

深圳市亿圣邦科技有限公司

样品承认书

SPECIFICATION FOR APPROVAL

公 司 名 称 (客户填写): 东莞市艾普达科技有限公司

物 料 代 码 (客户填写): _____

规 格 型 号 (客户填写): N1159

承 认 日 期 (客户填写): _____

供 应 商 名 称 (SLK 填写): 深圳市亿圣邦科技有限公司

供 应 商 规 格 型 号 (SLK 填写): WIFIMAIN:SLK-APD-2517A-L-60IV-B

WIFIAUX:SLK-APD-2518A-L-285IV-G

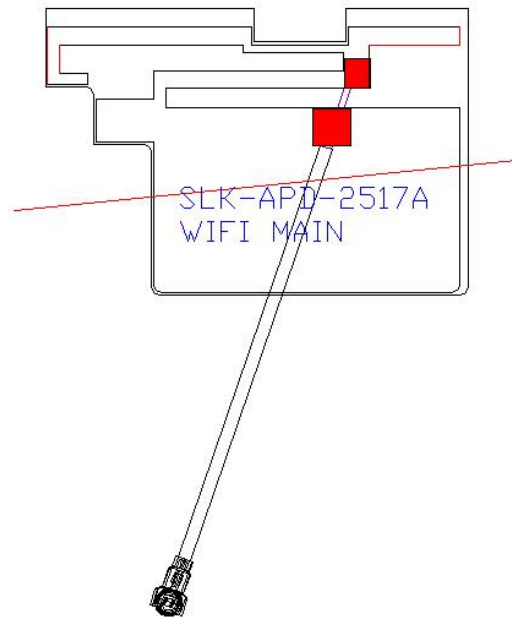
manufacturer:The Holy bond Electronics Co., Ltd.
address:Room 2/F, Building 5, Yinyuan Street,
Jiaoyitang, Tangxia Town, Dongguan City

WIFIMAIN Antenna (2517A)

1. Explanation of Product number :

S L K - A P D - 2 5 1 7 A - L - 6 0 I V - B

1 2 3 4 5



Product Code:

(1) Customer:

APD:艾普达

(2) Project:

2517A: SLK-2517A(WIFIMAIN antenna 2)

(3) Welding Position

L:Left

(4) Cable Length:

60IV: 60*1.13MM四代端子

(5)Cable Color

B:Black

2. Features

*Stable and reliable in performances

*Compact size

*RoHS compliance

3. Applications

- * IEEE802.11 (a/b/g/n)
- * Hand-held devices when WIFI (802.11 a/b/g/n) functions are needed

4. Description

Holy bond's FPC antenna series are specially designed for WIFI (802.11 a/b/g/n) applications. Based on Holy bond's proprietary design and processes, this FPC antenna has excellent stability and sensitivity to consistently provide high signal reception efficiency.

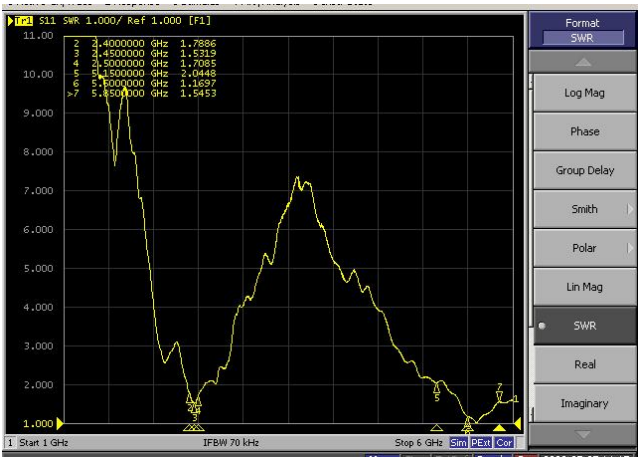
5. Electrical Specifications

5-1

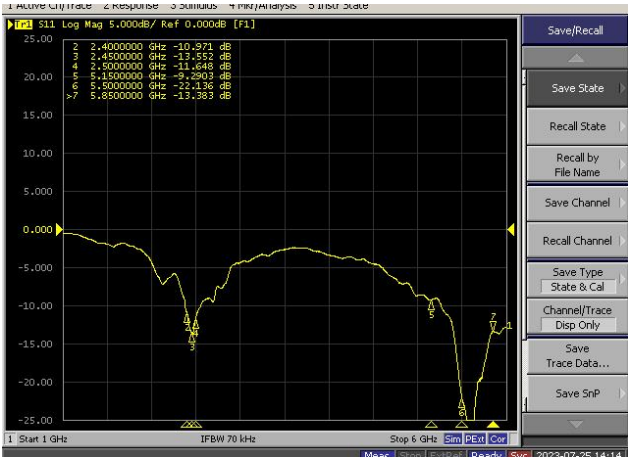
Characteristics	Specifications	Unit
Outline Dimensions	25.43x17.19x 0.12	mm
Center Frequency	2.4-2.5-5.15-5.85	GHz
Bandwidth(under-10dB return loss)	130min	MHz
VSWR	3max	

5-2.

VSWR

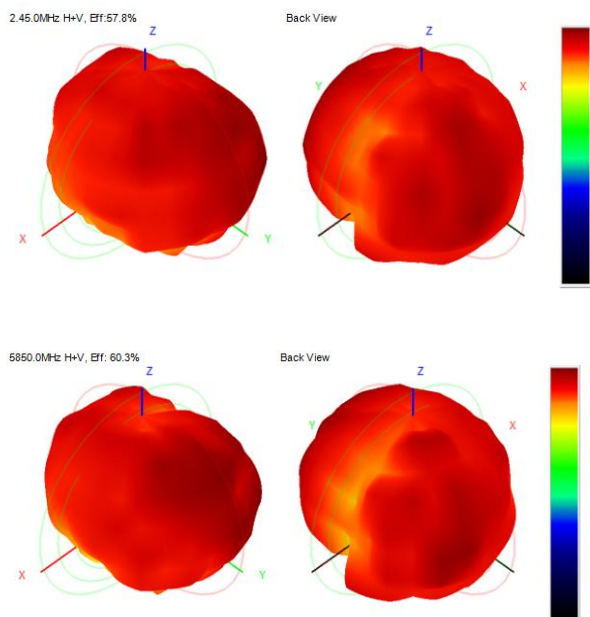


S11



5-3.WIFI Antenna Gain/Efficiency/Radiation Pattern of 3D

Frequency (MHz)	Efficiency (dBi)	Gain (dBi)	Efficiency (%)
2400.0	-2.61	3.05	54.85
2410.0	-2.53	3.14	55.81
2420.0	-2.54	3.22	55.74
2430.0	-2.39	2.81	57.64
2440.0	-2.38	2.79	57.80
2450.0	-2.38	2.69	57.77
2460.0	-2.28	2.85	59.17
2470.0	-2.34	2.71	58.29
2480.0	-2.35	2.66	58.27
2490.0	-2.38	2.65	57.81
2500.0	-2.29	2.68	59.04
5150.0	-2.38	3.46	57.76
5350.0	-2.16	3.11	60.84
5550.0	-2.05	3.09	62.37
5750.0	-2.01	3.24	63.01
5850.0	-2.20	3.16	60.27



WIFI有源测试			
频段	1	6	11
B-TRP-11MBps	11.69	12.16	12.53
B-TIS-11MBps	-80.2	-81.19	-80.97
G-TRP-54MBps	11.03	11.78	12.33
G-TIS-54MBps	-67.75	-67.33	-67.23
N-TRP-MCS7	11.42	11.43	12.71
N-TIS-MCS7	-64.93	-64.3	-64.24
频段	36	149	165
A-TRP-54MBps	11.18	12.31	12.25
A-TIS-54MBps	-71.45	-71.32	-71.77

```

C:\WINDOWS\system32\CMD.exe
276 4.0- 5.0 sec 21.4 Mbytes 180 Mbits/sec
276 5.0- 6.0 sec 21.5 Mbytes 181 Mbits/sec
276 6.0- 7.0 sec 22.3 Mbytes 187 Mbits/sec
276 7.0- 8.0 sec 21.7 Mbytes 182 Mbits/sec
276 8.0- 9.0 sec 21.8 Mbytes 183 Mbits/sec
276 9.0-10.0 sec 21.8 Mbytes 183 Mbits/sec
276 10.0-11.0 sec 21.4 Mbytes 180 Mbits/sec
276 11.0-12.0 sec 22.1 Mbytes 185 Mbits/sec
276 12.0-13.0 sec 20.1 Mbytes 169 Mbits/sec
276 13.0-14.0 sec 22.3 Mbytes 187 Mbits/sec
276 14.0-15.0 sec 21.1 Mbytes 177 Mbits/sec
276 15.0-16.0 sec 21.8 Mbytes 183 Mbits/sec
276 16.0-17.0 sec 21.3 Mbytes 179 Mbits/sec
276 17.0-18.0 sec 22.5 Mbytes 189 Mbits/sec
276 18.0-19.0 sec 21.5 Mbytes 180 Mbits/sec
276 19.0-20.0 sec 21.6 Mbytes 181 Mbits/sec
ID Interval Transfer Bandwidth
276 20.0-21.0 sec 22.4 Mbytes 188 Mbits/sec
276 21.0-22.0 sec 22.2 Mbytes 186 Mbits/sec
276 22.0-23.0 sec 22.0 Mbytes 185 Mbits/sec
276 23.0-24.0 sec 22.0 Mbytes 184 Mbits/sec
276 24.0-25.0 sec 22.5 Mbytes 189 Mbits/sec
276 25.0-26.0 sec 21.7 Mbytes 182 Mbits/sec
276 26.0-27.0 sec 22.5 Mbytes 189 Mbits/sec
276 27.0-28.0 sec 22.0 Mbytes 185 Mbits/sec
276 28.0-29.0 sec 21.1 Mbytes 177 Mbits/sec

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2.4G十米下载

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C:\WINDOWS\system32\CMD.exe
276 4.0- 5.0 sec 15.5 Mbytes 133 Mbits/sec
276 5.0- 6.0 sec 15.4 Mbytes 132 Mbits/sec
276 6.0- 7.0 sec 15.4 Mbytes 132 Mbits/sec
276 7.0- 8.0 sec 15.4 Mbytes 132 Mbits/sec
276 8.0- 9.0 sec 15.4 Mbytes 132 Mbits/sec
276 9.0-10.0 sec 15.1 Mbytes 131 Mbits/sec
276 10.0-11.0 sec 15.1 Mbytes 131 Mbits/sec
276 11.0-12.0 sec 15.4 Mbytes 135 Mbits/sec
276 12.0-13.0 sec 15.4 Mbytes 135 Mbits/sec
276 13.0-14.0 sec 15.4 Mbytes 135 Mbits/sec
276 14.0-15.0 sec 15.4 Mbytes 135 Mbits/sec
276 15.0-16.0 sec 15.4 Mbytes 135 Mbits/sec
276 16.0-17.0 sec 15.4 Mbytes 135 Mbits/sec
276 17.0-18.0 sec 15.4 Mbytes 135 Mbits/sec
276 18.0-19.0 sec 15.7 Mbytes 139 Mbits/sec
276 19.0-20.0 sec 15.0 Mbytes 130 Mbits/sec
ID Interval Transfer Bandwidth
276 20.0-21.0 sec 16.1 Mbytes 137 Mbits/sec
276 21.0-22.0 sec 15.1 Mbytes 130 Mbits/sec
276 22.0-23.0 sec 15.4 Mbytes 132 Mbits/sec
276 23.0-24.0 sec 15.4 Mbytes 132 Mbits/sec
276 24.0-25.0 sec 15.4 Mbytes 132 Mbits/sec
276 25.0-26.0 sec 15.4 Mbytes 132 Mbits/sec
276 26.0-27.0 sec 15.4 Mbytes 132 Mbits/sec
276 27.0-28.0 sec 15.4 Mbytes 132 Mbits/sec
276 28.0-29.0 sec 15.4 Mbytes 132 Mbits/sec
276 29.0-30.0 sec 15.4 Mbytes 132 Mbits/sec

```

2.4G十米上传

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C:\WINDOWS\system32\CMD.exe
364 4.0- 5.0 sec 64.5 Mbytes 538 Mbits/sec
364 5.0- 6.0 sec 64.5 Mbytes 537 Mbits/sec
364 6.0- 7.0 sec 64.5 Mbytes 539 Mbits/sec
364 7.0- 8.0 sec 64.5 Mbytes 539 Mbits/sec
364 8.0- 9.0 sec 64.5 Mbytes 539 Mbits/sec
364 9.0-10.0 sec 64.0 Mbytes 531 Mbits/sec
364 10.0-11.0 sec 67.7 Mbytes 568 Mbits/sec
364 11.0-12.0 sec 64.6 Mbytes 538 Mbits/sec
364 12.0-13.0 sec 64.6 Mbytes 539 Mbits/sec
364 13.0-14.0 sec 64.4 Mbytes 537 Mbits/sec
364 14.0-15.0 sec 67.1 Mbytes 563 Mbits/sec
364 15.0-16.0 sec 67.4 Mbytes 566 Mbits/sec
364 16.0-17.0 sec 67.4 Mbytes 566 Mbits/sec
364 17.0-18.0 sec 67.0 Mbytes 562 Mbits/sec
364 18.0-19.0 sec 64.3 Mbytes 536 Mbits/sec
364 19.0-20.0 sec 64.2 Mbytes 535 Mbits/sec
ID Interval Transfer Bandwidth
364 20.0-21.0 sec 67.7 Mbytes 568 Mbits/sec
364 21.0-22.0 sec 67.1 Mbytes 563 Mbits/sec
364 22.0-23.0 sec 67.9 Mbytes 567 Mbits/sec
364 23.0-24.0 sec 66.2 Mbytes 556 Mbits/sec
364 24.0-25.0 sec 66.9 Mbytes 563 Mbits/sec
364 25.0-26.0 sec 67.4 Mbytes 566 Mbits/sec
364 26.0-27.0 sec 66.2 Mbytes 556 Mbits/sec
364 27.0-28.0 sec 66.2 Mbytes 556 Mbits/sec
364 28.0-29.0 sec 66.5 Mbytes 558 Mbits/sec
364 29.0-30.0 sec 66.5 Mbytes 558 Mbits/sec
364 30.0-31.0 sec 1.95 Gbytes 559 Mbits/sec

```

5G十米下载

```

C:\WINDOWS\system32\CMD.exe
364 4.0- 5.0 sec 69.3 Mbytes 582 Mbits/sec
364 5.0- 6.0 sec 69.0 Mbytes 578 Mbits/sec
364 6.0- 7.0 sec 69.0 Mbytes 578 Mbits/sec
364 7.0- 8.0 sec 69.0 Mbytes 579 Mbits/sec
364 8.0- 9.0 sec 69.4 Mbytes 582 Mbits/sec
364 9.0-10.0 sec 69.4 Mbytes 582 Mbits/sec
364 10.0-11.0 sec 69.4 Mbytes 582 Mbits/sec
364 11.0-12.0 sec 63.1 Mbytes 529 Mbits/sec
364 12.0-13.0 sec 67.0 Mbytes 562 Mbits/sec
364 13.0-14.0 sec 68.3 Mbytes 573 Mbits/sec
364 14.0-15.0 sec 71.1 Mbytes 597 Mbits/sec
364 15.0-16.0 sec 67.5 Mbytes 566 Mbits/sec
364 16.0-17.0 sec 68.1 Mbytes 571 Mbits/sec
364 17.0-18.0 sec 63.1 Mbytes 530 Mbits/sec
364 18.0-19.0 sec 68.7 Mbytes 577 Mbits/sec
364 19.0-20.0 sec 70.1 Mbytes 588 Mbits/sec
ID Interval Transfer Bandwidth
364 20.0-21.0 sec 69.5 Mbytes 583 Mbits/sec
364 21.0-22.0 sec 70.6 Mbytes 592 Mbits/sec
364 22.0-23.0 sec 69.0 Mbytes 584 Mbits/sec
364 23.0-24.0 sec 70.8 Mbytes 594 Mbits/sec
364 24.0-25.0 sec 67.4 Mbytes 565 Mbits/sec
364 25.0-26.0 sec 69.7 Mbytes 585 Mbits/sec
364 26.0-27.0 sec 71.1 Mbytes 597 Mbits/sec
364 27.0-28.0 sec 69.7 Mbytes 585 Mbits/sec
364 28.0-29.0 sec 70.4 Mbytes 591 Mbits/sec
364 29.0-30.0 sec 69.3 Mbytes 584 Mbits/sec
364 30.0-31.0 sec 1.99 Gbytes 570 Mbits/sec

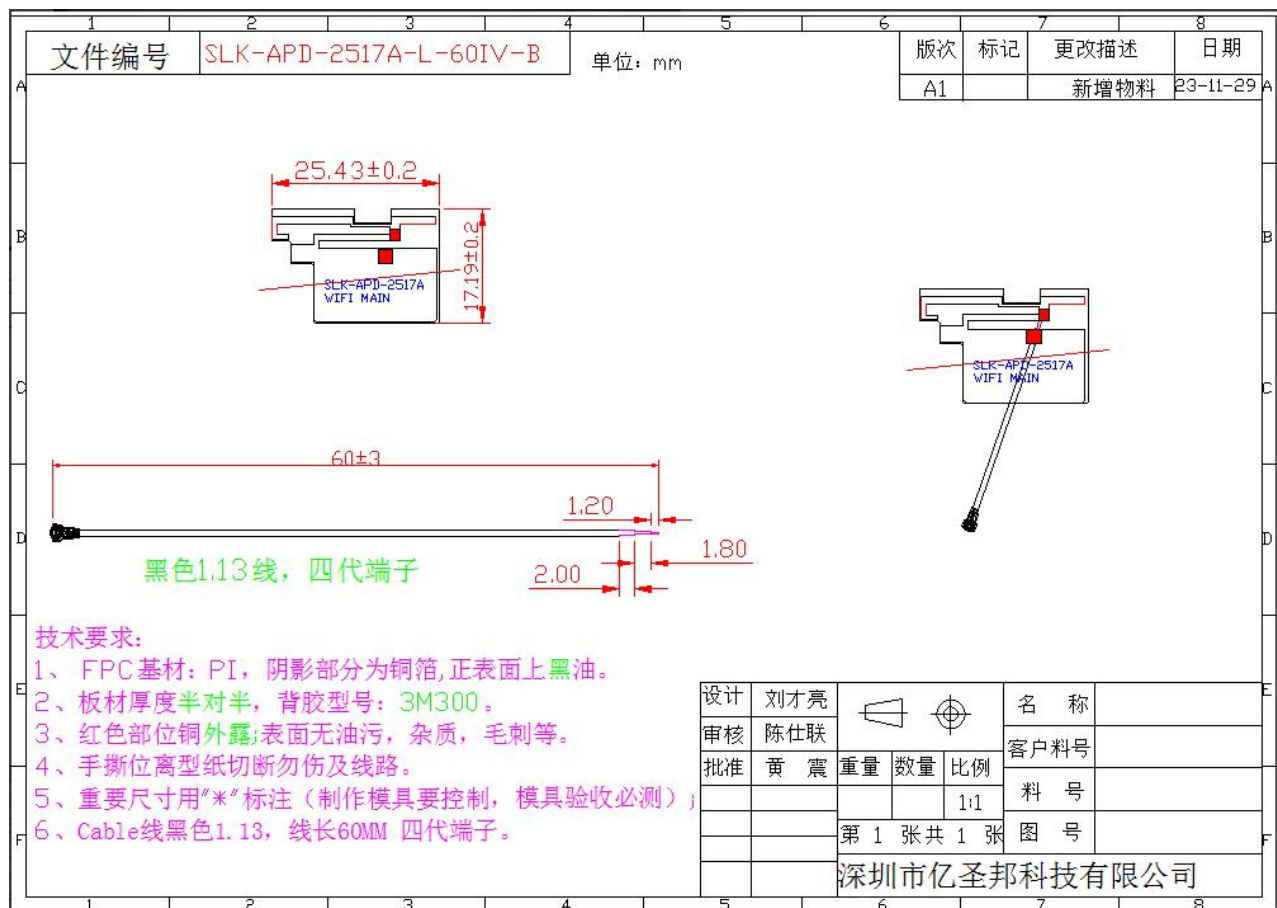
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5G十米上传



2.4G十米信号强度43, 5G十米信号强度47

6. Antenna Dimensions (unit: mm)



WIFIAUX Antenna (2518A)

1.Explanation of Product number :

S L K - A P D - 2 5 1 8 A - L - 2 8 5 I V - G

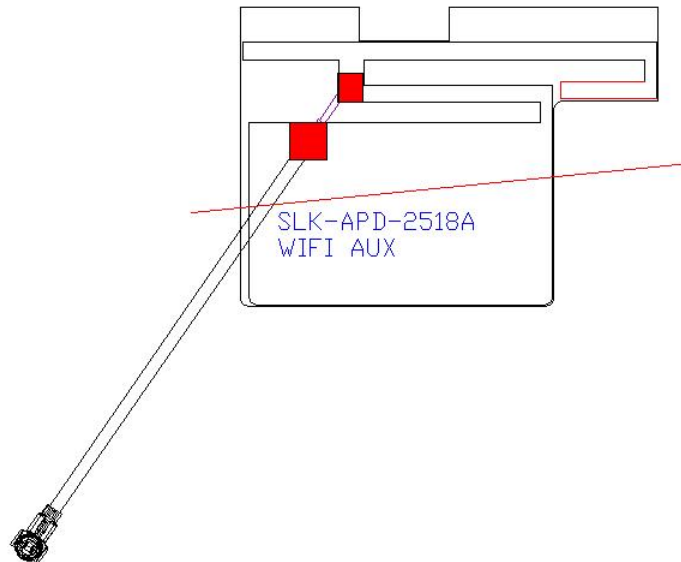
1

2

3

4

5



Product Code:

(1) Customer:

APD: 艾普达

(2) Project:

2518A: SLK-2518A(WIFIAUX antenna 1)

(3) Welding Position

L:Left

(4) Cable Length:

285IV: 285*1.13MM四代端子

(5)Cable Color

G: Gray

2. Features

*Stable and reliable in performances

*Compact size

*RoHS compliance

3. Applications

- * IEEE802.11 (a/b/g/n)
- * Hand-held devices when WIFI (802.11 a/b/g/n) functions are needed

4. Description

Holy bond's FPC antenna series are specially designed for WIFI (802.11 a/b/g/n) applications. Based on Holy bond's proprietary design and processes, this FPC antenna has excellent stability and sensitivity to consistently provide high signal reception efficiency.

5. Electrical Specifications

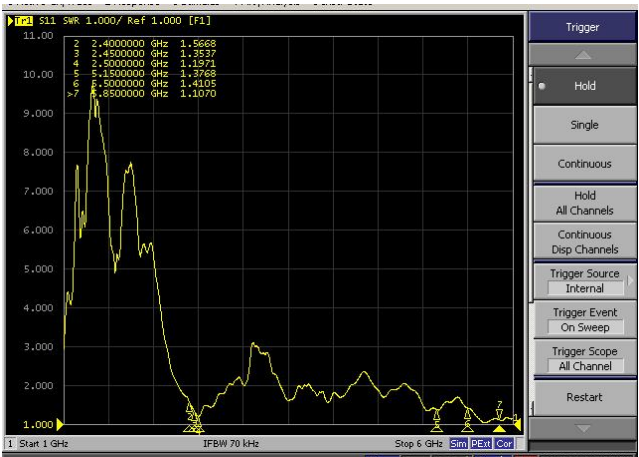
5-1

Characteristics	Specifications	Unit
Outline Dimensions	25.43x18.19x 0.12	mm
Center Frequency	2.4-2.5-5.15-5.85	GHz
Bandwidth(under-10dB return loss)	130min	MHz
VSWR	3max	

5-2.

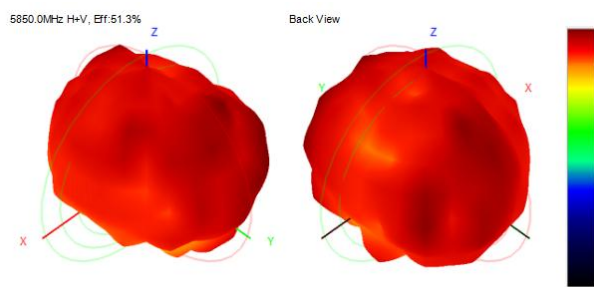
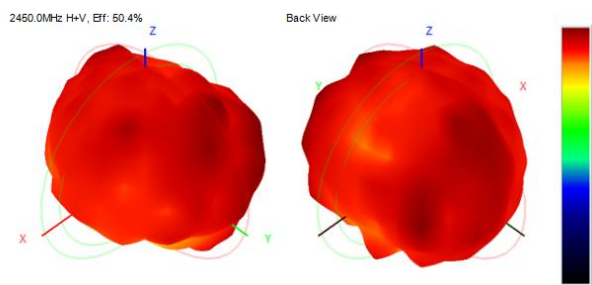
VSWR

S11



5-3.WIFI Antenna Gain/Efficiency/Radiation Pattern of 3D

Frequency (MHz)	Efficiency (dBi)	Gain (dBi)	Efficiency (%)
2400.0	-2.78	2.55	52.73
2410.0	-2.41	2.77	57.37
2420.0	-2.63	2.97	54.57
2430.0	-2.43	2.44	57.12
2440.0	-2.63	2.44	54.61
2450.0	-2.59	2.52	55.04
2460.0	-2.55	2.71	55.59
2470.0	-2.74	2.63	53.18
2480.0	-2.50	2.91	56.25
2490.0	-2.60	2.89	54.94
2500.0	-2.56	2.38	55.47
5150.0	-2.87	3.35	51.58
5350.0	-3.00	3.42	50.09
5550.0	-2.83	3.20	52.08
5750.0	-2.98	3.12	50.38
5850.0	-2.90	3.19	51.27



WIFI有源测试			
频段	1	6	11
B-TRP-11MBps	11.69	12.16	12.53
B-TIS-11MBps	-80.2	-81.19	-80.97
G-TRP-54MBps	11.03	11.78	12.33
G-TIS-54MBps	-67.75	-67.33	-67.23
N-TRP-MCS7	11.42	11.43	12.71
N-TIS-MCS7	-64.93	-64.3	-64.24
频段	36	149	165
A-TRP-54MBps	11.18	12.31	12.25
A-TIS-54MBps	-71.45	-71.32	-71.77

```

C:\WINDOWS\system32\CMD.exe
276 4.0- 5.0 sec 21.4 Mbytes 180 Mbits/sec
276 5.0- 6.0 sec 21.5 Mbytes 181 Mbits/sec
276 6.0- 7.0 sec 22.3 Mbytes 187 Mbits/sec
276 7.0- 8.0 sec 21.7 Mbytes 182 Mbits/sec
276 8.0- 9.0 sec 21.8 Mbytes 183 Mbits/sec
276 9.0-10.0 sec 21.8 Mbytes 183 Mbits/sec
276 10.0-11.0 sec 21.4 Mbytes 180 Mbits/sec
276 11.0-12.0 sec 22.1 Mbytes 185 Mbits/sec
276 12.0-13.0 sec 20.1 Mbytes 169 Mbits/sec
276 13.0-14.0 sec 22.3 Mbytes 187 Mbits/sec
276 14.0-15.0 sec 21.1 Mbytes 177 Mbits/sec
276 15.0-16.0 sec 21.8 Mbytes 183 Mbits/sec
276 16.0-17.0 sec 21.3 Mbytes 179 Mbits/sec
276 17.0-18.0 sec 22.5 Mbytes 189 Mbits/sec
276 18.0-19.0 sec 21.5 Mbytes 180 Mbits/sec
276 19.0-20.0 sec 21.6 Mbytes 181 Mbits/sec
ID Interval Transfer Bandwidth
276 20.0-21.0 sec 22.4 Mbytes 188 Mbits/sec
276 21.0-22.0 sec 22.2 Mbytes 186 Mbits/sec
276 22.0-23.0 sec 22.0 Mbytes 185 Mbits/sec
276 23.0-24.0 sec 22.0 Mbytes 184 Mbits/sec
276 24.0-25.0 sec 22.5 Mbytes 189 Mbits/sec
276 25.0-26.0 sec 21.7 Mbytes 182 Mbits/sec
276 26.0-27.0 sec 22.5 Mbytes 189 Mbits/sec
276 27.0-28.0 sec 22.0 Mbytes 185 Mbits/sec
276 28.0-29.0 sec 21.1 Mbytes 177 Mbits/sec
  
```

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```

C:\WINDOWS\system32\CMD.exe
364 4.0- 5.0 sec 15.5 Mbytes 133 Mbits/sec
364 5.0- 6.0 sec 15.4 Mbytes 132 Mbits/sec
364 6.0- 7.0 sec 15.4 Mbytes 132 Mbits/sec
364 7.0- 8.0 sec 15.4 Mbytes 132 Mbits/sec
364 8.0- 9.0 sec 15.4 Mbytes 132 Mbits/sec
364 9.0-10.0 sec 15.1 Mbytes 131 Mbits/sec
364 10.0-11.0 sec 15.1 Mbytes 131 Mbits/sec
364 11.0-12.0 sec 15.6 Mbytes 135 Mbits/sec
364 12.0-13.0 sec 15.6 Mbytes 135 Mbits/sec
364 13.0-14.0 sec 15.4 Mbytes 133 Mbits/sec
364 14.0-15.0 sec 15.4 Mbytes 133 Mbits/sec
364 15.0-16.0 sec 15.4 Mbytes 133 Mbits/sec
364 16.0-17.0 sec 15.9 Mbytes 137 Mbits/sec
364 17.0-18.0 sec 15.7 Mbytes 135 Mbits/sec
364 18.0-19.0 sec 15.7 Mbytes 135 Mbits/sec
364 19.0-20.0 sec 15.0 Mbytes 130 Mbits/sec
ID Interval Transfer Bandwidth
364 20.0-21.0 sec 16.1 Mbytes 137 Mbits/sec
364 21.0-22.0 sec 15.1 Mbytes 130 Mbits/sec
364 22.0-23.0 sec 15.4 Mbytes 132 Mbits/sec
364 23.0-24.0 sec 15.1 Mbytes 130 Mbits/sec
364 24.0-25.0 sec 15.1 Mbytes 130 Mbits/sec
364 25.0-26.0 sec 15.1 Mbytes 130 Mbits/sec
364 26.0-27.0 sec 15.1 Mbytes 130 Mbits/sec
364 27.0-28.0 sec 15.1 Mbytes 130 Mbits/sec
364 28.0-29.0 sec 15.1 Mbytes 130 Mbits/sec
364 29.0-30.0 sec 15.1 Mbytes 130 Mbits/sec
364 0.0-30.0 sec 458 Mbytes 127 Mbits/sec
  
```

2.4G十米上传

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C:\WINDOWS\system32\CMD.exe
364 4.0- 5.0 sec 64.5 Mbytes 558 Mbits/sec
364 5.0- 6.0 sec 64.5 Mbytes 559 Mbits/sec
364 6.0- 7.0 sec 64.5 Mbytes 559 Mbits/sec
364 7.0- 8.0 sec 64.5 Mbytes 559 Mbits/sec
364 8.0- 9.0 sec 64.5 Mbytes 559 Mbits/sec
364 9.0-10.0 sec 64.0 Mbytes 551 Mbits/sec
364 10.0-11.0 sec 67.7 Mbytes 588 Mbits/sec
364 11.0-12.0 sec 66.6 Mbytes 580 Mbits/sec
364 12.0-13.0 sec 66.6 Mbytes 580 Mbits/sec
364 13.0-14.0 sec 66.4 Mbytes 579 Mbits/sec
364 14.0-15.0 sec 67.1 Mbytes 583 Mbits/sec
364 15.0-16.0 sec 67.4 Mbytes 586 Mbits/sec
364 16.0-17.0 sec 66.9 Mbytes 581 Mbits/sec
364 17.0-18.0 sec 67.0 Mbytes 582 Mbits/sec
364 18.0-19.0 sec 66.3 Mbytes 578 Mbits/sec
364 19.0-20.0 sec 68.2 Mbytes 592 Mbits/sec
ID Interval Transfer Bandwidth
364 20.0-21.0 sec 67.7 Mbytes 583 Mbits/sec
364 21.0-22.0 sec 67.1 Mbytes 583 Mbits/sec
364 22.0-23.0 sec 65.9 Mbytes 576 Mbits/sec
364 23.0-24.0 sec 66.2 Mbytes 586 Mbits/sec
364 24.0-25.0 sec 66.9 Mbytes 583 Mbits/sec
364 25.0-26.0 sec 67.4 Mbytes 586 Mbits/sec
364 26.0-27.0 sec 66.2 Mbytes 580 Mbits/sec
364 27.0-28.0 sec 66.2 Mbytes 580 Mbits/sec
364 28.0-29.0 sec 68.5 Mbytes 596 Mbits/sec
364 29.0-30.0 sec 68.5 Mbytes 596 Mbits/sec
364 0.0-30.0 sec 1.95 Gbytes 559 Mbits/sec
  
```

5G十米下载

```

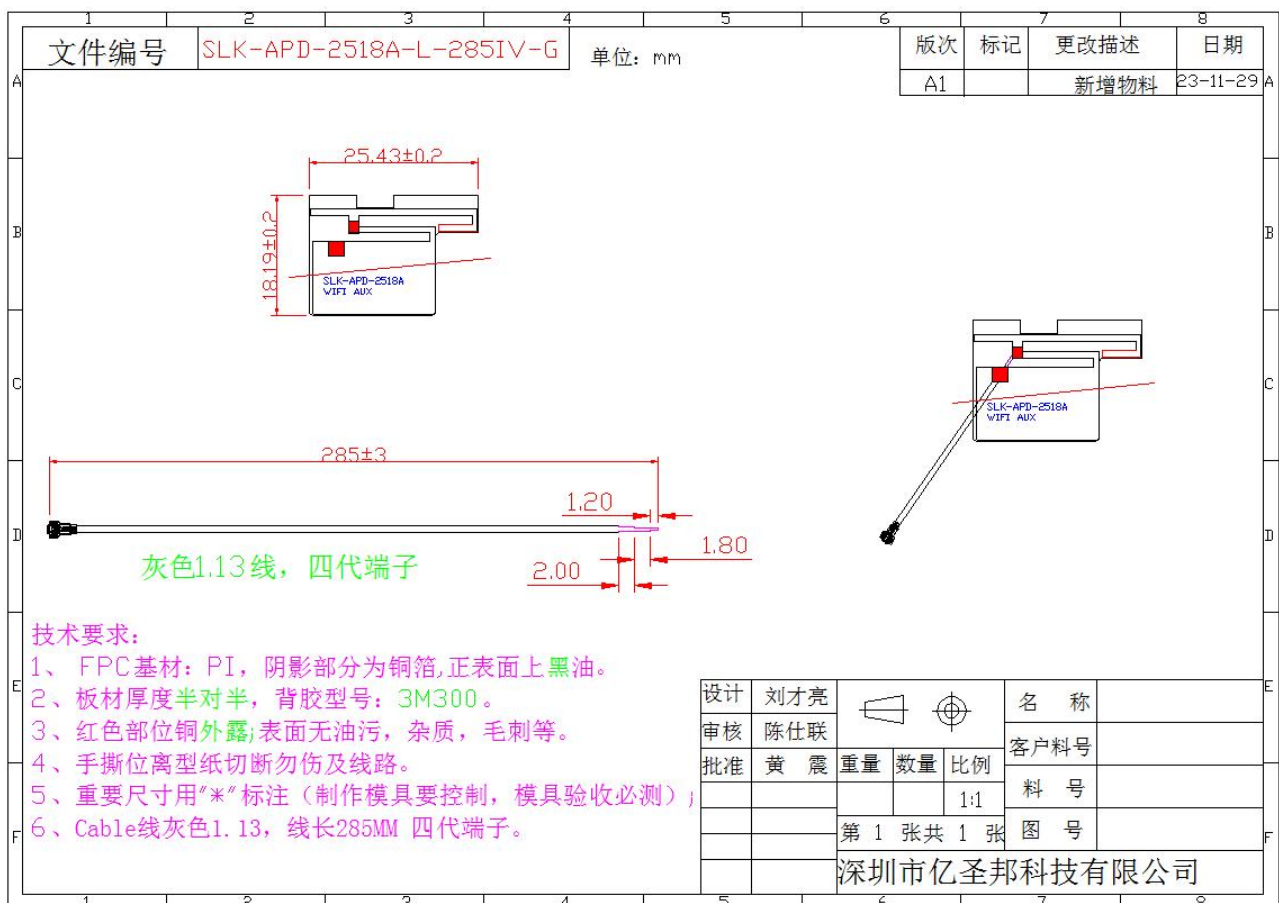
C:\WINDOWS\system32\CMD.exe
364 5.0- 6.0 sec 69.3 Mbytes 582 Mbits/sec
364 6.0- 7.0 sec 69.0 Mbytes 578 Mbits/sec
364 7.0- 8.0 sec 69.0 Mbytes 586 Mbits/sec
364 8.0- 9.0 sec 69.0 Mbytes 579 Mbits/sec
364 9.0-10.0 sec 69.4 Mbytes 582 Mbits/sec
364 10.0-11.0 sec 69.4 Mbytes 582 Mbits/sec
364 11.0-12.0 sec 63.1 Mbytes 529 Mbits/sec
364 12.0-13.0 sec 67.0 Mbytes 562 Mbits/sec
364 13.0-14.0 sec 68.3 Mbytes 573 Mbits/sec
364 14.0-15.0 sec 71.1 Mbytes 597 Mbits/sec
364 15.0-16.0 sec 67.5 Mbytes 566 Mbits/sec
364 16.0-17.0 sec 68.1 Mbytes 571 Mbits/sec
364 17.0-18.0 sec 63.1 Mbytes 530 Mbits/sec
364 18.0-19.0 sec 68.7 Mbytes 577 Mbits/sec
364 19.0-20.0 sec 70.1 Mbytes 588 Mbits/sec
ID Interval Transfer Bandwidth
364 20.0-21.0 sec 69.5 Mbytes 583 Mbits/sec
364 21.0-22.0 sec 70.6 Mbytes 592 Mbits/sec
364 22.0-23.0 sec 69.6 Mbytes 584 Mbits/sec
364 23.0-24.0 sec 70.8 Mbytes 594 Mbits/sec
364 24.0-25.0 sec 67.4 Mbytes 565 Mbits/sec
364 25.0-26.0 sec 69.7 Mbytes 585 Mbits/sec
364 26.0-27.0 sec 71.1 Mbytes 597 Mbits/sec
364 27.0-28.0 sec 69.7 Mbytes 585 Mbits/sec
364 28.0-29.0 sec 70.4 Mbytes 591 Mbits/sec
364 29.0-30.0 sec 69.3 Mbytes 584 Mbits/sec
364 0.0-30.0 sec 1.99 Gbytes 570 Mbits/sec
  
```

5G十米上传



2.4G十米信号强度43, 5G十米信号强度47

6. Antenna Dimensions (unit: mm)



7. Antenna Picture

