Dreamus Corp.

# APPROVAL SHEET

| P1 | | | |
|---|---|---|---|
| NO | MODEL | FREQUENCY | |
| 1 | HWI-ABG-P1 | WIFI 2.4GHz/BT | 2400 ~ 2500 MHz |
| | | WIFI 5GHz | 5170 ~ 5825 MHz |

| SUPPLIER | | | CUSTOMER | | |
|---|---|---|---|---|---|
| Engineer | Review | Approved | Engineer | Review | Approved |
|  | |  | | | |
| 24/03/11 | | 24/03/11 | | | |

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TEL: 032) 624-2555
FAX: 032) 624-2559

# HISTORY SHEET

| ITEM | FPCB ANTENNA | Developed by | Kyoung-Min Lee | |
|---|---|---|---|---|
| Part Name | HWI-ABG-P1 | Director | | |

| Rev. No. | Date | Description | Etc. |
|---|---|---|---|
| 0 | 2024-03-11 | Initial Version | |
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# ANTENNA SPECIFICATION

1. MODEL: HWI-ABG-P1

2. APPLICATION:

This specification is provided for WIFI 2.4, 5GHz, BT ANTENNA.

3 ANTENNA used condition

■Portable ■Fixing ■Movement ■Out-door ■In-door ■Etc( )

4. ANTENNA Drawing

#3. Attached : Drawing paper

5. Electrical specification and performance

Satisfied next data with real used or similar environment conditions.

| No. | ELECTRICAL DATA | SPECIFICATIONS | | REMARK |
|---|---|---|---|---|
| 5. 1 | FREQUENCY RANGE | WIFI 2.4GHz /BT | 2400 ~ 2500 MHz | |
| | | WIFI 5GHz | 5170 ~ 5825 MHz | |
| 5. 2 | IMPEDANCE | 50 Ω NOMINAL | | |
| 5. 3 | V. S. W. R | WIFI 2.4GHz /BT | Less than 1 : 3.25 | #1. Attached |
| | | WIFI 5GHz | Less than 1 : 2.84 | |
| 5. 4 | PEAK GAIN | WIFI 2.4GHz /BT | 0.78 dBi | #2. Attached |
| | | WIFI 5GHz | 2.55 dBi | |
| 5. 5 | RADIATION PATTERN | OMNI - DIRECTIONAL | | |
| 5. 6 | POLARIZATION | LINEAR | | |

6. Hardware specification and mechanical

| No. | MECHANICAL | SPECIFICATIONS | REMARK |
|---|---|---|---|
| 2. 6. 1 | FPCB Size [W X H X T] | 23.80 X 25.85 X 0.75 (mm) | |

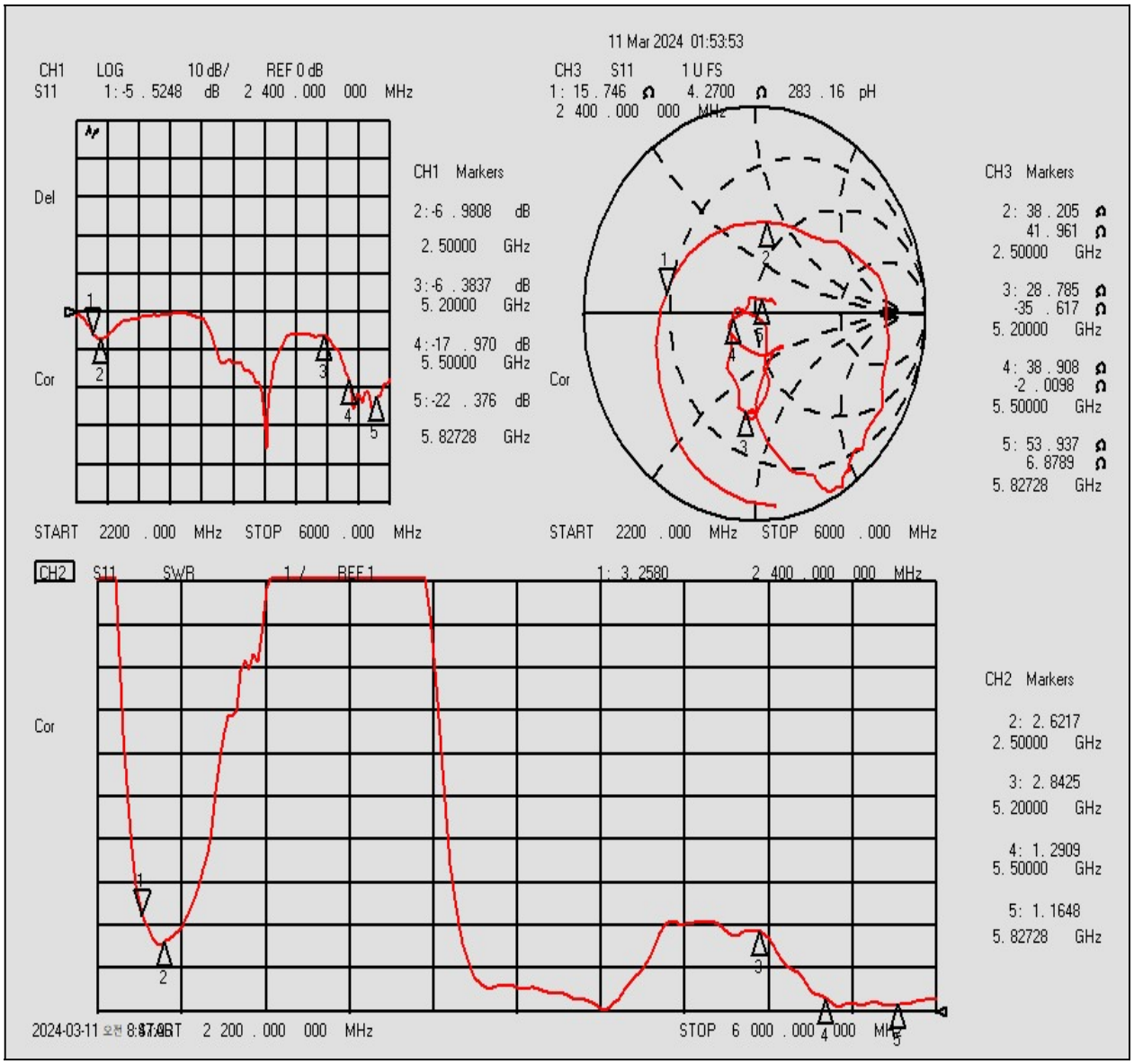
7. SINUSOIDAL VIBRATION
Vibration Frequencies : 5- 55 Hz (1 cycle)
Sweep Rate : 1 cycle/min
Maximum Amplitude : A - 1 mm
Maximum Acceleration: 2 g
Measuring method
Antenna is combined in the test equipment.
The vibration is done X and Y direction (left, right, up and down) according to below image.
It continued for 2 hours each direction.

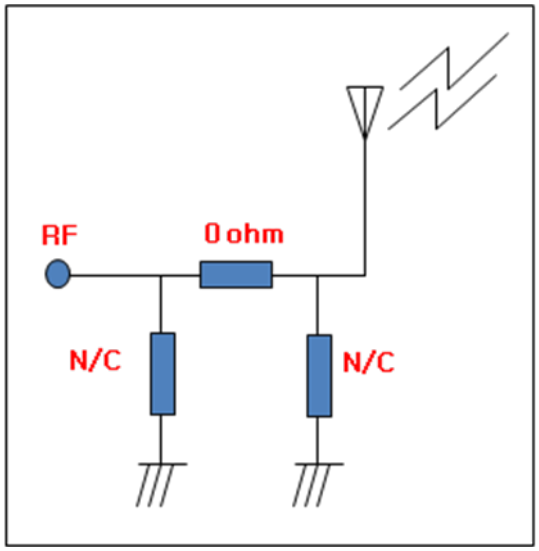
8. OPERATING TEMPERATURE
Temperature : - 40℃ / +70℃
Demands : Set Antenna and Cable for 72 hours each temperature.
No visual and mechanical changes.
The fitting and mold will be unchanged mechanically during the test.
The antenna shall satisfy the electrical data

9. HUMIDITY
Condition : 95% / +70℃
Measuring method
Antenna is placed in climatic chamber for 72 hours.
Antenna is taken out from the chamber and measured
after another 24 hours in room temperature
Demands : No visual and mechanical changes.
The fitting and mold will be unchanged mechanically during the test.
The antenna shall satisfy the electrical data.

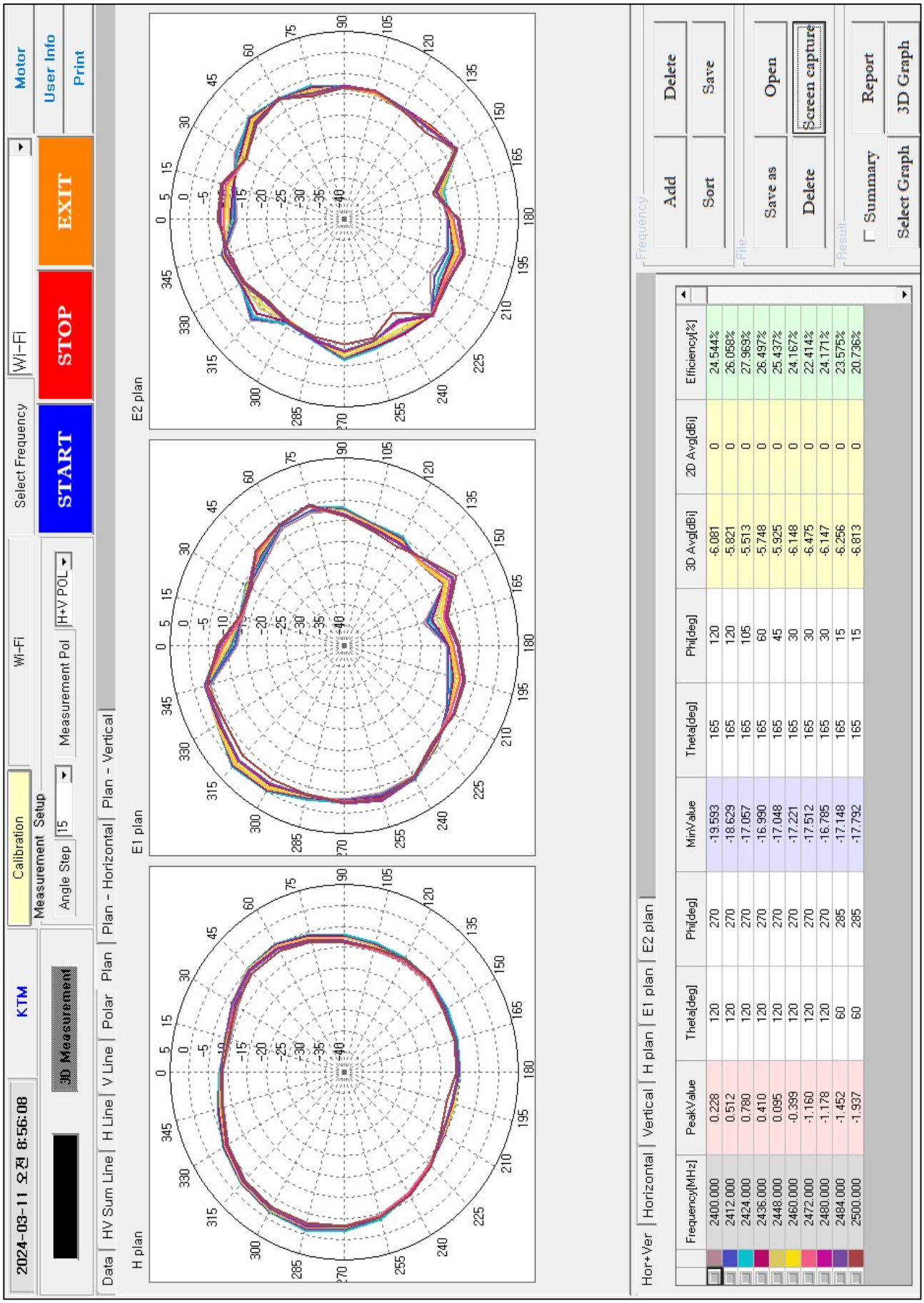
10. TEST and Q/C
This specification is according to fixed demands and suitable Hanwool technology Q/C provision.
But it is possible to skip No. 7~9 demands, after consultation with buyer.

- #1. Attached : VSWR



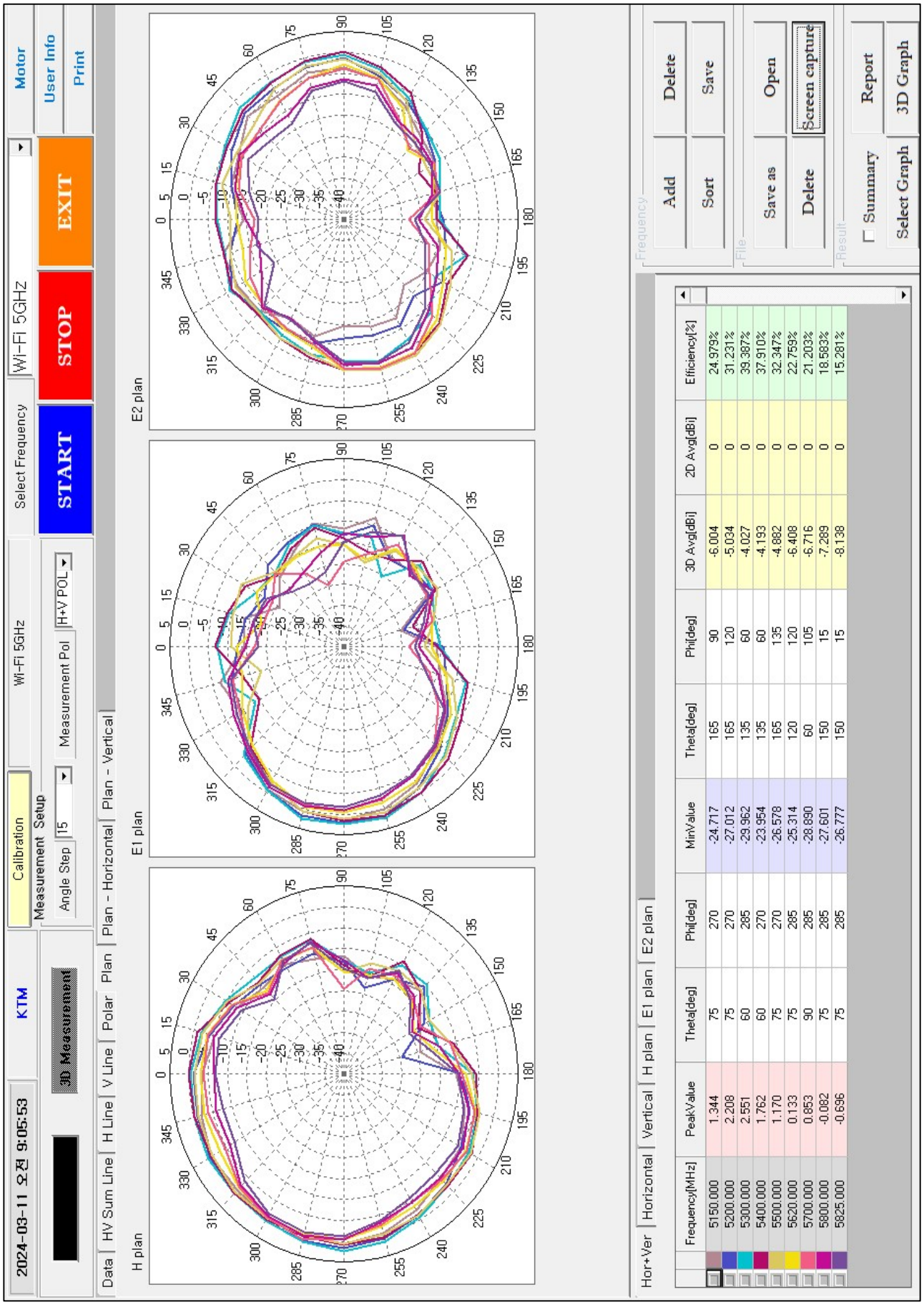



- #2. Attached : RADIATION PATTERN(GAIN)_WIFI 2.4GHz/BT




| Frequency[MHz] | PeakValue | Theta[deg] | Phi[deg] | MinValue | Theta[deg] | Phi[deg] | 3D Avg[dBi] | 2D Avg[dBi] | Efficiency[%] |
|---|---|---|---|---|---|---|---|---|---|
| 2400.000 | 0.228 | 120 | 270 | -19.593 | 165 | 120 | -6.081 | 0 | 24.544% |
| 2412.000 | 0.512 | 120 | 270 | -18.629 | 165 | 120 | -5.821 | 0 | 26.058% |
| 2424.000 | 0.780 | 120 | 270 | -17.057 | 165 | 105 | -5.513 | 0 | 27.969% |
| 2436.000 | 0.410 | 120 | 270 | -16.990 | 165 | 60 | -5.748 | 0 | 26.497% |
| 2448.000 | 0.095 | 120 | 270 | -17.048 | 165 | 45 | -5.925 | 0 | 25.437% |
| 2460.000 | -0.399 | 120 | 270 | -17.221 | 165 | 30 | -6.148 | 0 | 24.167% |
| 2472.000 | -1.160 | 120 | 270 | -17.512 | 165 | 30 | -6.475 | 0 | 22.414% |
| 2480.000 | -1.178 | 120 | 270 | -16.785 | 165 | 30 | -6.147 | 0 | 24.171% |
| 2484.000 | -1.452 | 60 | 285 | -17.148 | 165 | 15 | -6.256 | 0 | 23.575% |
| 2500.000 | -1.937 | 60 | 285 | -17.792 | 165 | 15 | -6.813 | 0 | 20.736% |

- #3. Attached : RADIATION PATTERN(GAIN)_ WIFI 5GHz

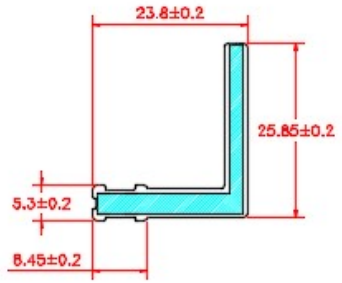


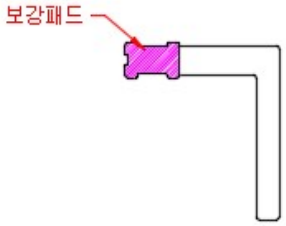

| Frequency[MHz] | PeakValue | Theta[deg] | Phi[deg] | MinValue | Theta[deg] | Phi[deg] | 3D Avg[dBi] | 2D Avg[dBi] | Efficiency[%] |
|---|---|---|---|---|---|---|---|---|---|
| 5150.000 | 1.344 | 75 | 270 | -24.717 | 165 | 90 | -6.004 | 0 | 24.979% |
| 5200.000 | 2.208 | 75 | 270 | -27.012 | 165 | 120 | -5.034 | 0 | 31.231% |
| 5300.000 | 2.551 | 60 | 285 | -29.962 | 135 | 60 | -4.027 | 0 | 39.387% |
| 5400.000 | 1.762 | 60 | 270 | -23.954 | 135 | 60 | -4.193 | 0 | 37.910% |
| 5500.000 | 1.170 | 75 | 270 | -26.578 | 165 | 135 | -4.882 | 0 | 32.347% |
| 5620.000 | 0.133 | 75 | 285 | -25.314 | 120 | 120 | -6.408 | 0 | 22.759% |
| 5700.000 | 0.853 | 90 | 285 | -28.890 | 60 | 105 | -6.716 | 0 | 21.203% |
| 5800.000 | -0.082 | 75 | 285 | -27.601 | 150 | 15 | -7.289 | 0 | 18.583% |
| 5825.000 | -0.696 | 75 | 285 | -26.777 | 150 | 15 | -8.138 | 0 | 15.281% |

| No | Revision Note | Checked | Date |
|---|---|---|---|
| ⚠ | | | |

## Pattern :

TOP

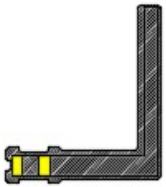


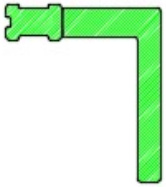




BOTTOM

## INK : Black INK

TOP

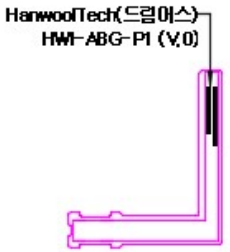




BOTTOM

## Silk print : White Color

TOP




1. ■ 표시는 패턴 Area임.
2. ■ 표시는 금도금 Area임.
3. ■ 표시는 무광 INK 영역임.
4. ■ 표시는 3M 467 영역임.
5. ■ 표시는 보강패드 영역임(0.6T).
6. 1/2 OZ, 1/2 MIL, 단면F-PCB 적용.

* Contact Type 필히 금도금 적용 바람

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | | | | | 1 | |
| No | Part Name | | Meterial Description | | Q'ty | Finish |
| Scale | Unit | Title | F-PCB | | Model | HWI-ABG-P1 |
| 1/1 | mm | Drawn by | Checked by | Approved by | File Name | 드림어스 |
| Decimal | Angle | J.O,LIM | | H,CHOI | Hanwool Technology | |
| 일반공차적용 | N/A | 240229-51 | | | | |