

document number:

# Specification For Approval

Customer  
Name:  
Customer:

Supplier  
Name:  
Customer:

Dongguan Zhongyida Electronic  
Technology Co., LTD

Customer  
No. :

Supplier  
No. :

product  
description:

2.4G-mushroom head  
antenna

Equipped  
with  
models  
:

Supplier recognition (seal):

Customer recognition (seal):

Production: Zhou  
Jingfeng

Structure: Zhou  
Jingfeng

examine and verify:

Date: 2024.08.20

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## catalogue

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## 1. product picture



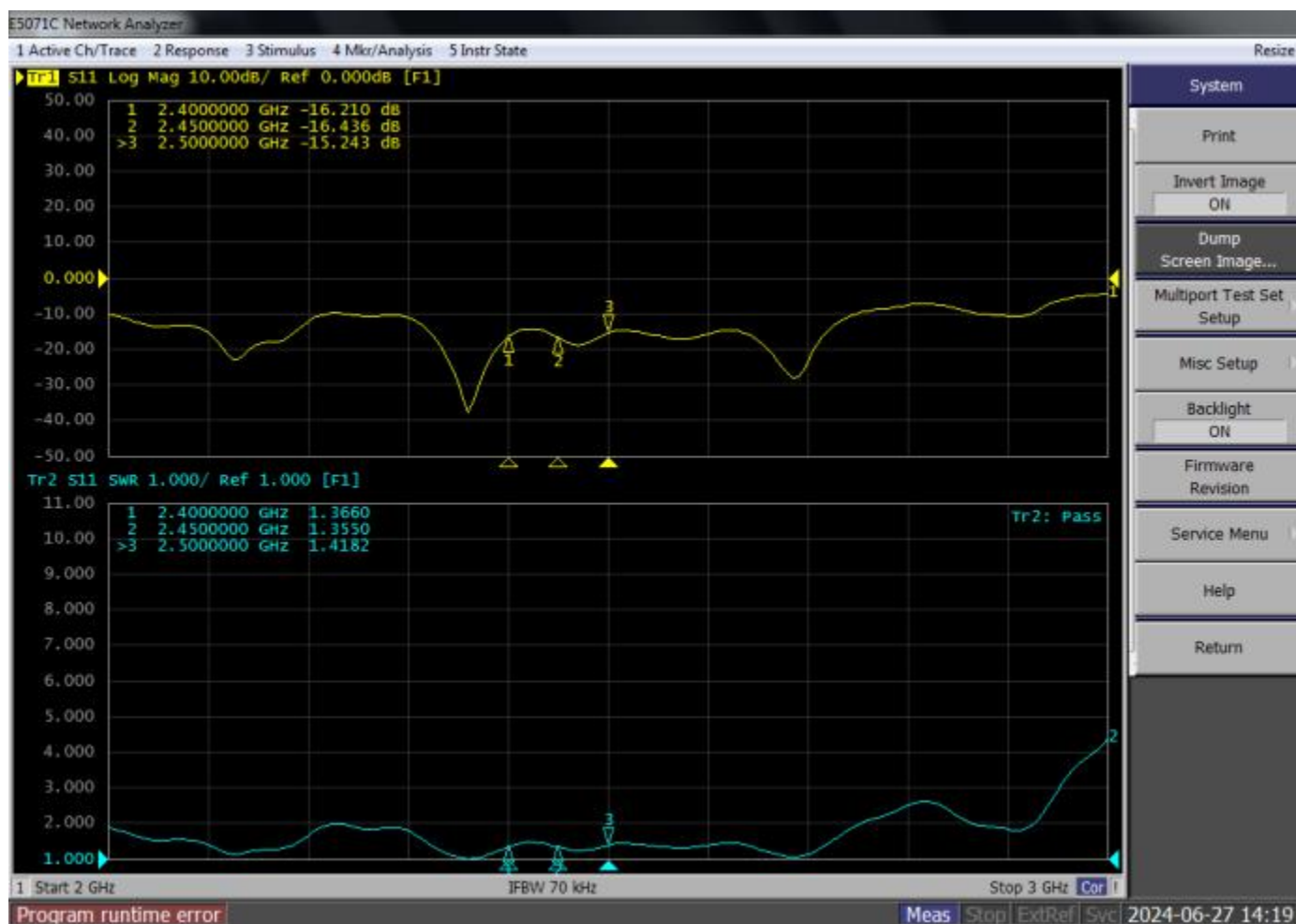
## 2. Product Parameter

Product test, test parameters			
<b>Product Name (Name)</b>	2. 4G-mushroom head antenna	<b>Product Model Number (Model Type)</b>	
<b>Electrical performance index (Electrical Specifications)</b>			
<b>Frequency Range (Frequency Range)</b>	2400-2500Mhz	<b>Polarization mode (Polarization)</b>	perpendicular
<b>Input impedance (Impedance)</b>	50 $\Omega$	<b>radiation direction</b>	omnidirectional
<b>Standing Bobby (VSWR)</b>	$\leq 2$	<b>Power capacity (Power)</b>	50W
<b>Gain (Gain)</b>	5.38dBi	<b>Bandwidth (Bandwidth)</b>	100MHz

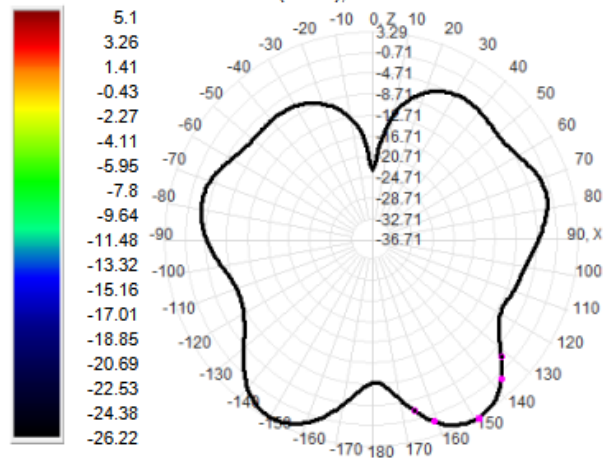
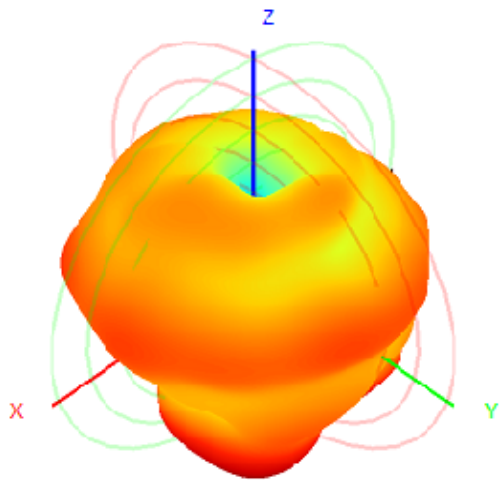
Mechanical index (Mechanical Specifications)			
Dimensions (Dimensions)	46.2MM ±2MM	Antenna Color (Chassis Color)	black
Connector model number (Connector )	SMA needle	Lead length (Cable Length)	300 ± 3MM
Antenna material (Chassis Material )	AB S		
working temperature (Working Temperature )	-40°C±85°C	Storage temperature (Limit Temperature )	-40°C±85°C
UL certification number	QMTM2. E312670		

### III. S 11 (VSWR, Return loss, Smith) data

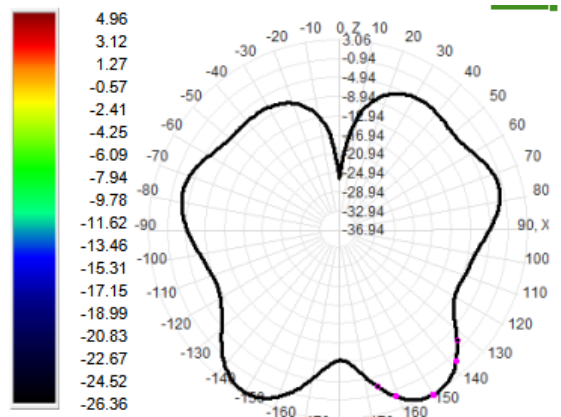
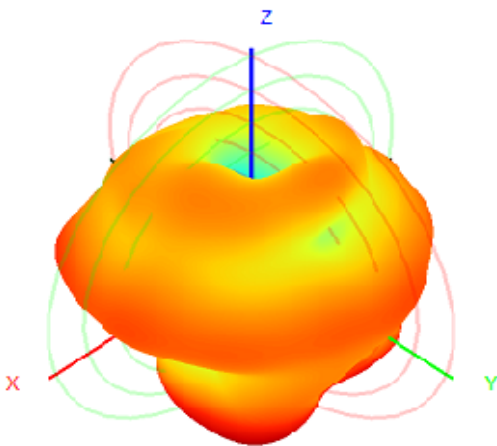
#### 1. one. The Network Analyzer Report



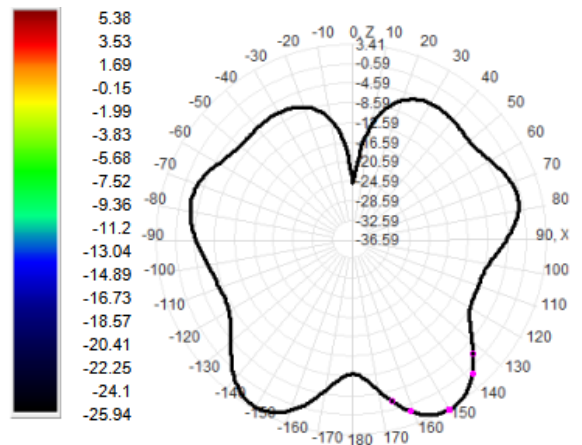
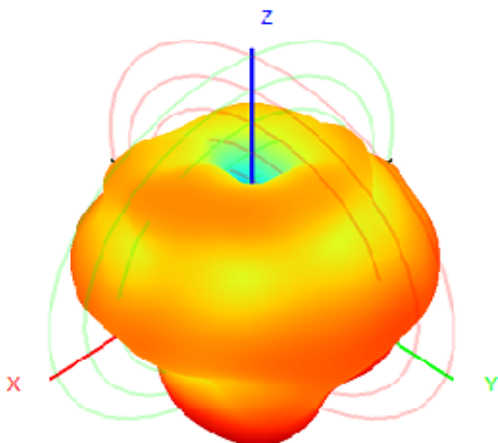
## 2.2D-3D pattern



2400HMZ




2450HMZ

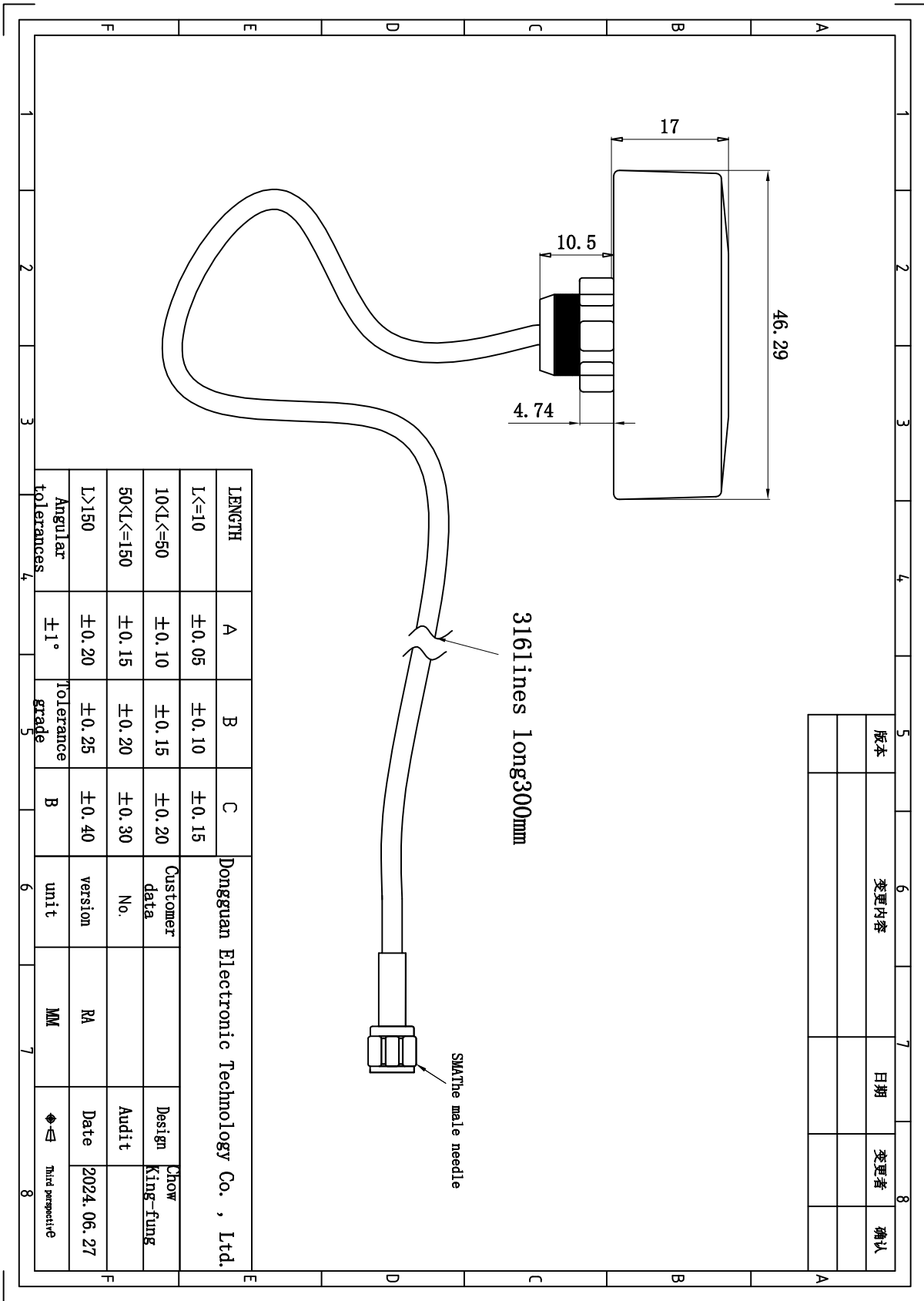


2500HMZ

#### 4. Antenna efficiency and gain

 <b>TEST REPORT</b>											
Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Efficiency (dBi)	-3.23	-3.48	-3.11	-3.26	-3.31	-3.48	-3.44	-3.41	-3.44	-3.21	-3.43
Gain (dBi)	5.10	4.96	5.38	5.26	5.23	5.08	5.14	5.18	5.14	5.36	5.12
Efficiency (%)	47.52	44.93	48.85	47.24	46.66	44.89	45.33	45.60	45.28	47.71	45.35
Directivity (dB)	8.33	8.43	8.49	8.51	8.54	8.55	8.57	8.59	8.58	8.57	8.56
Peak Gain Position (Theta)	145.00	146.00	146.00	146.00	146.00	146.00	146.00	146.00	146.00	146.00	146.00
Peak Gain Position (Phi)	44.00	44.00	44.00	44.00	44.00	45.00	135.00	135.00	46.00	46.00	46.00
Efficiency ThetaPol (%)	39.53	37.48	40.82	39.47	38.84	37.24	37.50	37.57	37.17	39.10	37.24
Efficiency PhiPol (%)	7.99	7.44	8.03	7.77	7.81	7.64	7.84	8.03	8.11	8.61	8.10
Upper Hem. Efficiency (%)	17.11	16.46	18.13	17.71	17.57	16.90	16.97	16.82	16.28	16.58	15.12
Lower Hem. Efficiency (%)	30.42	28.46	30.71	29.52	29.09	27.99	28.37	28.78	29.00	31.14	30.23
T90(H)圆度	4.20	4.03	3.92	3.89	4.00	4.04	3.79	3.35	3.24	3.17	3.21
Gain 15deg (dBi)											
E1(XZ)波瓣宽度	24.00	23.00	23.00	24.00	24.00	23.00	23.00	22.00	22.00	22.00	23.00
E1(XZ)前后比	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E2(YZ)波瓣宽度	23.00	23.00	23.00	23.00	22.00	22.00	22.00	23.00	23.00	25.00	26.00
E2(YZ)前后比	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02
最大增益处轴比(P)	7.99	8.26	8.72	9.28	9.65	9.64	13.90	14.34	8.44	8.04	7.88
仰角10度最差(大)轴比(P)	56.23	50.67	66.21	58.64	57.81	50.52	55.28	49.65	59.84	45.70	53.89
Hc(XY)波瓣宽度	129.00	131.00	134.00	139.00	147.00	173.00	182.00	194.00	347.00	349.00	347.00
Hc(XY)前后比	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
左旋圆极化效率(%)	21.12	19.97	21.92	21.48	21.45	20.79	21.10	21.24	20.92	21.78	20.53
右旋圆极化效率(%)	26.40	24.96	26.92	25.75	25.20	24.10	24.23	24.36	24.36	25.93	24.82

### III. Product size drawings



#### IV. Environmental performance test

Storage environment	<p>Test temperature, humidity and air pressure are as follows: 1. Temperature is <math>-30^{\circ}\text{C} \sim +80^{\circ}\text{C}</math></p> <p>2. Relative humidity is 45% - 85%</p> <p>3. Air pressure is 86 kpa-106 kpa</p>	Electrical and mechanical properties are normal
thermocycling	Five cycles were performed between $70^{\circ}\text{C}$ and $40^{\circ}\text{C}$ and then 1-2H under normal conditions.	<p>Dimensions shall meet the requirements and shall be</p> <p>Meet the satisfaction</p> <p>In the mechanical and electrical performance</p>
Constant humidity and heat trial	<p>Relative humidity: <math>95 \pm 3\%</math>, test temperature: <math>40^{\circ}\text{C}</math>. After a sustained 2H action,</p> <p>Electrical performance is measured within 5min after its removal. The test article is 1-2H under normal conditions to check the appearance quality</p>	<p>Dimensions shall meet the requirements and shall be</p> <p>Meet the satisfaction</p> <p>In the mechanical and electrical performance</p>
vibration test	<p>.0Dynamic frequency range: 10-55 HZ,</p> <p>displacement amplitude: 0.35MM,</p> <p>acceleration amplitude: 50M / S,</p> <p>sweep cycle number: 30 times</p>	Electrical and mechanical properties are normal
fall-down test	1M falls 3 times in the axis direction vertical to each other	Electrical and mechanical properties are normal