)

CUSTOMER: L530100082439

Customer material name: MD15

PRODUCT: Antenna: MD15-2.4G antenna 2 Size: 105*14*0.6mm
Gray line Exposed line length 145mm Innwave

Factory signature:

APPROVED BY	AUDITOR BY	CHECKED BY
Huang Chao	Lin Quan Jun	Huang Lei

Customer acknowledges signature:

Acknowledge the result: ☐ OK ☐ NG

APPROVED BY	APPROVED BY	APPROVED BY

Address: Shenzhen Longhua District Dalang Street Zijing double creation Park 7 building 101

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Fax: 051257258326

Contact person: zengqiuzhi

Mailbox: zengqiuzhi@innwave.cn

Website: <https://www.innowave.cn/>

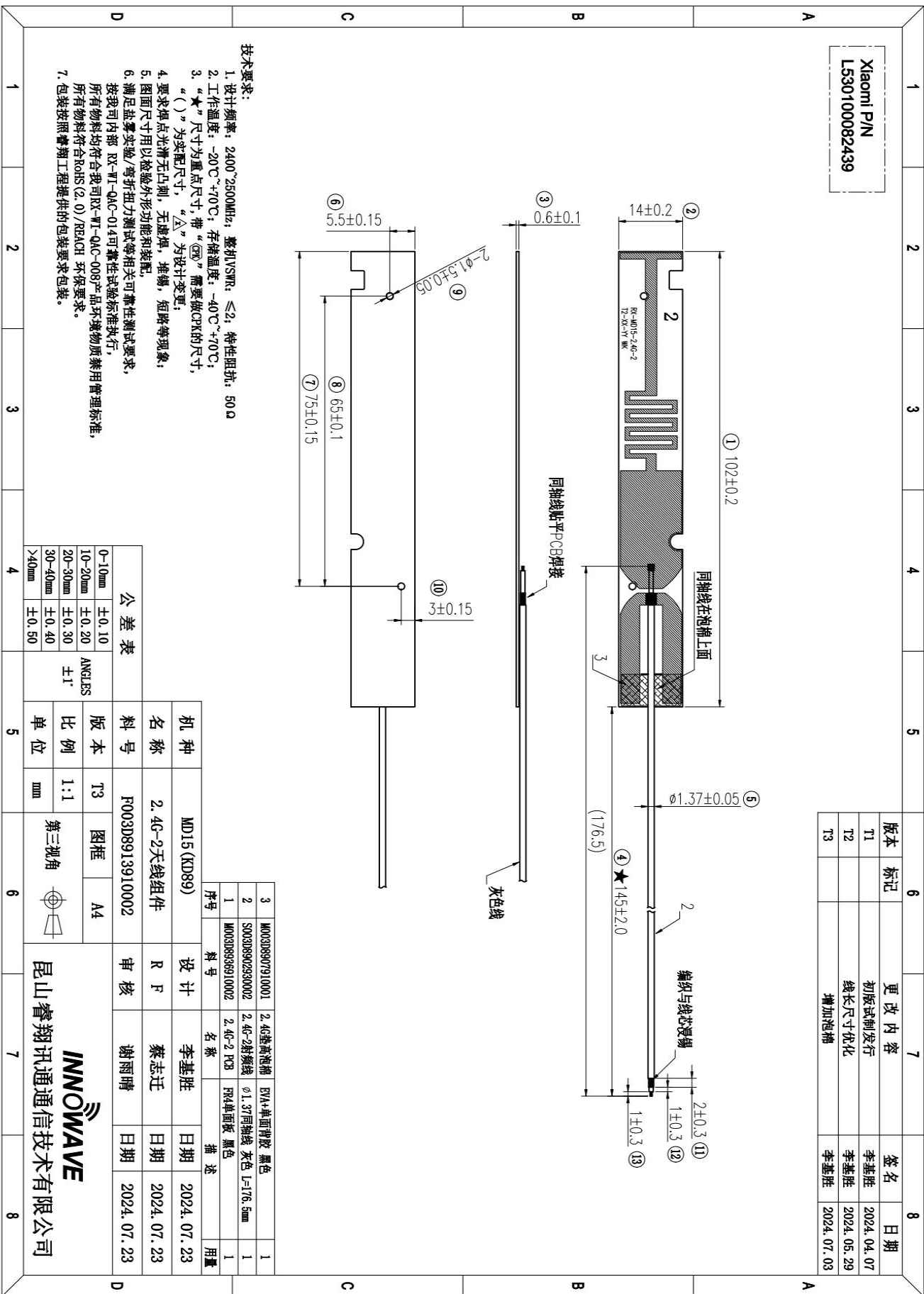
(1) Antenna description

Product main technical parameters

Main technical specificationf

Main technical parameters		Main technical specifications	
Frequency Range (MHz)	2400-2500	Frequency Range (MHz)	2400-2500
Impedance (Ω)	50	Impedance (Ω)	50
Peak Gain(dBi)	5.0	Peak Gain(dBi)	5.0
VSWR	≦2.0	VSWR	≦2.0
Polarization	vertical polarization	Polarization	vertical polarization
Radiation	Omni-directional	Radiation	Omni-directional
Connector Type	Cable	Connector Type	Cable
Physical Properties		Physical Properties	
Antenna Base	FR-4	Antenna Base	FR-4
Operating Temp	-20℃~+70℃	Operating Temp	-20℃~+70℃
Storage Temp	-40℃~+70℃	Storage Temp	-40℃~+70℃

(1) 样品天线图

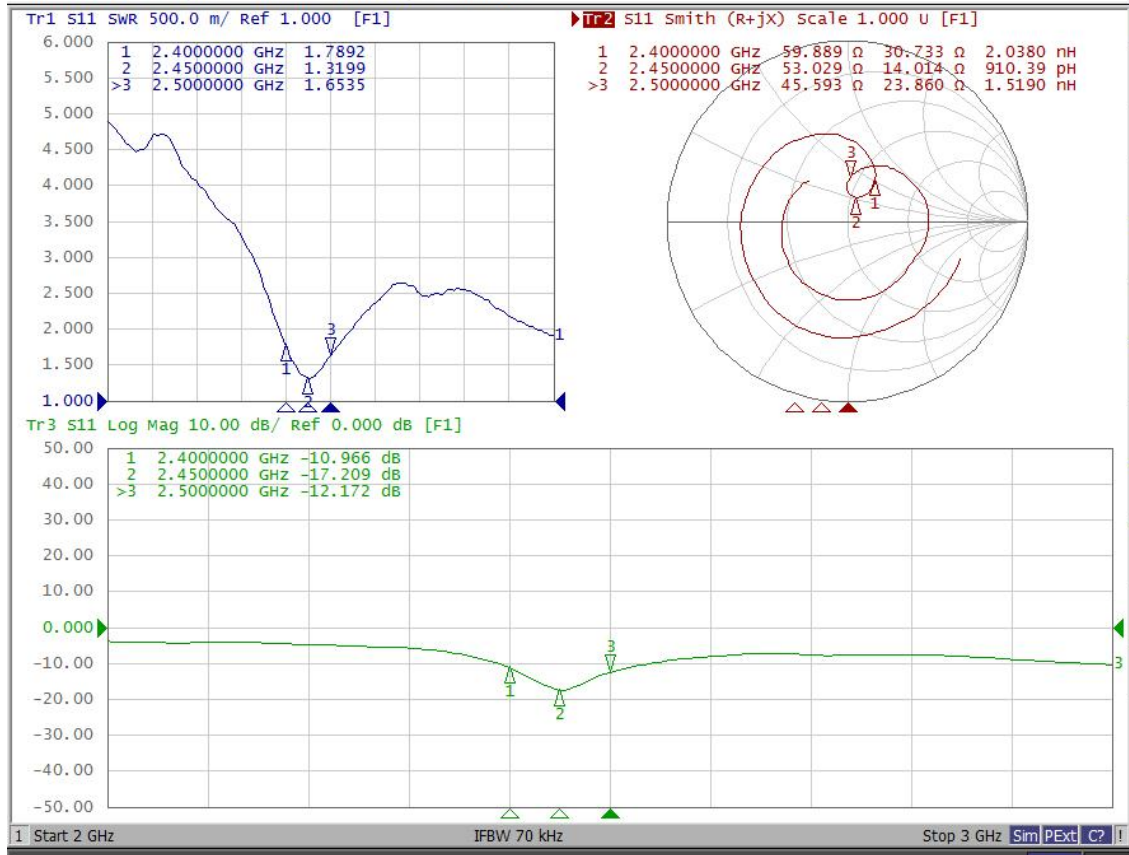


(2) Test report

2.1: Network analysis test report

E5063A Network Analyzer

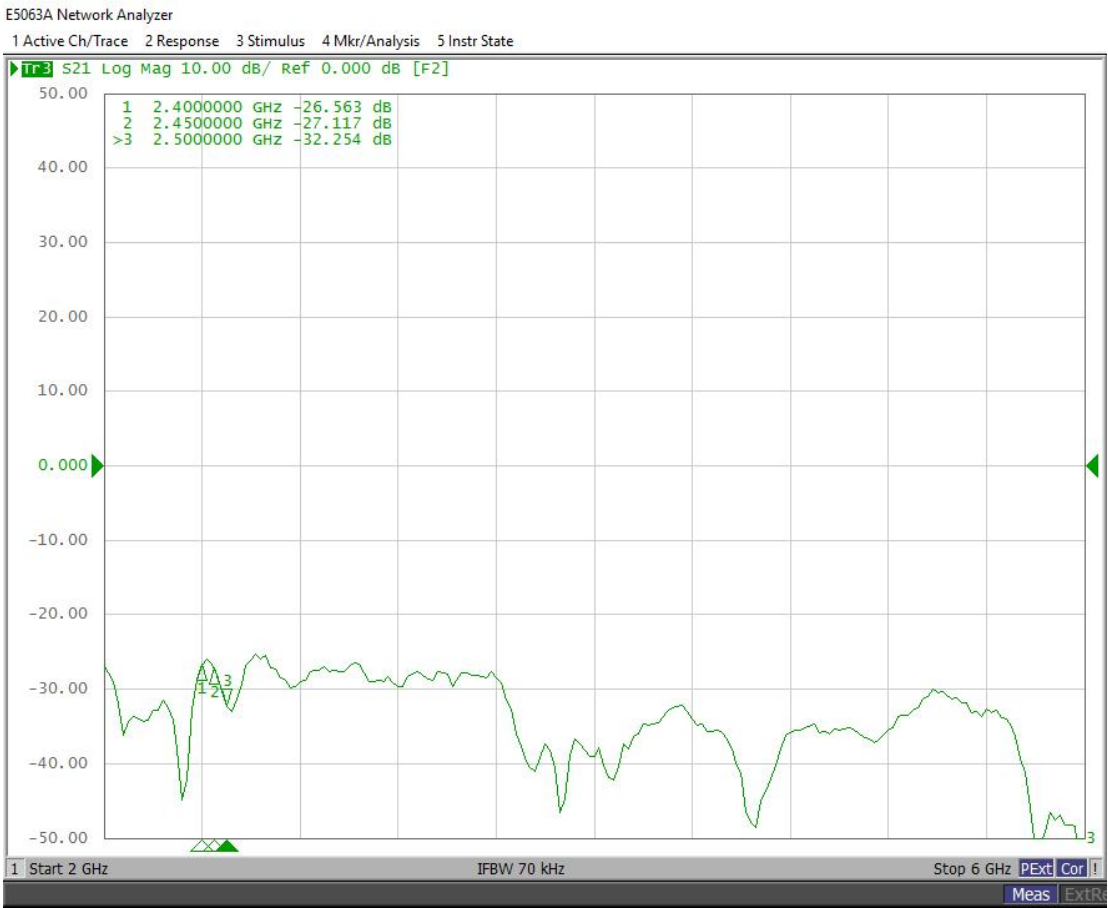
1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State



2.2: Antenna gain, efficiency meter:

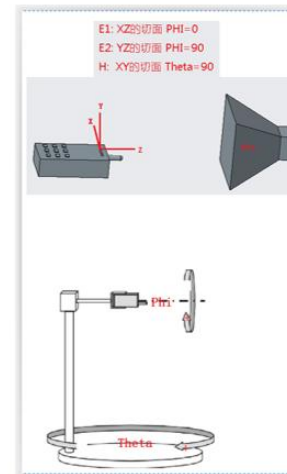
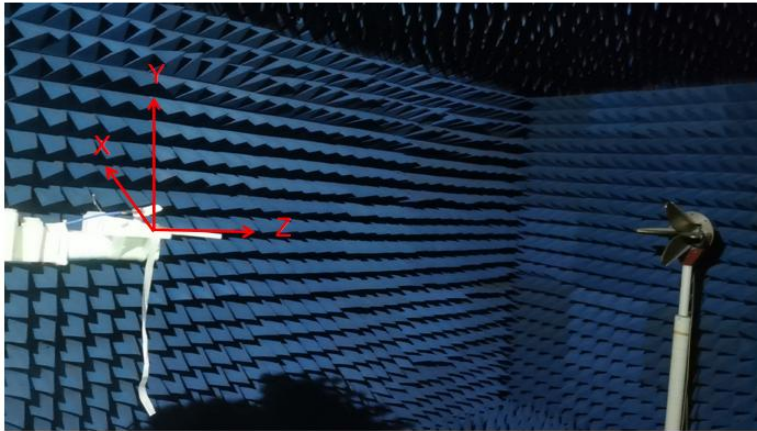
Freq (MHz)	Effi (%)	Gain (dBi)
2400	70.3	4.3
2410	72.7	4.5
2420	71.5	4.8
2430	72.6	5.1
2440	71.8	5.3
2450	72.1	5.5
2460	71.7	5.4
2470	73.3	5.3
2480	72.3	5.2
2490	72.6	5.1
2500	73.4	4.9

2.3: Isolation:

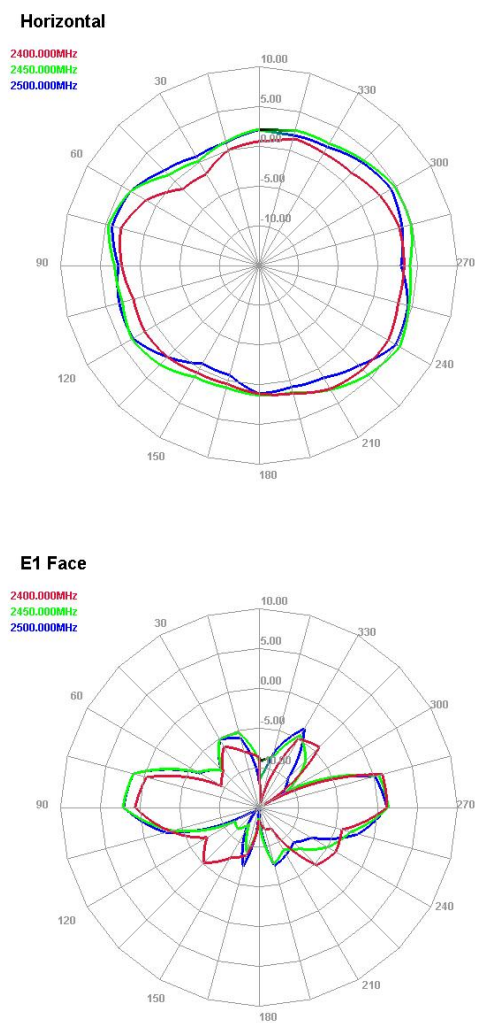


(3) Directional diagram

3.1: Test environment diagram:

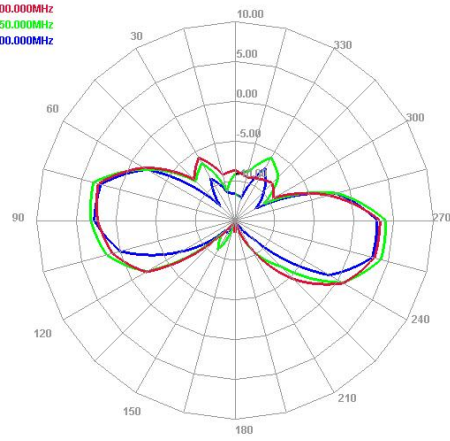


2.4G 方向图:



E2 Face

2400.000MHz
2450.000MHz
2500.000MHz



DimensionsReport

Kunshan Innwave Communication Technology Co.,Ltd. Full scale measurement report																								
Vendor		Material Name		Cable+PCB		Part NO		F003D8913910002		Tool Number		Cav. Number		Unit				Comments 验海军						
Kunshan Innwave Communication Technology Co.,Ltd.		Material Code		/		Part Name		KD89-2.4G-2 antenna assembly				/		/		☐ INCHES ☒ MILLIMETERS								
Date		2024/5/28				MEASURED DIMENSION					% TOLERANCE USED			DISPOSITION					ACCEPTABLE VARIANCE					
DIM. #	DIMEN SION	DRAWING ZONE	+ TOL.	- TOL.	NOTE	SAMPLE 1	SAMPLE 2	SAMPLE 3	SAMPLE 4	SAMPLE 5	UPPER	LOWER	0%-25%	25%-50%	50%-75%	75%-100%	100%+	Re-Measure	Accept	Fix Tool	Accept With Variance	DIMEN SION	+ TOL.	- TOL.
1	102.00	102.20	0.20	0.20	101.80	102.01	102.03	102.01	102.03	102.02	15%	0%	X								√			
2	14.00	14.20	0.20	0.20	13.80	14.01	14.02	14.01	14.01	14.02	10%	0%	X								√			
3	0.60	0.70	0.10	0.10	0.50	0.61	0.61	0.60	0.60	0.61	10%	0%	X								√			
4	145.00	148.00	3.00	3.00	142.00	145.20	145.23	145.22	145.21	145.21	8%	0%	X								√			
5	1.37	1.42	0.05	0.05	1.32	1.37	1.37	1.37	1.37	1.36	0%	20%	X								√			
6	5.50	5.65	0.15	0.15	5.35	5.49	5.48	5.49	5.49	5.49	0%	12%	X								√			
7	75.00	75.10	0.10	0.10	74.90	75.02	75.01	75.00	75.04	75.02	40%	0%		X							√			
8	65.00	65.15	0.15	0.15	64.85	65.02	65.02	65.01	65.01	65.02	13%	0%	X								√			
9	1.50	1.60	0.10	0.10	1.40	1.51	1.52	1.50	1.49	1.50	20%	6%	X								√			
10	3.00	3.15	0.15	0.15	2.85	3.01	3.02	3.02	3.02	3.02	13%	0%	X								√			
11	2.00	2.30	0.30	0.30	1.70	2.02	2.02	2.01	2.01	2.04	13%	0%	X								√			
12	1.00	1.30	0.30	0.30	0.70	1.01	0.99	0.99	1.00	1.01	3%	3%	X								√			
13	1.00	1.30	0.30	0.30	0.70	1.00	0.99	1.02	1.02	1.01	7%	3%	X								√			

5 Reliability test report

 KunShan Innwave Communication Technology CO.,Ltd				
KD89 Reliability test report				
Experimental report number: 20240326021				
The name of a product or commodity: 2.4G-2				
Color: Black				
Production date: 2024.3.26				
CHECKED BY: Zhang Zaoqin		AUDITOR BY: Yan Wulin		APPROVED BY:
Serial number	Test item	QTY	Experimental result	Remark
1	Salt spray test	3PCS	OK	
2	High temperature storage test	3PCS	OK	
3	Low temperature storage test	3PCS	OK	
4	Temperature shock test	3PCS	OK	
5	Constant temperature and humidity	3PCS	OK	
6	Adhesion test	3PCS	OK	
Preservation Department:		Quality Department		Form number: RX-FR-QAC-068 A0

6、 Bill of materials

				KunShan Innwave Communication Technology CO.,Ltd.																			
BOM																							
						2024/7/3		T3		5		2.4G-1 wire length is changed, 2.4G-1/2 foam is added		LI Ji Sheng									
						2024/5/27		T2		14		The RF line specifications and dimensions are changed, and the color of the 5G ANT PCB is changed		LI Ji Sheng									
						2024/4/7		T1.1		2		2.4 The length of the G-2 RF cable is changed		LI Ji Sheng									
Client:		/		type:		MD15		E-BOM		2024/3/26		Initial release		LI Ji Sheng									
Project		KD89		Edition:		T3		P-BOM		Change date		Markers		signature									
主BOM																							
Term		Change mark		New part number		Product name		Gauge lattice		Material (Surface treatment)		Colour		Dosage		Customer part number		supplier		Reserve injection			
1				T003		P00388913910002		The KD89 has a built-in 2.4G-2 antenna assembly		MD15 2.4G-2 antenna The grey line is 145mm long		Halogen PCB+ coaxial line		Black		1 PCS				Innovave		self-control	
2						M00388936910002		The KD89 has a built-in 2.4G-2 PCB		102*14*0.6mm		Halogen 0.6mm FR4 single panel, single side black oil OSP process		Black		1 PCS						outsourcing	
2		T2		S00388902930002		The KD89 has a built-in 2.4G-2 RF cable		Φ1.37*176.5mm		Halogen-free copper wire, both ends peeled with tin (line loss 0.5-1.008 impedance 50 ohms)		Light gray		1 PCS				Innovave		self-control			
3		T2		T01E0125		1.37 Common coaxial line		/		Halogen-free copper wire, both ends peeled with tin (line loss 0.5-1.008 impedance 50 ohms)		Light gray		0.102PCS						Common materials/outsourcing			
3				B15A0003		Lead-free environmental protection high temperature tin		Lead-free environmental protection high temperature tin strip weight 1KG		Halogen-free tin content 99.3%		Silver		0.023g/pcs						Common materials/outsourcing			
2		T3		M00388907910001		KD89 built-in 2.4G pad high foam		13*7*2.0mm		Halogen-free EVA 60 degree foam + domestic glue on one side		Black		1 PCS						outsourcing			
2				B15A0002		Lead-free green tin wire 0.8mm diameter		Φ0.8mm		Halogen-free resin content 2.5-3.0% Weight 1KG		Silver		0.046g/pcs						outsourcing			
2				S00082000061000		Zip-lock bag 006 260*380mm		Transparent, anti-static, self-sealing single layer thickness 0.07mm		Halogen-free transparent, anti-static, self-sealing single layer thickness 0.07mm		Transparent		1/100PCS						outsourcing			
2				B01A0026		Carton 350*350*250mm		Carton 350*350*250mm		Halogen-free carton 350*350*250mm		Natural quality		1/1000PCS						outsourcing			

