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## DASY/EASY – Parameters of Probe: EX3DV4 – SN:3836

### Calibration Parameter Determined in Head Tissue Simulating Media

| f [MHz] <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha <sup>G</sup> | Depth <sup>G</sup> (mm) | Unct. (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|--------------------|-------------------------|-------------|
| 750                  | 41.9                               | 0.89                            | 9.40    | 9.40    | 9.40    | 0.15               | 1.25                    | ±12.7%      |
| 835                  | 41.5                               | 0.90                            | 9.02    | 9.02    | 9.02    | 0.16               | 1.20                    | ±12.7%      |
| 1750                 | 40.1                               | 1.37                            | 8.01    | 8.01    | 8.01    | 0.32               | 0.93                    | ±12.7%      |
| 1900                 | 40.0                               | 1.40                            | 7.63    | 7.63    | 7.63    | 0.38               | 0.84                    | ±12.7%      |
| 2100                 | 39.8                               | 1.49                            | 7.70    | 7.70    | 7.70    | 0.21               | 1.09                    | ±12.7%      |
| 2300                 | 39.5                               | 1.67                            | 7.52    | 7.52    | 7.52    | 0.52               | 0.70                    | ±12.7%      |
| 2450                 | 39.2                               | 1.80                            | 7.30    | 7.30    | 7.30    | 0.53               | 0.71                    | ±12.7%      |
| 2600                 | 39.0                               | 1.96                            | 7.10    | 7.10    | 7.10    | 0.62               | 0.65                    | ±12.7%      |
| 3300                 | 38.2                               | 2.71                            | 6.88    | 6.88    | 6.88    | 0.44               | 0.92                    | ±13.9%      |
| 3500                 | 37.9                               | 2.91                            | 6.73    | 6.73    | 6.73    | 0.38               | 1.01                    | ±13.9%      |
| 3700                 | 37.7                               | 3.12                            | 6.55    | 6.55    | 6.55    | 0.42               | 1.02                    | ±13.9%      |
| 3900                 | 37.5                               | 3.32                            | 6.46    | 6.46    | 6.46    | 0.30               | 1.52                    | ±13.9%      |
| 4100                 | 37.2                               | 3.53                            | 6.44    | 6.44    | 6.44    | 0.35               | 1.25                    | ±13.9%      |
| 4200                 | 37.1                               | 3.63                            | 6.37    | 6.37    | 6.37    | 0.30               | 1.50                    | ±13.9%      |
| 4400                 | 36.9                               | 3.84                            | 6.25    | 6.25    | 6.25    | 0.35               | 1.35                    | ±13.9%      |
| 4600                 | 36.7                               | 4.04                            | 6.18    | 6.18    | 6.18    | 0.40               | 1.32                    | ±13.9%      |
| 4800                 | 36.4                               | 4.25                            | 6.09    | 6.09    | 6.09    | 0.40               | 1.40                    | ±13.9%      |
| 4950                 | 36.3                               | 4.40                            | 5.81    | 5.81    | 5.81    | 0.40               | 1.40                    | ±13.9%      |
| 5250                 | 35.9                               | 4.71                            | 5.27    | 5.27    | 5.27    | 0.40               | 1.40                    | ±13.9%      |
| 5600                 | 35.5                               | 5.07                            | 4.71    | 4.71    | 4.71    | 0.50               | 1.30                    | ±13.9%      |
| 5750                 | 35.4                               | 5.22                            | 4.82    | 4.82    | 4.82    | 0.40               | 1.52                    | ±13.9%      |

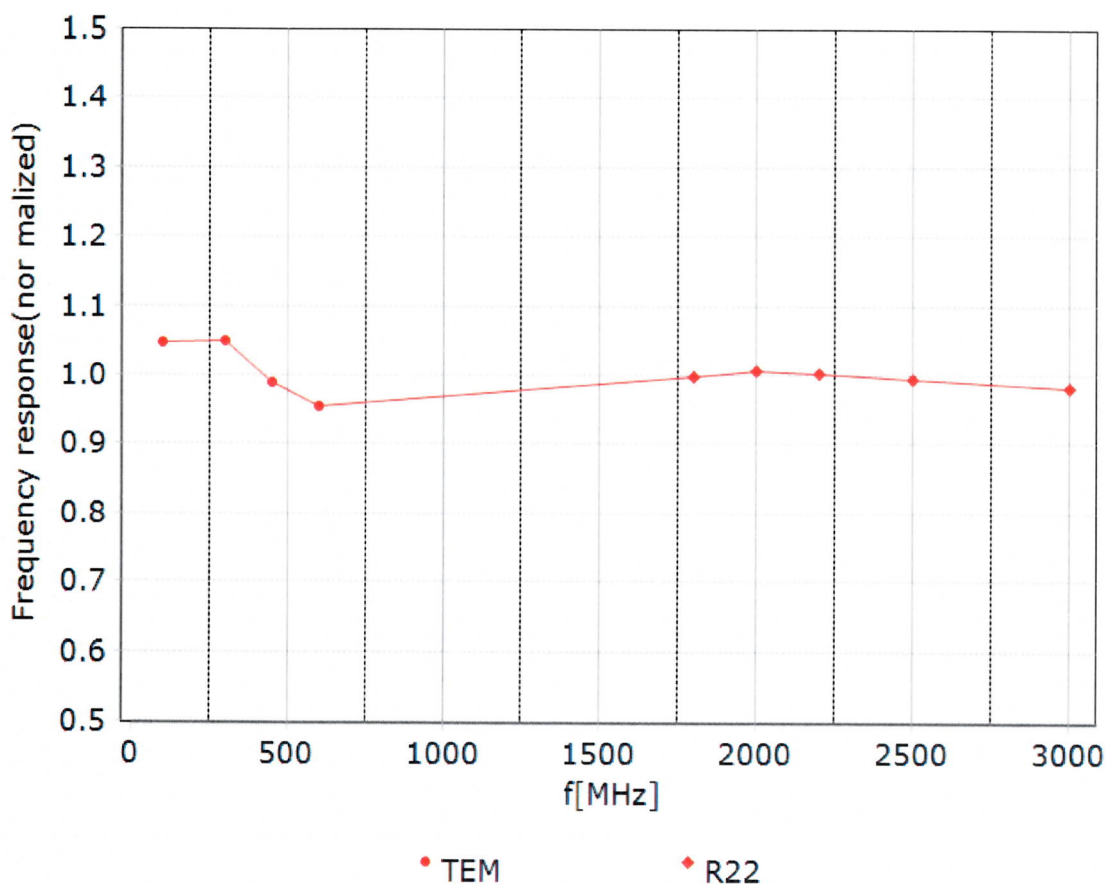
<sup>C</sup> Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

<sup>F</sup> At frequency up to 6 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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## Frequency Response of E-Field (TEM-Cell: ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field:  $\pm 7.4\%$  ( $k=2$ )

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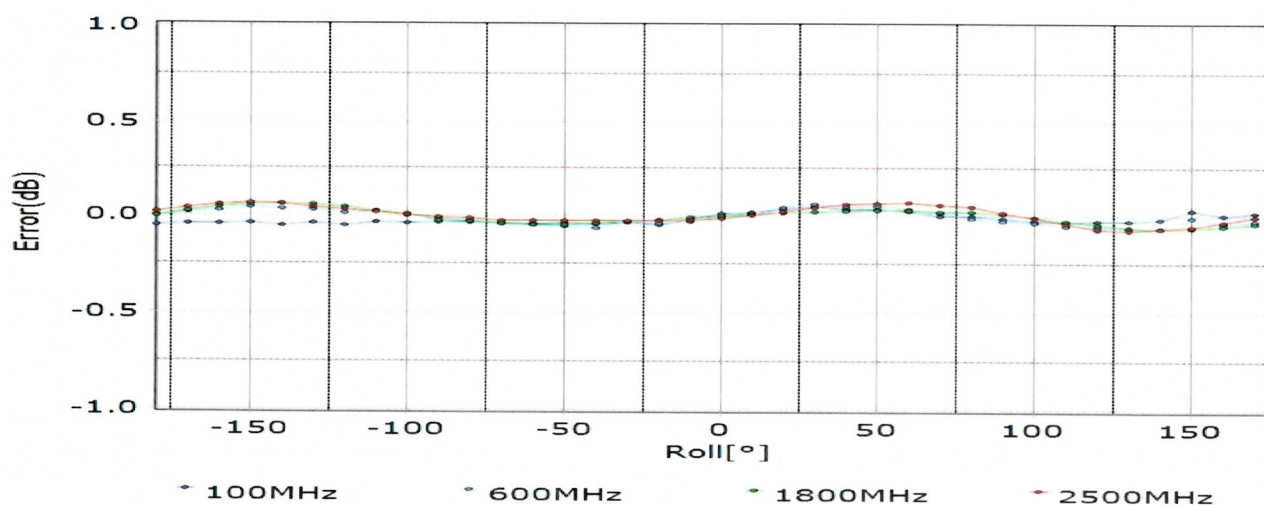
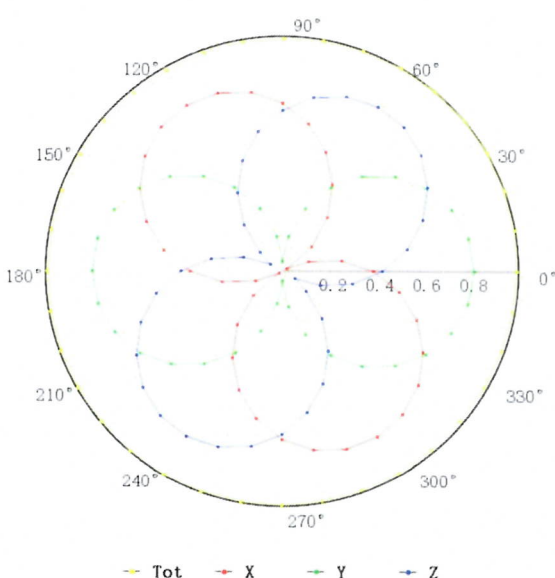
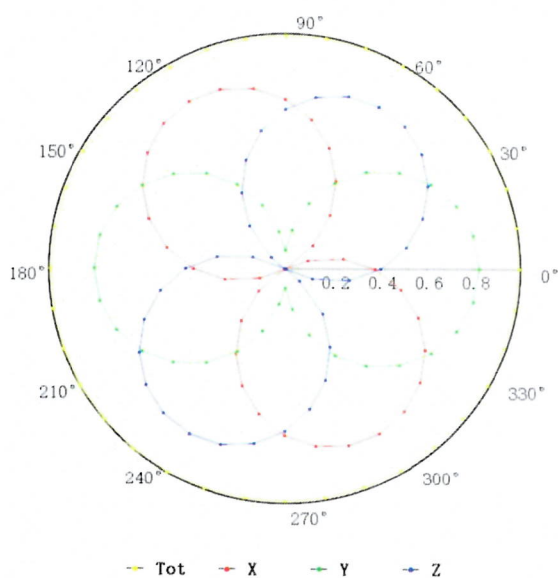
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## Receiving Pattern ( $\Phi$ ), $\theta=0^\circ$

**f=600 MHz, TEM**

**f=1800 MHz, R22**



Uncertainty of Axial Isotropy Assessment:  $\pm 1.2\%$  ( $k=2$ )

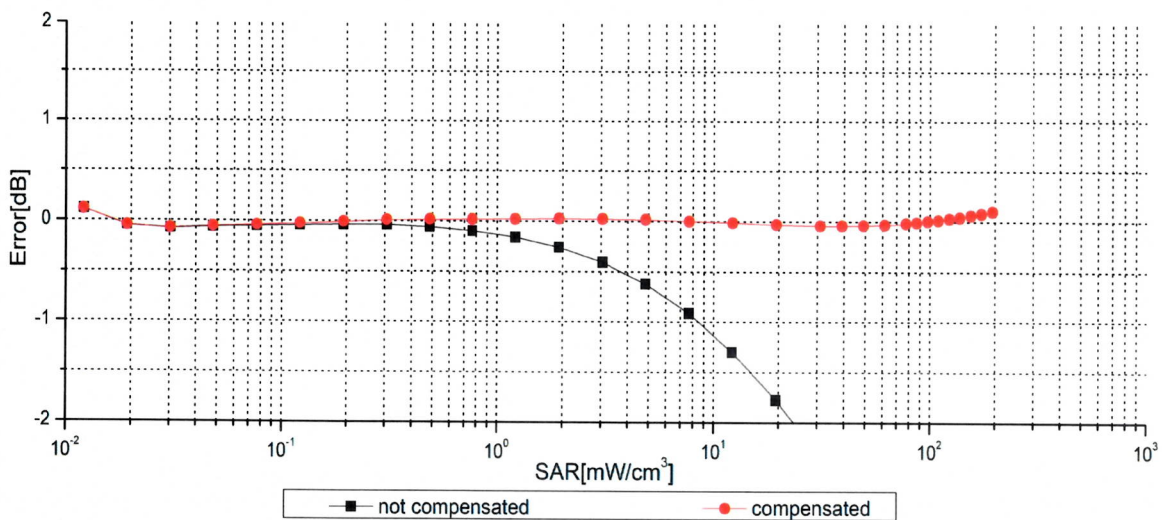
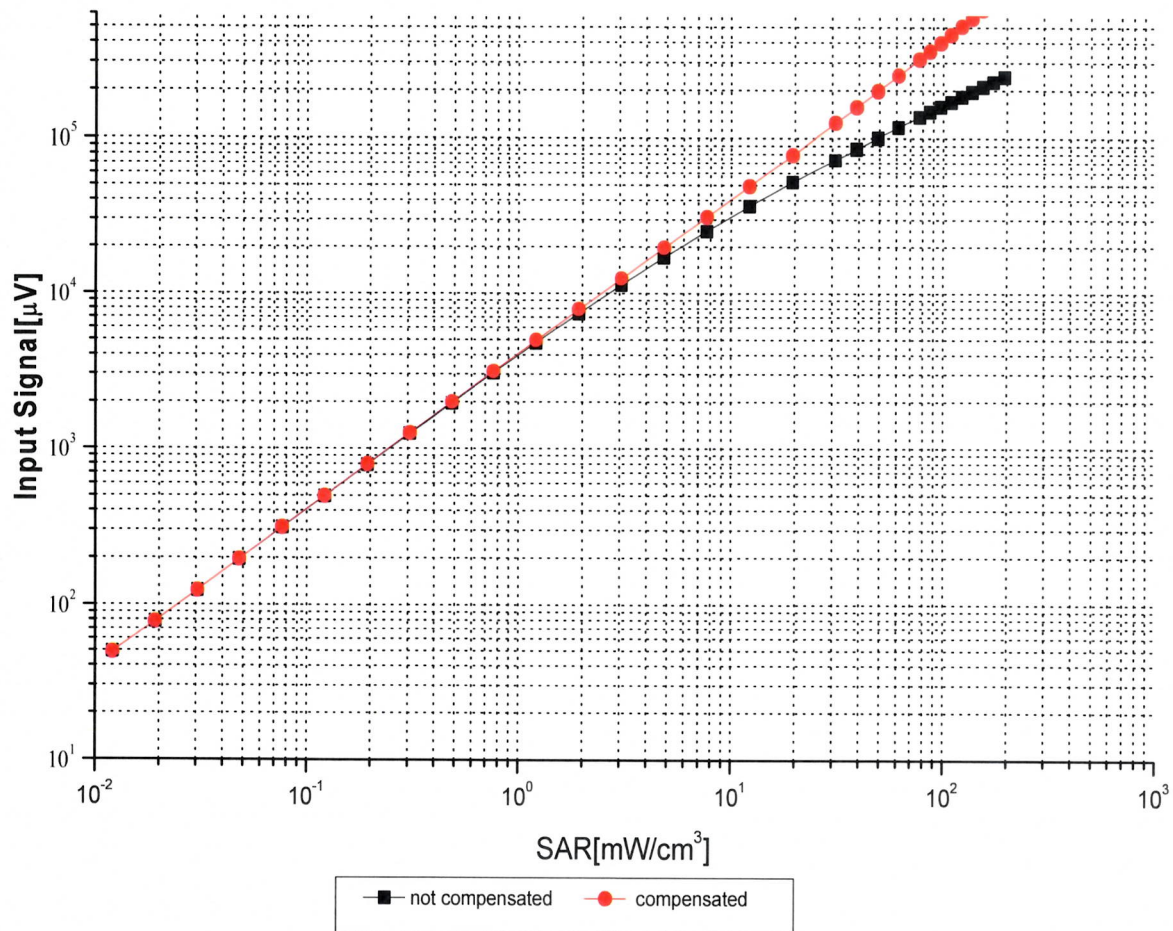
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## Dynamic Range f(SAR<sub>head</sub>) (TEM cell, f = 900 MHz)



**Uncertainty of Linearity Assessment: ±0.9% (k=2)**

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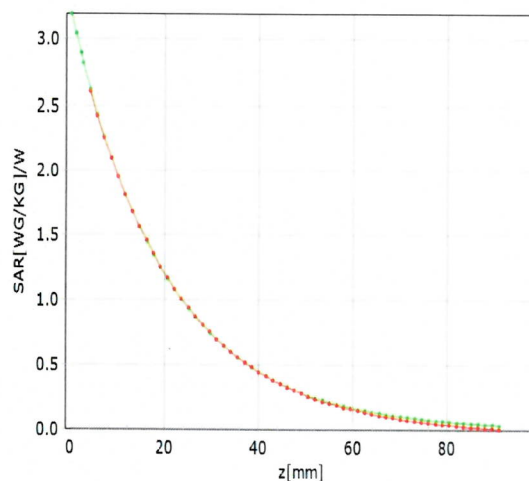
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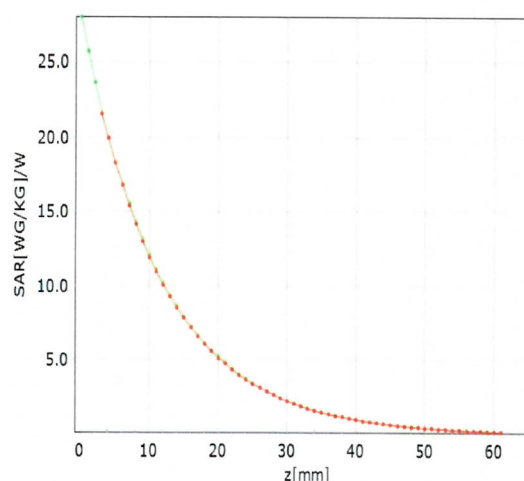
## Conversion Factor Assessment

**f=750 MHz,WGLS R9(H\_convF)**

**f=1750 MHz,WGLS R22(H\_convF)**

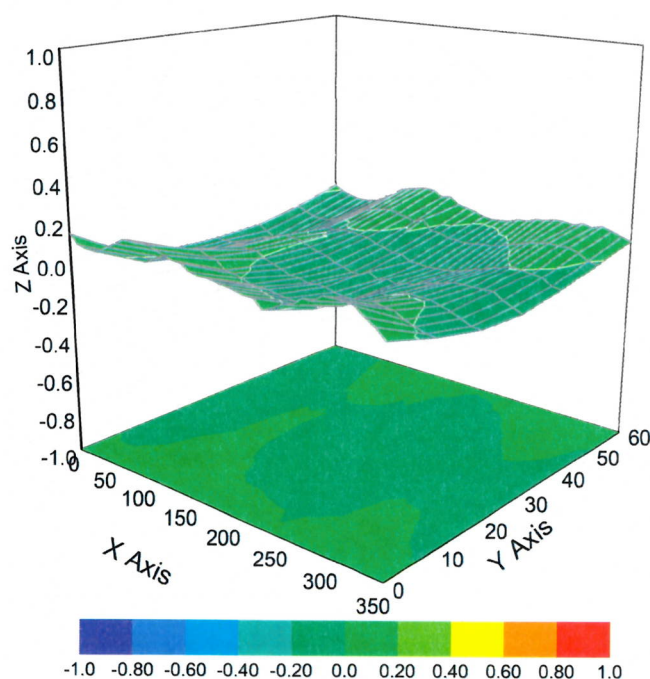


\* analytical \* measured



\* analytical \* measured

## Deviation from Isotropy in Liquid



**Uncertainty of Spherical Isotropy Assessment:  $\pm 3.2\%$  ( $k=2$ )**

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## DASY/EASY – Parameters of Probe: EX3DV4 – SN:3836

### Other Probe Parameters

|                                                      |                   |
|------------------------------------------------------|-------------------|
| <b>Sensor Arrangement</b>                            | <b>Triangular</b> |
| <b>Connector Angle (°)</b>                           | <b>46.2</b>       |
| <b>Mechanical Surface Detection Mode</b>             | <b>enabled</b>    |
| <b>Optical Surface Detection Mode</b>                | <b>disable</b>    |
| <b>Probe Overall Length</b>                          | <b>337mm</b>      |
| <b>Probe Body Diameter</b>                           | <b>10mm</b>       |
| <b>Tip Length</b>                                    | <b>9mm</b>        |
| <b>Tip Diameter</b>                                  | <b>2.5mm</b>      |
| <b>Probe Tip to Sensor X Calibration Point</b>       | <b>1mm</b>        |
| <b>Probe Tip to Sensor Y Calibration Point</b>       | <b>1mm</b>        |
| <b>Probe Tip to Sensor Z Calibration Point</b>       | <b>1mm</b>        |
| <b>Recommended Measurement Distance from Surface</b> | <b>1.4mm</b>      |

| Dipole D750V3 SN 1160 |                 |            |                        |                  |
|-----------------------|-----------------|------------|------------------------|------------------|
| Head Liquid           |                 |            |                        |                  |
| Date of Measurement   | Return Loss(dB) | $\Delta$ % | Impedance ( $\Omega$ ) | $\Delta\Omega()$ |
| 2022/6/6              | -29.6           | /          | 51.4                   | /                |
| 2023/6/4              | -30.1           | 1.69%      | 52.2                   | 0.8 $\Omega$     |

| Dipole D1750V2 SN 1149 |                 |            |                        |                  |
|------------------------|-----------------|------------|------------------------|------------------|
| Head Liquid            |                 |            |                        |                  |
| Date of Measurement    | Return Loss(dB) | $\Delta$ % | Impedance ( $\Omega$ ) | $\Delta\Omega()$ |
| 2022/6/17              | -31.9           | /          | 47.6                   | /                |
| 2023/6/14              | -32.2           | 0.94%      | 48.9                   | 1.3 $\Omega$     |

| Dipole D2600V2 SN 1125 |                 |            |                        |                  |
|------------------------|-----------------|------------|------------------------|------------------|
| Head Liquid            |                 |            |                        |                  |
| Date of Measurement    | Return Loss(dB) | $\Delta$ % | Impedance ( $\Omega$ ) | $\Delta\Omega()$ |
| 2022/6/14              | -25.1           | /          | 46.9                   | /                |
| 2023/6/13              | -24.7           | 1.62%      | 47.5                   | 0.6 $\Omega$     |