



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China  
 Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504  
 E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

**DASY/EASY – Parameters of Probe: EX3DV4 – SN:7515**

**Basic Calibration Parameters**

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm( $\mu\text{V}/(\text{V}/\text{m})^2$ ) <sup>A</sup>	0.44	0.49	0.47	$\pm 10.0\%$
DCP(mV) <sup>B</sup>	98.0	98.8	100.2	

**Modulation Calibration Parameters**

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Unc <sup>E</sup> (k=2)
0	CW	X	0.0	0.0	1.0	0.00	146.7	$\pm 4.8\%$
		Y	0.0	0.0	1.0		161.1	
		Z	0.0	0.0	1.0		154.1	

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution Corresponds to a coverage probability of approximately 95%.

<sup>A</sup> The uncertainties of Norm X, Y, Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Page 4).

<sup>B</sup> Numerical linearization parameter: uncertainty not required.

<sup>E</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.





Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China  
 Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504  
 E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

## DASY/EASY – Parameters of Probe: EX3DV4 – SN:7515

### 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	10.02	10.02	10.02	0.08	1.72	±12.1%
835	41.5	0.90	9.65	9.65	9.65	0.16	1.25	±12.1%
900	41.5	0.97	9.61	9.61	9.61	0.20	1.18	±12.1%
1750	40.1	1.37	8.40	8.40	8.40	0.47	0.79	±12.1%
1900	40.0	1.40	8.16	8.16	8.16	0.30	0.95	±12.1%
2000	40.0	1.40	8.23	8.23	8.23	0.19	1.29	±12.1%
2300	39.5	1.67	7.71	7.71	7.71	0.60	0.70	±12.1%
2450	39.2	1.80	7.44	7.44	7.44	0.54	0.78	±12.1%
2600	39.0	1.96	7.31	7.31	7.31	0.60	0.74	±12.1%
3300	38.2	2.71	7.10	7.10	7.10	0.43	0.92	±13.3%
3500	37.9	2.91	6.87	6.87	6.87	0.42	1.00	±13.3%
3700	37.7	3.12	6.55	6.55	6.55	0.43	1.00	±13.3%
3900	37.5	3.32	6.47	6.47	6.47	0.40	1.25	±13.3%
4100	37.2	3.53	6.53	6.53	6.53	0.40	1.15	±13.3%
4200	37.1	3.63	6.44	6.44	6.44	0.40	1.25	±13.3%
4400	36.9	3.84	6.34	6.34	6.34	0.40	1.25	±13.3%
4600	36.7	4.04	6.25	6.25	6.25	0.50	1.17	±13.3%
4800	36.4	4.25	6.22	6.22	6.22	0.45	1.20	±13.3%
4950	36.3	4.40	5.97	5.97	5.97	0.50	1.20	±13.3%
5250	35.9	4.71	5.46	5.46	5.46	0.45	1.25	±13.3%
5600	35.5	5.07	4.89	4.89	4.89	0.55	1.20	±13.3%
5750	35.4	5.22	4.96	4.96	4.96	0.55	1.25	±13.3%

<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 below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ±5%. 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.

Certificate No:Z21-60435

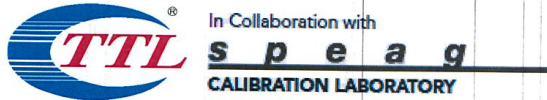
Page 4 of 9



Since the client has agreed in writing, this document is issued by the Company subject to the General Conditions of Services printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

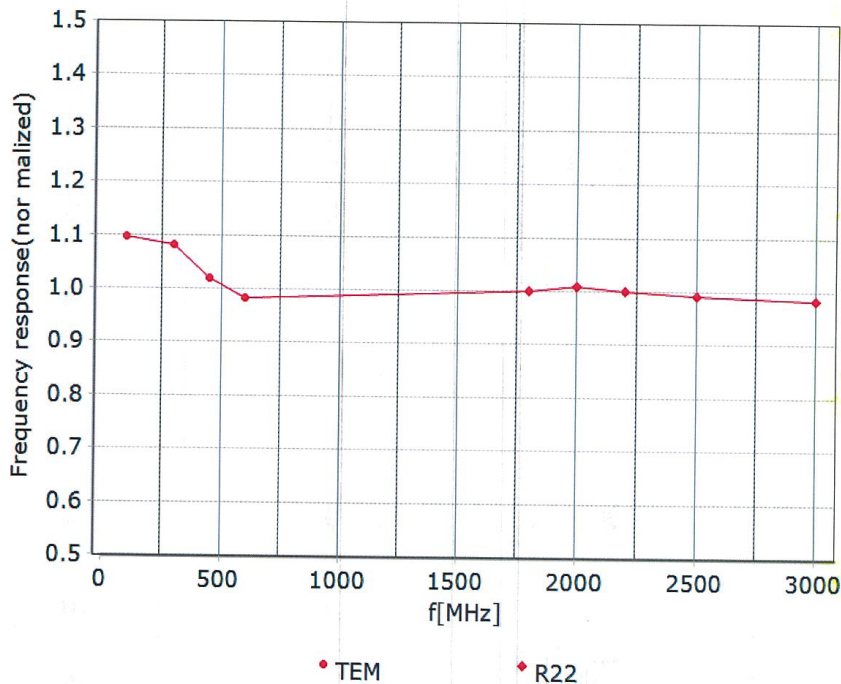
Attention: To check the authenticity of testing/inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)  
 No.10, Weiye Road, Innovation Park, Kunshan, Jiangsu, China 215300 t(86-512)57355888 f(86-512)57370818 www.sgsgroup.com.cn  
 中国·江苏·昆山市留学院创业园伟业路10号 邮编 215300 t(86-512)57355888 f(86-512)57370818 sgs.china@sgs.com





Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China  
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504  
E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

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



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



Unless otherwise agreed in writing, this document is issued by the Company subject to the General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.  
**Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com**

No.10, Weiye Road, Innovation Park, Kunshan, Jiangsu, China 215300  
中国·江苏·昆山市留学生创业园伟业路10号 邮编 215300

t(86-512)57355888 f(86-512)57370818 www.sgsgroup.com.cn  
t(86-512)57355888 f(86-512)57370818 sgs.china@sgs.com

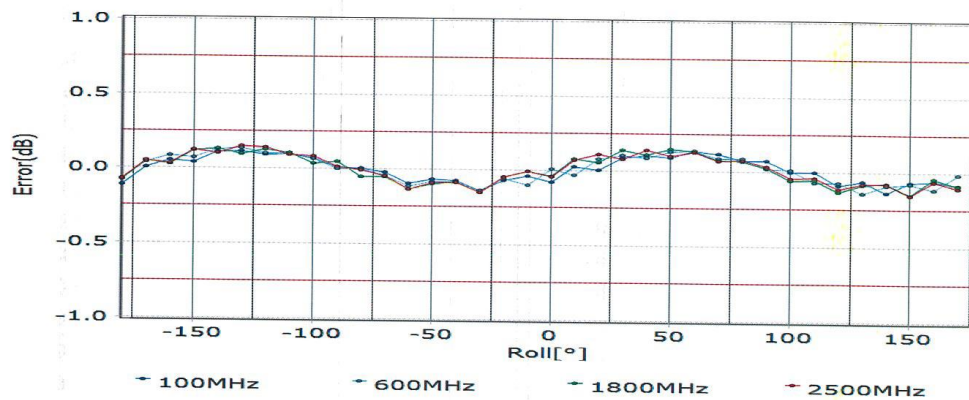
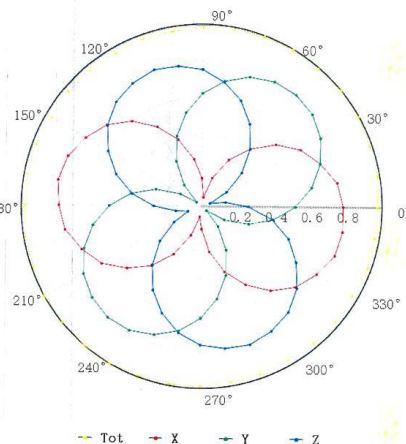
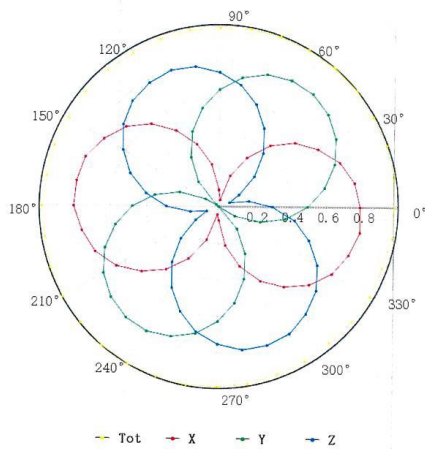


Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China  
 Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504  
 E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

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

f=600 MHz, TEM

f=1800 MHz, R22



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



Compliance Certification Services (Kunshan) Inc. Inspection & Testing Services  
 Attention: To check the authenticity of testing/inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

No.10, Weiye Road, Innovation Park, Kunshan, Jiangsu, China 215300  
 中国·江苏·昆山市留学生创业园伟业路10号 邮编 215300

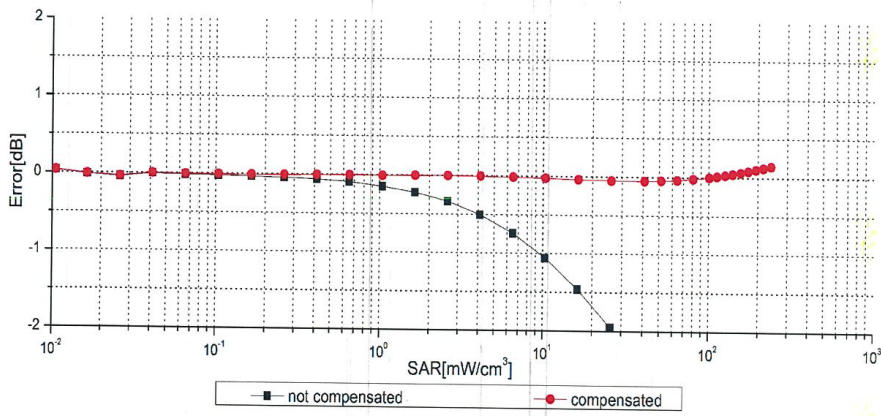
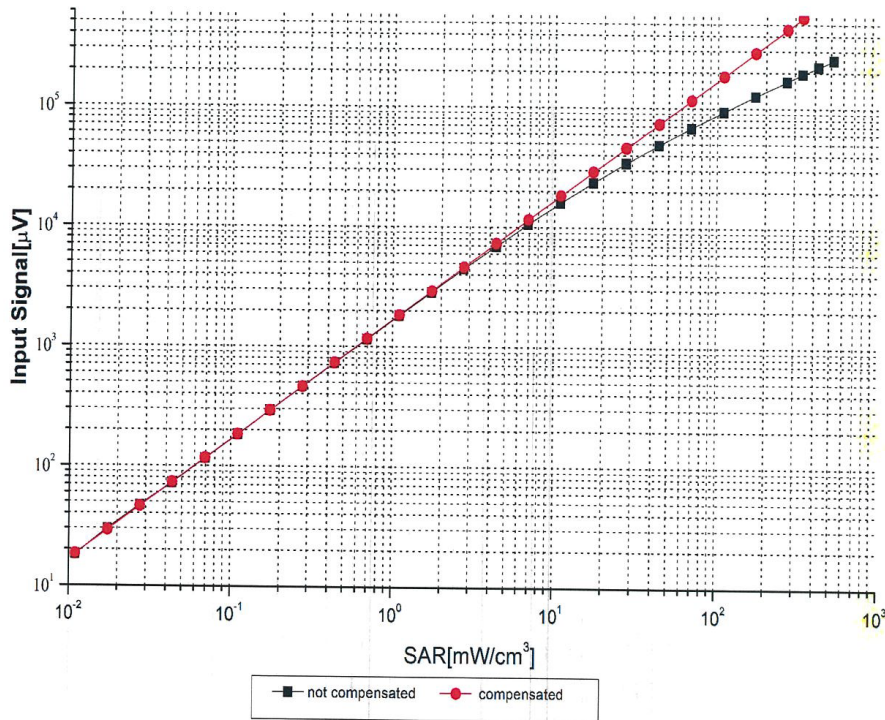
t(86-512)57355888 f(86-512)57370818 www.sgsgroup.com.cn  
 t(86-512)57355888 f(86-512)57370818 sgs.china@sgs.com





Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China  
 Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504  
 E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

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



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

Certificate No:Z21-60435

Page 7 of 9



Compliance Certification Services (Kunshan) Inc. EMC Laboratory  
 Attention: To check the authenticity of testing/inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

No.10, Weiye Road, Innovation Park, Kunshan, Jiangsu, China 215300  
 中国·江苏·昆山市留学生创业园伟业路10号 邮编 215300

t(86-512)57355888 f(86-512)57370818 www.sgsgroup.com.cn  
 t(86-512)57355888 f(86-512)57370818 sgs.china@sgs.com

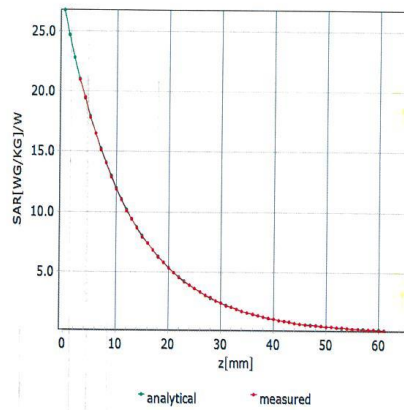
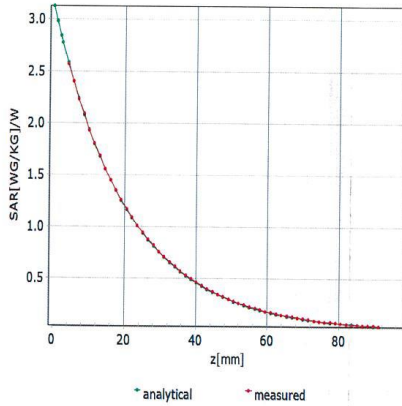


Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China  
 Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504  
 E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

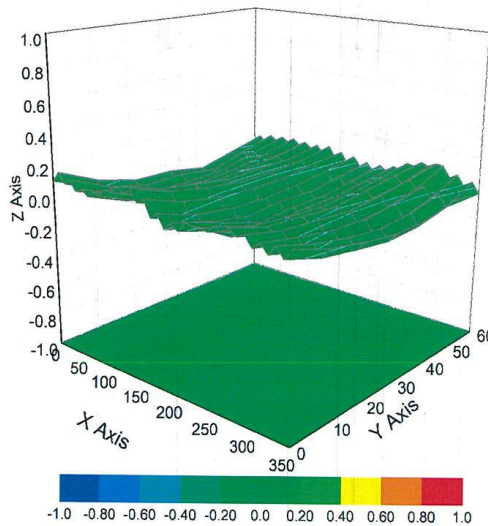
### Conversion Factor Assessment

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

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



### Deviation from Isotropy in Liquid



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

Certificate No:Z21-60435

Page 8 of 9



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

No.10, Weiye Road, Innovation Park, Kunshan, Jiangsu, China 215300  
 中国·江苏·昆山市留学生创业园伟业路10号 邮编 215300

t(86-512)57355888 f(86-512)57370818 www.sgsgroup.com.cn  
 t(86-512)57355888 f(86-512)57370818 sgs.china@sgs.com



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China  
 Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504  
 E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

**DASY/EASY – Parameters of Probe: EX3DV4 – SN:7515**

**Other Probe Parameters**

<b>Sensor Arrangement</b>	<b>Triangular</b>
<b>Connector Angle (°)</b>	<b>175.7</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>





#### 4. Impedance and return loss

Dipole D2450V2 SN 817				
Head Liquid				
Date of Measurement	Return Loss(dB)	$\Delta$ %	Impedance ( $\Omega$ )	$\Delta\Omega$
2019/6/10	-28.5	/	52.3	/
2020/6/9	-29.3	2.81%	54.3	2.0 $\Omega$
2021/6/8	-29.2	2.46%	54	1.7 $\Omega$
Body Liquid				
Date of Measurement	Return Loss(dB)	$\Delta$ %	Impedance ( $\Omega$ )	$\Delta\Omega$
2019/6/10	-26.6	/	48.7	/
2020/6/9	-27.5	3.38%	49.6	0.9 $\Omega$
2021/6/8	-27.3	2.63%	49.5	0.8 $\Omega$



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

No.10, Weiye Road, Innovation Park, Kunshan, Jiangsu, China 215300  
 中国·江苏·昆山市留学生创业园伟业路10号 邮编 215300

t(86-512)57355888 f(86-512)57370818 www.sgsgroup.com.cn  
 t(86-512)57355888 f(86-512)57370818 sgs.china@sgs.com