

# specification

Customer : 昊一源

Customer P/N:

Part Name: DIRECT CONNECTED EXTERNAL  
ANTENNA

HJ P/N: 3D6701BK00-001

Spec Description : DUAL BAND ANTENNA,G67  
BLACK,DOUBLE COPPER TUBE,RP-SMA  
PLUG+047 CABLE,L=112mm

Prepared Date: 2024/2/19

## Signature

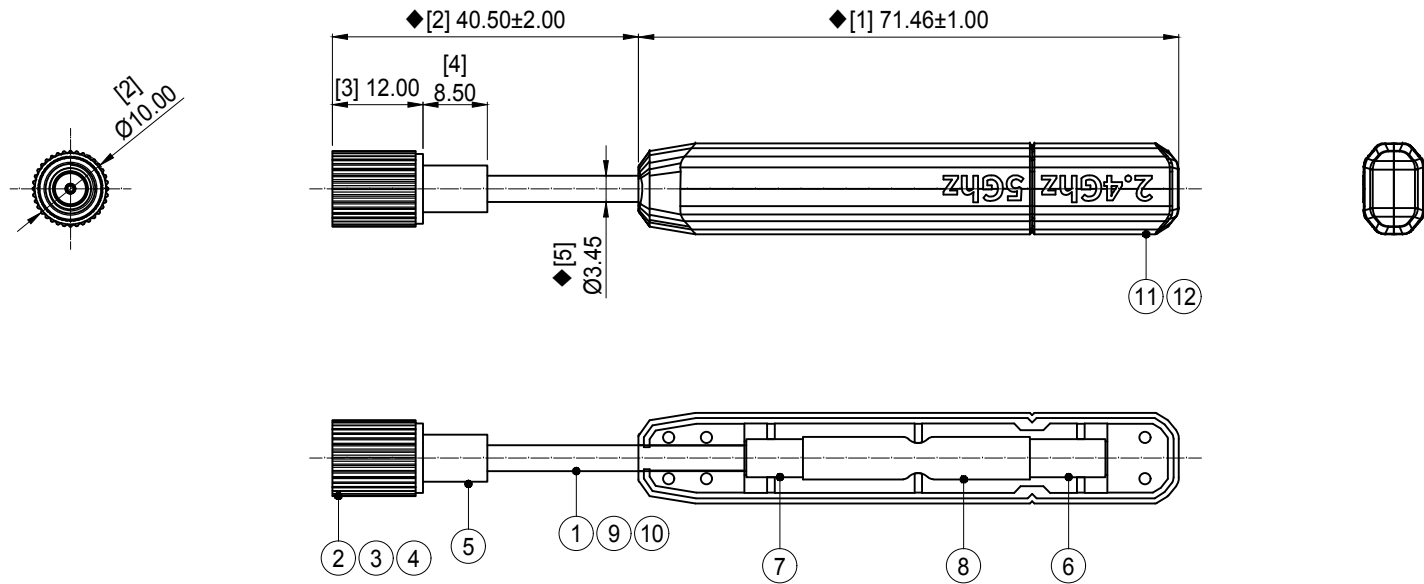
| Customer     |  | Supplier    |             |
|--------------|--|-------------|-------------|
| Confirmed by |  | Prepared by | S.He        |
| Approved by  |  | Checked by  | YIU HE      |
|              |  | Approved by | LIU FU YONG |

# 东莞市皇捷通讯科技有限公司

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|      |      |                                  |            |
|------|------|----------------------------------|------------|
| H431 | REV. | RELEASE AND CHANGE SUMMARY       | DATE       |
|      | X1   | INITIAL DESIGN AND FIRST RELEASE | 2024.01.29 |
|      |      |                                  |            |



**NOTES:**

- 1 ASSEMBLY REQUIREMENTS: THE ANTENNA SHELL ADOPTS ULTRASONIC TECHNOLOGY.
- 2 ELECTRICAL SPECIFICATION: 100% TESTING USING A VECTOR NETWORK ANALYZER. CHARACTERISTIC IMPEDANCE: 50Ω; OPERATING FREQUENCY: 2.4GHz-2.5GHz, 5.15GHz-5.85GHz; VSWR: 2.0 MAX..
- 3 DIMENSION INSPECTION: [\*], FAI INSPECTION ITEM;  $\diamond$ , QIP INSPECTION ITEM;  $\star$ , CPK INSPECTION ITEM.
- 4 APPEARANCE INSPECTION: VISUAL INSPECTION; NO TRANSFORM, NO CRACK, NO STAIN AND NO BURR.
- 5 PACKING SPECIFICATION: 50/BAG..
- 6 ENVIRONMENTAL REQUIREMENTS: RoHS COMPLIANT.

|   |    |               |  |      |
|---|----|---------------|--|------|
| F   | 12 | 2SBKG6701     | HOUSING: L71.46*W12.00,WITHOUT PILLARS,BLACK                       | 1    |
|   | 11 | 2SBKG6700     | HOUSING: L71.46*W12.00,THERE ARE PILLARS,BLACK                     | 1    |
|   | 10 | 2TA032BK0-050 | H.S. TUBE: $\varnothing 3.20$ *L50.00,SBRS-3XGF,BLACK              | 1    |
|   | 9  | 2TA020BK0-045 | H.S. TUBE: $\varnothing 2.00$ *L45.00,125H2,BLACK                  | 1    |
|   | 8  | 2TA050BK0-030 | H.S. TUBE: $\varnothing 5.00$ *L30.00,125H2,BLACK                  | 1    |
| G   | 7  | 2YG239        | COPPER TUBE: $\varnothing 5.00$ *L20.50* $\varnothing 1.35$ ,BRASS | 1    |
|   | 6  | 2YG009        | COPPER TUBE: $\varnothing 5.00$ *L23.00* $\varnothing 0.60$ ,BRASS | 1    |
|   | 5  | 2YM023        | SR: PVC,45P,BLACK  | 1    |
|   | 4  | 2LC15PF901-4  | SMA HOUSING: $\varnothing 10.00$ *L12.00,POM,BLACK                 | 1    |
|   | 3  | 2LC15PF901-5  | SMA PIN: $\varnothing 1.50$ *L7.80,BRASS,Au-PLATED                 | 1    |
|   | 2  | 2LC15PF901-2  | SMA PLUG: $\varnothing 8.50$ *L15.10,BRASS,Ni-PLATED               | 1    |
| H   | 1  | 2C5R04711BK1  | COAXIAL CABLE: 047,50Ω,OD1.60,BLUE                                 | 1    |
| No. PART NUMBER PART NAME AND DESCRIPTION |    |               |  | Q'TY |
| BOM                                       |    |               |  |      |

|  |  |                               |  |               |              |
|--|--|-------------------------------|--|---------------|--------------|
| GENERAL TOLERANCE:<br>UNLESS OTHERWISE SPECIFIED<br>LINEAR:<br>0.5 < L ≤ 6 ± 0.05<br>6 < L ≤ 30 ± 0.10<br>30 < L ≤ 120 ± 0.20<br>ANGULAR:<br>0 < L ≤ 10 ± 1°30'<br>10 < L ≤ 50 ± 1°00'<br>50 < L ≤ 120 ± 0°30' |  | FILE TYPE:<br>PRODUCT DRAWING | Dongguan HUANGJIE Communication Technology Co., Ltd.<br>东莞市皇捷通讯科技有限公司  |               |              |
|  |  | DRA./DATE:<br>S.He 24.01.29   | TITLE:<br>RF ANTENNA COMPONENTS<br>DUAL BAND ANTENNA,G67 BLACK,DOUBLE<br>COPPER TUBE,RP-SMA PLUG+047 CABLE,L=112mm |               |              |
|  |  | CHE./DATE:                    | CODE:<br>3D6701BK00-001  |               |              |
|  |  | APP./DATE:                    | FILE FORM:<br>HJ-QR-E-03 22.09.01  | SIZE:<br>A4   | UNIT:<br>mm  |
|  |  |                               | PRO.:<br>3rd   | SCALE:<br>1:1 | PAGE:<br>1/1 |

P/N : 3D6701BK00-001

DESCRIPTION : DUAL BAND ANTENNA,G67 BLACK,DOUBLE COPPER TUBE,RP-SMA PLUG+047  
 N : CABLE,L=112mm



**ELECTRICAL PERFORMANCE**

|   |                       |  |
|---|-----------------------|--|
| 1 | NOMINAL IMPEDANCE :   | 50Ω  |
| 2 | FREQUENCY RANGE :     | 2.4~2.5GHz; 5.15~5.85GHz                       |
| 3 | VSWR :                | 2.4~2.5GHz @ 2.0 MAX.; 5.15~5.85GHz @ 2.0 MAX. |
| 4 | GAIN :                | 2.4~2.5GHz @ 3.78dBi ; 5.15~5.85GHz @ 3.77dBi  |
| 5 | POLARIZATION MODE :   | VERTICAL                                       |
| 6 | RADIATION DIRECTION : | OMNIDIRECTIONAL                                |

**MECHANICAL PROPERTIES**

|   |                     |             |
|---|---------------------|-------------|
| 1 | ANTENNA SIZE :      | OD10*112mm  |
| 2 | ANTENNA HOUSING :   | BLACK       |
| 2 | ANTENNA CONNECTOR : | RP-SMA PLUG |

**ENVIRONMENTAL SPECIFICATION**

|   |                         |  |
|---|-------------------------|--|
| 1 | OPERATION TEMPERATURE : | -40° 至 +60°  |
| 2 | CORROSION :             | SALT WATER DENSITY:(5±1)%,TEMPERATUR:(35±3)°C,48HRS. |
| 3 | STORAGE ENVIRONMENT:    | TEMPERATURE: -40° ~ +85°C; HUMIDITY: 20% ~ 75%       |
| 4 | MEMORY CYCLE :          | AT LEAST 6 MONTHS IF CONDITIONS ARE MET.             |
| 5 | ENVIRONMENTAL :         | RoHS COMPLIANT.                                      |

**DURABILITY SPECIFICATION**

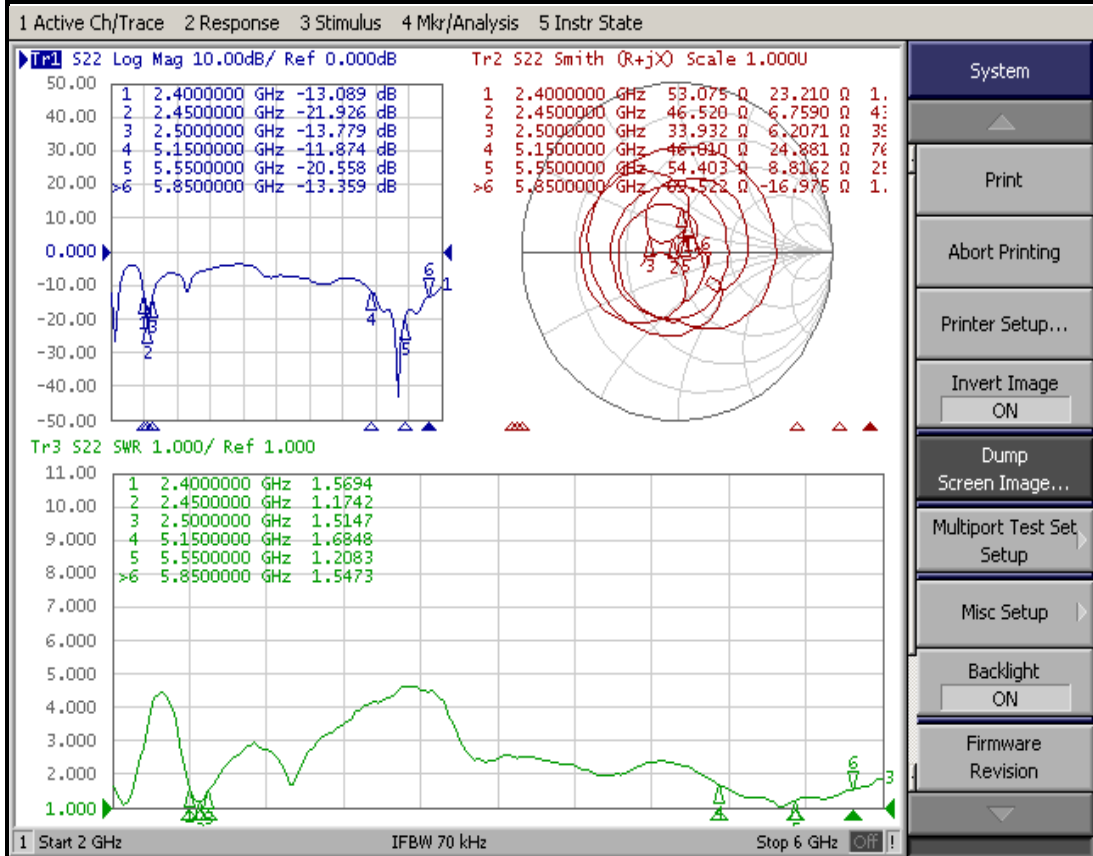
|   |                |  |
|---|----------------|--|
| 1 | DURABILITY :   | RP-SMA PLUG: 500 CYCLES  |
| 2 | SERVICE LIFE : | UNDER THE ABOVE ELECTRICAL, MECHANICAL, AND ENVIRONMENTAL PERFORMANCE CONDITIONS, THE SERVICE LIFE IS 10 YEARS |



### Antenna Electrical Characteristic Test Report

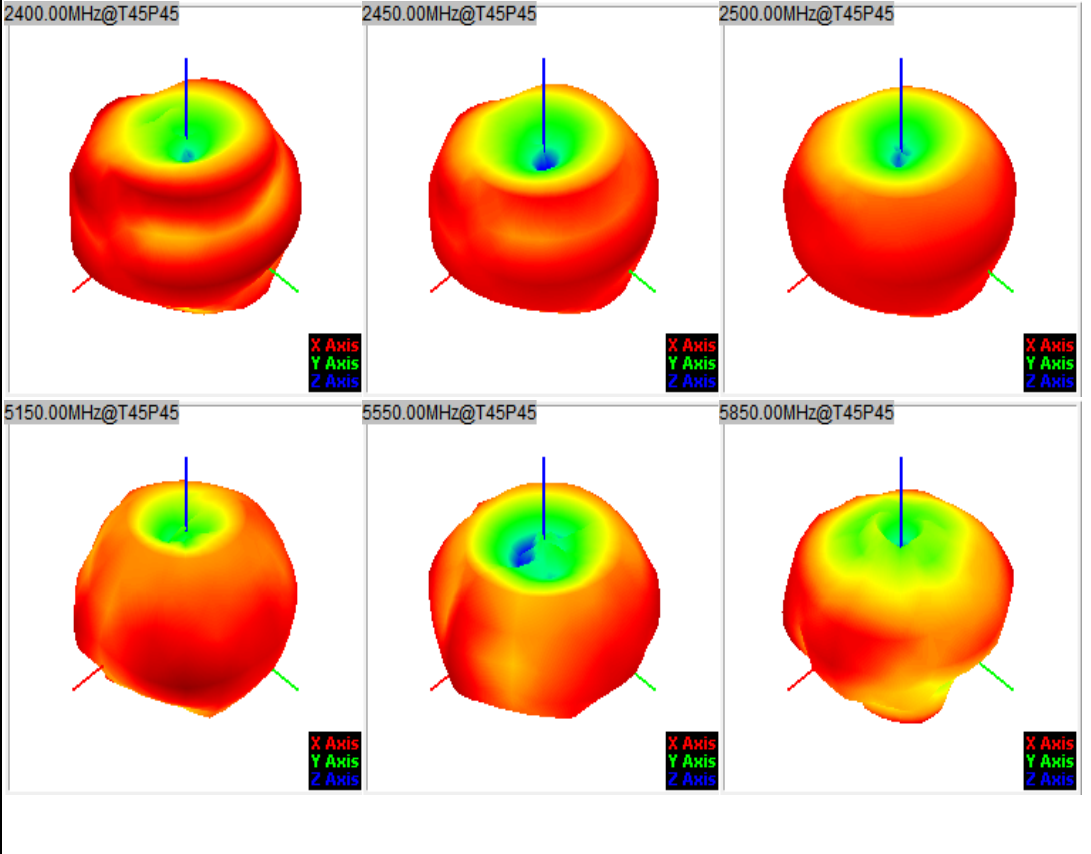
Document number:HJ-QR-Q-22 Rev:A0

|                |  |                          |      |       |
|----------------|--|--------------------------|------|-------|
| Part Number:   | 3D6701BK00-001   | Item                     | Spec | Judge |
| Part Name:     | DOUBLE BAND ANTENNA,607 BLACK,DOUBLE COPPER TUBE,RP-SMA PLUG+047 CABLE L=112mm | VSWR                     | ≤2.0 | pass  |
| Test Equipment | Network analyzer/ microwave darkroom   | Characteristic impedance | 50Ω  | pass  |
| Quantity       | 5pcs   |                          |      |       |
| Test Date      | 2024/2/19  |                          |      |       |



| Frequency ID               | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     | 13     | 14     |
|----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Frequency (MHz)            | 2400.0 | 2410.0 | 2420.0 | 2430.0 | 2440.0 | 2450.0 | 2460.0 | 2470.0 | 2480.0 | 2490.0 | 2500.0 | 5150.0 | 5200.0 | 5250.0 |
| Point Values               |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| Ant. Port Input Pwr. (dBm) | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   |
| Tot. Rad. Pwr. (dBm)       | -1.10  | -1.03  | -1.03  | -0.63  | -0.53  | -0.80  | -1.03  | -1.07  | -0.69  | -0.64  | -0.77  | -1.22  | -1.24  | -1.43  |
| Peak EIRP (dBm)            | 2.96   | 3.24   | 3.24   | 3.70   | 3.78   | 3.52   | 3.20   | 3.07   | 3.33   | 3.32   | 3.10   | 3.77   | 3.55   | 2.88   |
| Directivity (dBi)          | 4.06   | 4.26   | 4.27   | 4.34   | 4.31   | 4.32   | 4.23   | 4.13   | 4.02   | 3.96   | 3.87   | 4.98   | 4.78   | 4.31   |
| Efficiency (dB)            | -1.10  | -1.03  | -1.03  | -0.63  | -0.53  | -0.80  | -1.03  | -1.07  | -0.69  | -0.64  | -0.77  | -1.22  | -1.24  | -1.43  |
| Efficiency (%)             | 77.70  | 79.00  | 78.90  | 86.40  | 88.40  | 83.20  | 78.90  | 78.20  | 85.30  | 86.20  | 83.70  | 75.60  | 75.20  | 71.90  |
| Gain (dBi)                 | 2.96   | 3.24   | 3.24   | 3.70   | 3.78   | 3.52   | 3.20   | 3.07   | 3.33   | 3.32   | 3.10   | 3.77   | 3.55   | 2.88   |
| NHPRP ±Pi/4 (dBm)          | -2.25  | -2.05  | -1.97  | -1.49  | -1.33  | -1.53  | -1.71  | -1.70  | -1.30  | -1.22  | -1.33  | -2.30  | -2.30  | -2.40  |
| NHPRP ±Pi/6 (dBm)          | -3.41  | -3.15  | -3.02  | -2.51  | -2.31  | -2.48  | -2.64  | -2.60  | -2.19  | -2.10  | -2.21  | -3.45  | -3.38  | -3.42  |
| NHPRP ±Pi/8 (dBm)          | -4.19  | -3.92  | -3.79  | -3.26  | -3.06  | -3.22  | -3.37  | -3.33  | -2.92  | -2.84  | -2.96  | -4.21  | -4.08  | -4.07  |
| Upper Hem. PRP (dBm)       | -3.47  | -3.29  | -3.25  | -2.79  | -2.70  | -2.98  | -3.24  | -3.28  | -2.91  | -2.81  | -2.91  | -3.23  | -3.38  | -3.85  |
| Lower Hem. PRP (dBm)       | -4.85  | -4.94  | -5.00  | -4.70  | -4.59  | -4.84  | -5.01  | -5.05  | -4.67  | -4.70  | -4.88  | -5.51  | -5.33  | -5.13  |
| Upper Hem. PRP (%)         | 44.96  | 46.90  | 47.32  | 52.54  | 53.65  | 50.38  | 47.38  | 46.96  | 51.18  | 52.34  | 51.16  | 47.50  | 45.93  | 41.20  |
| Lower Hem. PRP (%)         | 32.71  | 32.06  | 31.59  | 33.86  | 34.76  | 32.80  | 31.52  | 31.26  | 34.09  | 33.90  | 32.51  | 28.09  | 29.28  | 30.71  |

| FETUKEII                   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Frequency ID               | 13     | 14     | 15     | 16     | 17     | 18     | 19     | 20     | 21     | 22     | 23     | 24     | 25     | 26     |
| Frequency (MHz)            | 5200.0 | 5250.0 | 5300.0 | 5350.0 | 5400.0 | 5450.0 | 5500.0 | 5550.0 | 5600.0 | 5650.0 | 5700.0 | 5750.0 | 5800.0 | 5850.0 |
| Point Values               |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| Ant. Port Input Pwr. (dBm) | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   |
| Tot. Rad. Pwr. (dBm)       | -1.24  | -1.43  | -1.60  | -1.45  | -1.56  | -1.39  | -1.27  | -1.65  | -1.71  | -1.34  | -1.12  | -1.51  | -1.59  | -1.71  |
| Peak EIRP (dBm)            | 3.55   | 2.88   | 2.78   | 2.62   | 2.64   | 3.42   | 3.28   | 2.80   | 2.85   | 3.15   | 3.24   | 3.08   | 3.16   | 3.32   |
| Directivity (dBi)          | 4.78   | 4.31   | 3.89   | 4.07   | 4.20   | 4.81   | 4.55   | 4.44   | 4.56   | 4.49   | 4.36   | 4.59   | 4.75   | 5.02   |
| Efficiency (dB)            | -1.24  | -1.43  | -1.60  | -1.45  | -1.56  | -1.39  | -1.27  | -1.65  | -1.71  | -1.34  | -1.12  | -1.51  | -1.59  | -1.71  |
| Efficiency (%)             | 75.20  | 71.90  | 69.10  | 71.60  | 69.90  | 72.60  | 74.70  | 68.50  | 67.40  | 73.50  | 77.30  | 70.60  | 69.40  | 67.50  |
| Gain (dBi)                 | 3.55   | 2.88   | 2.78   | 2.62   | 2.64   | 3.42   | 3.28   | 2.80   | 2.85   | 3.15   | 3.24   | 3.08   | 3.16   | 3.32   |
| NHPRP $\pm\pi/4$ (dBm)     | -2.30  | -2.40  | -2.51  | -2.27  | -2.34  | -2.11  | -1.93  | -2.27  | -2.33  | -1.95  | -1.74  | -2.11  | -2.16  | -2.34  |
| NHPRP $\pm\pi/6$ (dBm)     | -3.38  | -3.42  | -3.54  | -3.26  | -3.34  | -3.02  | -2.84  | -3.16  | -3.23  | -2.86  | -2.67  | -3.03  | -3.06  | -3.31  |
| NHPRP $\pm\pi/8$ (dBm)     | -4.08  | -4.07  | -4.17  | -3.86  | -3.99  | -3.61  | -3.45  | -3.76  | -3.85  | -3.52  | -3.37  | -3.72  | -3.77  | -4.11  |
| Upper Hem. PRP (dBm)       | -3.38  | -3.85  | -4.10  | -4.09  | -4.18  | -4.14  | -4.00  | -4.37  | -4.40  | -3.97  | -3.70  | -4.12  | -4.12  | -4.25  |
| Lower Hem. PRP (dBm)       | -5.33  | -5.13  | -5.19  | -4.86  | -5.00  | -4.68  | -4.58  | -4.96  | -5.07  | -4.77  | -4.61  | -4.96  | -5.13  | -5.24  |
| Upper Hem. PRP (%)         | 45.93  | 41.20  | 38.89  | 38.95  | 38.22  | 38.59  | 39.85  | 36.58  | 36.28  | 40.12  | 42.67  | 38.75  | 38.72  | 37.61  |
| Lower Hem. PRP (%)         | 29.28  | 30.71  | 30.24  | 32.67  | 31.65  | 34.03  | 34.81  | 31.88  | 31.13  | 33.35  | 34.60  | 31.88  | 30.66  | 29.91  |



Checker: XIU HE

Tester: S.He