

## APPROVAL SHEET

客户名称

CUSTOMER NAME: ZKTECO CO., LTD.

产品名称

PRODUCT NAME: 2.4G FPC 内置天线 L=250mm+端子

客户料号

CUSTOMER P/N:

优比电子料号

Youbi P/N: UB01C250F2D31a0A REV: A

	MANUFACTURER SIGNATURE	CUSTOMER SIGNATURE
CHECKED BY:		
APPROVED BY:	工程专用章 Changxing. Liu	工程专用章
DATE:	2022/7/5	

## Modification History

Version	Content Revision	Issued by	Date
A	Original version	Eddy	2022-7-5

## *Content*

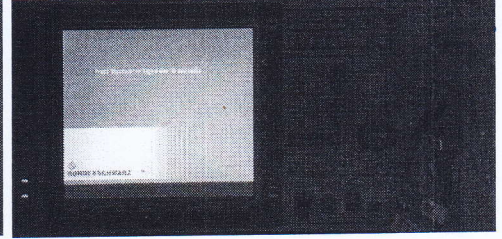
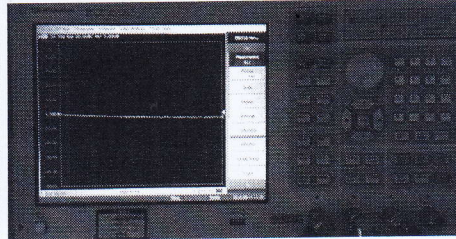
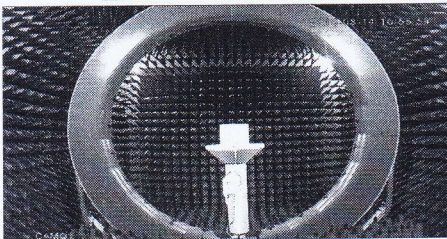
<i>Item</i>	<i>Description</i>
1.-----	Electrical Specification
2.-----	Test Items and Equipment
3.-----	S Parameter
4.-----	Efficiency and Gain
5.-----	Radiation Pattern
6.-----	Active test data
7.-----	Antenna installation diagram
8.-----	Mechanical Specification
9.-----	Packaging

## 1. Electrical Specification:

Characteristics	Specifications	Unit
Outline Dimensions	22.9x22.5,L250	mm
Frequency	2400-2500	MHz
Impedance	50	$\Omega$
VSWR	< 2	
Polarization	Linear Polarization	
Gain	2.0±0.5	dBi
Efficiency	>40	%
Connector Type	1.13 MHF-1-Plug	
Operating temperature	-20°C~+85°C	
Storage Temp	-20°C~+50°C	

## 2. Test Items and Equipment

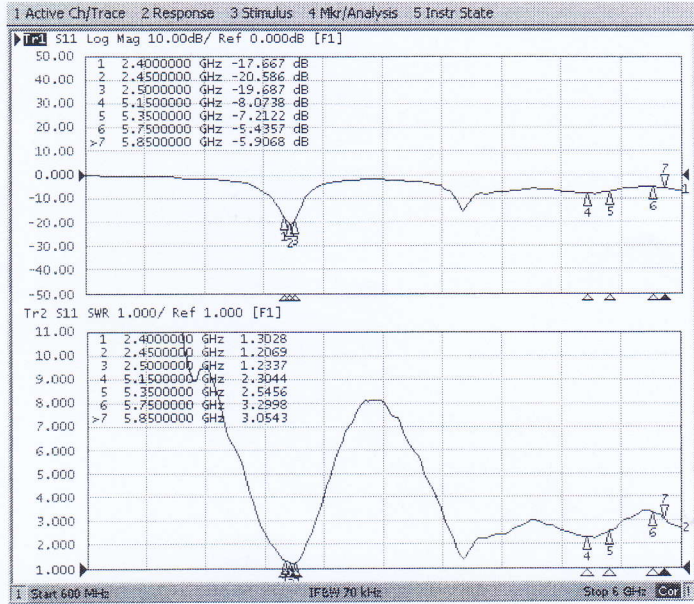
	Test items	Test equipment
S Parameter	1.Return Loss 2.VSWR	Network analyzer (Agilent E5071B)
The whole machine of Passive parameters	1.Frequency 2.Gain 3.Radiation Pattern	1.3D microwave darkroom (5m*5m*5m) 2.Network analyzer (Agilent E5071B)
The whole machine of Active parameters	1.TRP 2.TIS	1.3D microwave darkroom (5m*5m*5m) 2.Comprehensive test instrument (CMW500)



### 3. S Parameter

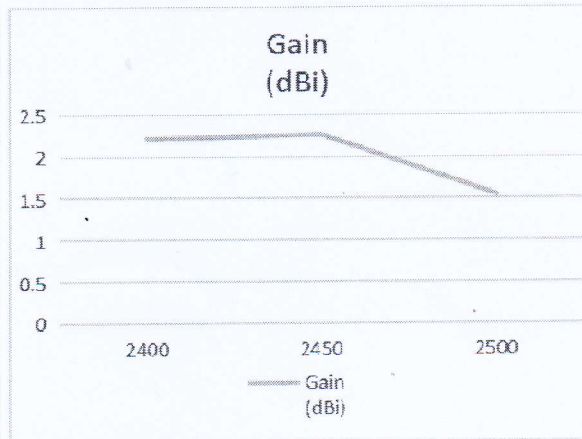
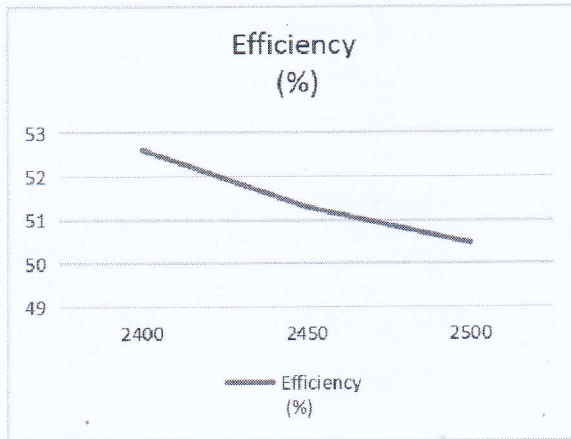
Frequency (MHz)	Return Loss (dB)	VSWR
2400	-17.66	1.30
2450	-20.58	1.20
2500	-19.68	1.23

\* Voltage Standing Wave Ratio(VSWR)  
Return Loss(RL)  
 $RL=20*\log_{10}[(VSWR+1)/(VSWR-1)]$



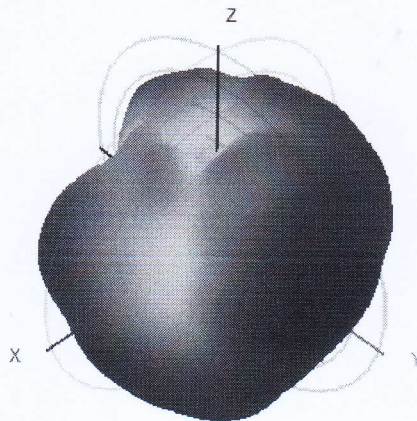
### 4. Efficiency and Gain

Frequency (MHz)	2400	2450	2500
Efficiency (%)	52.6	51.29	50.46
Gain (dBi)	2.21	2.26	1.55

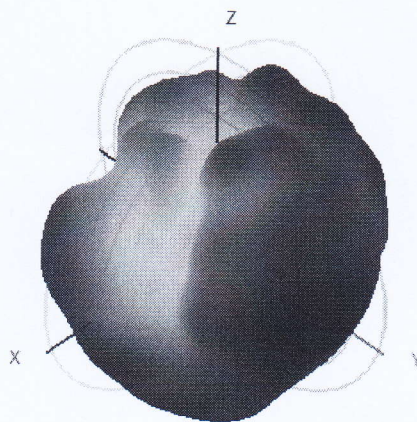


## 5. Radiation Pattern

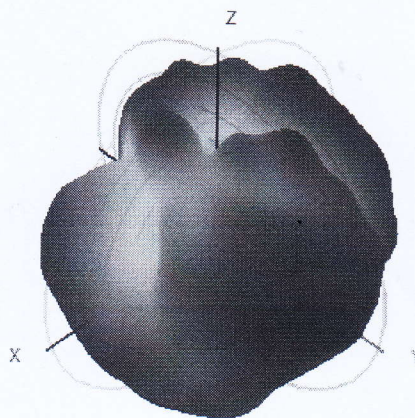
5-1 Antenna 3D Radiation Pattern



2400MHz



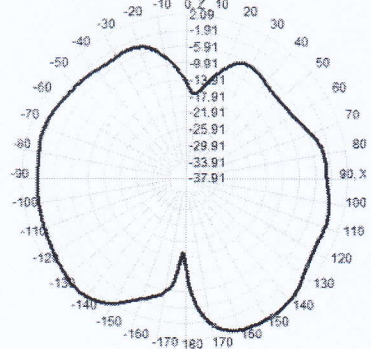
2450MHz



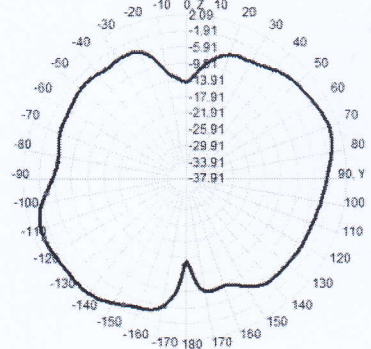
2500MHz

## 5-2 Antenna 2D Radiation Pattern

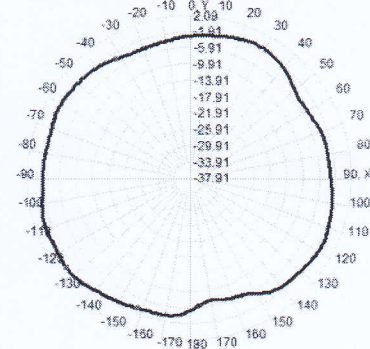
2400.0MHz Total(E1-XZ), Max=2.09dBi



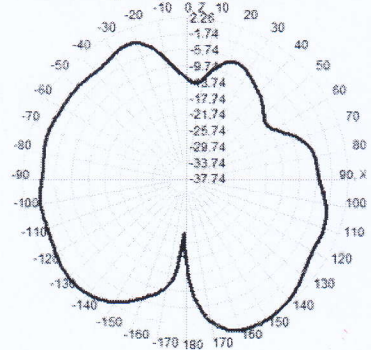
2400.0MHz Total(E2-YZ), Max=-0.25dBi



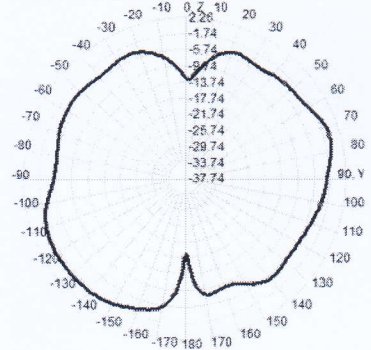
Total(H-XY), Max=-0.50dBi, CirD=6.96



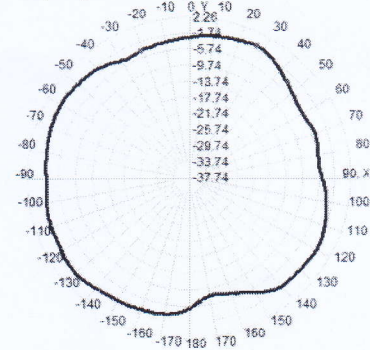
2450.0MHz Total(E1-XZ), Max=2.26dBi



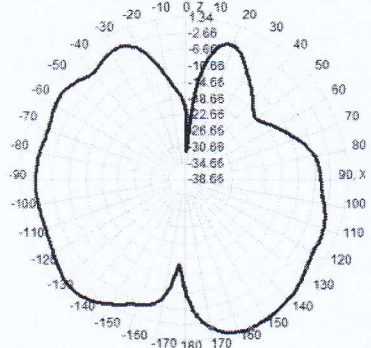
2450.0MHz Total(E2-YZ), Max=-0.62dBi



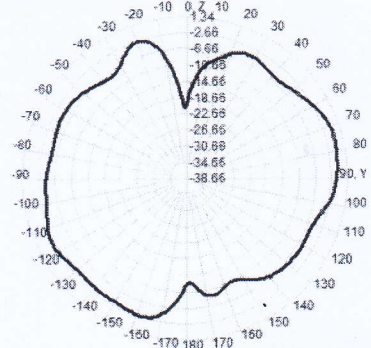
Total(H-XY), Max=-0.98dBi, CirD=7.22



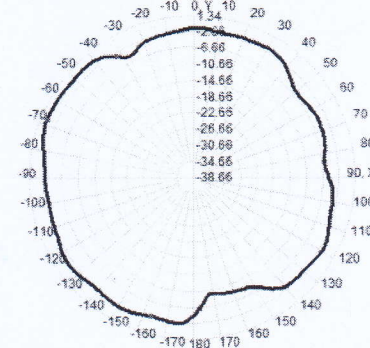
2500.0MHz Total(E1-XZ), Max=1.34dBi



2500.0MHz Total(E2-YZ), Max=-1.00dBi



Total(H-XY), Max=-0.26dBi, CirD=9.77



## 6. Active test data

B 模		
Item	Measurement	Total
1	TRP	16.57
6	TRP	17.25
11	TRP	17.09
1	TIS(EIRP)	-82.78
6	TIS(EIRP)	-83.57
11	TIS(EIRP)	-82.69

N 模		
Item	Measurement	Total
1	TRP	14.99
6	TRP	15.94
11	TRP	15.11
1	TIS(EIRP)	-68.26
6	TIS(EIRP)	-67.18
11	TIS(EIRP)	-68.76

G 模		
Item	Measurement	Total
1	TRP	15.63
6	TRP	16.14
11	TRP	15.80
1	TIS(EIRP)	-69.05
6	TIS(EIRP)	-71.20
11	TIS(EIRP)	-71.49