



**SIMT**

校准  
CNAS L0134

校准证书编号: 2009J10-10-912004  
Calibrated certificate series No.

SHANGHAI INSTITUTE OF MEASUREMENT AND TESTING TECHNOLOGY  
NATIONAL CENTER OF MEASUREMENT AND TEST FOR EAST CHINA

CALIBRATION CERTIFICATE

# 上海市计量测试技术研究院 华东国家计量测试中心

## 校准证书

委托者 Customer	本院基础性能试验中心
委托者地址 Address of customer	宜山路 716 号 No. 716, Yishan Road
器具名称 Name of instrument	SAR 电场探头 (850MHz) SAR E-field Probe
制造厂 Manufacturer	ANTENNESSA 公司
型号/规格 Model/Specification	E-FIELD PROBE
器具编号 No. of instrument	SN 46/06 EP61
器具准确度 Instrument accuracy	/

批准人/ 职务 王明 副主任  
Approved by / Functions

(机构检测专用章)

核 验 员 刘 健  
Checked by

检 测 员 高 晨  
Tested by

校准日期 2009 年 12 月 24 日  
Date for calibrated Year Month Day

投诉电话: 021-50798262

地址: 上海市张衡路 1500 号(总部) 电话: 021-38839800 传真: 021-50798390 邮编: 201203  
 Address No.1500 Zhangheng Road, Shanghai(headquarters) Tel. Fax Post Code

上海市宜山路 716 号(分部) 电话: 021-64701390 传真: 021-64701810 邮编: 200233  
 No. 716 Yishan Road, Shanghai(branch) Tel. Fax Post Code

国家法定计量检定机构计量授权证书号（中心/院）：（国）法计（2007）01039号/（2007）01019号  
The number of the Certificate of Metrological Authorization to The Legal Metrological Verification Institution is No. (2002) 01039 / No. (2002) 01019

中国实验室国家认可委员会（CNAL）实验室认可证书号：No. L0134  
The number of the certificate accredited by CNAL is No.L0134

本次校准所依据的技术规范（代号、名称）：  
Reference documents for the calibration (code、name)

JCJ/J101001.1/0-2007 SAR 电场探头校准规范 (SAR E-FIELD PROBE calibration criterion)  
IEC 62209-1: 2003 Procedure to measure the Specific Absorption Rate (SAR) in the  
frequency range  
of 300 MHz to 3 GHz Part 1: hand-held mobile wireless communication  
IEEE 1528: 2003 IEEE Recommended Practice for Determining the Peak Spatial-Average  
Specific  
Absorption Rate (SAR) in the Human Head from Wireless Communications  
Devices: Measurement Techniques

本次校准所使用的主要计量标准器具：  
Main measurement standards used in this calibration

参见附录一 (Refer to attachment 1)

以上计量标准器具的量值溯源至国家基准。  
Quantity values of above measurement standards used in this calibration are traced to those of the national primary standards in the P.R. China.

校准地点及环境条件：  
Location and environmental condition for the calibration

地点： 宜山路 716 号 (No. 716 Yishan Road, Shanghai)  
Location

温度： 21 °C； 湿度： 50 %RH； 其它： /  
Ambient temperature Relative humidity Others

本次校准结果的扩展不确定度：  
Expanded uncertainty

Antenna factor (Voltage):  $k=2$ ,  $U=2U_c(E)=0.92\text{dB}$

校准结果/说明：  
Results of calibration and additional explanation

Pass

The requirements of the calibration criterion:  
Linearity less than 0.25dB  
Isotropy less than 0.25dB  
Sensitivity less than the Low limit detection (12mW/Kg)

本证书提供的结果仅对本次被校的器具有效。  
The data are valid only for the instrument(s).

校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

1. Production description



Frequency Range:	100 MHz - 3 GHz
Probe length:	330 mm
Length of one dipole:	4.4 mm
Maximum external diameter:	8 mm
Probe extremity diameter:	6.3 mm
Distance between dipoles/probe extremity:	< 2.7 mm
Resistance of the three dipole (at the connector):	Dipole 1: R1=1.181MΩ Dipole 2: R2=1.186MΩ Dipole 3: R3=1.183MΩ
Connector (HIROSE series SR30):	6 wire male (Hirose SR30series)

2. Calibration Results

2.1 Calibration Frequency: 835.00MHz BODY

2.1.1 Calibration basic information

S/N	Calibration
1	Epsilon: 54.50
2	Sigma: 1.00S/m
3	Temperature: 21°C
4	Cable loss: 0.20dB
5	Coupler loss: 19.77dB
6	Waveguide Return Loss: -17.75dB

2.1.2 Calibration parameters

2.1.2.1 Sensitivity (Low limit detection): 0.81V/m (0.66mW/Kg)

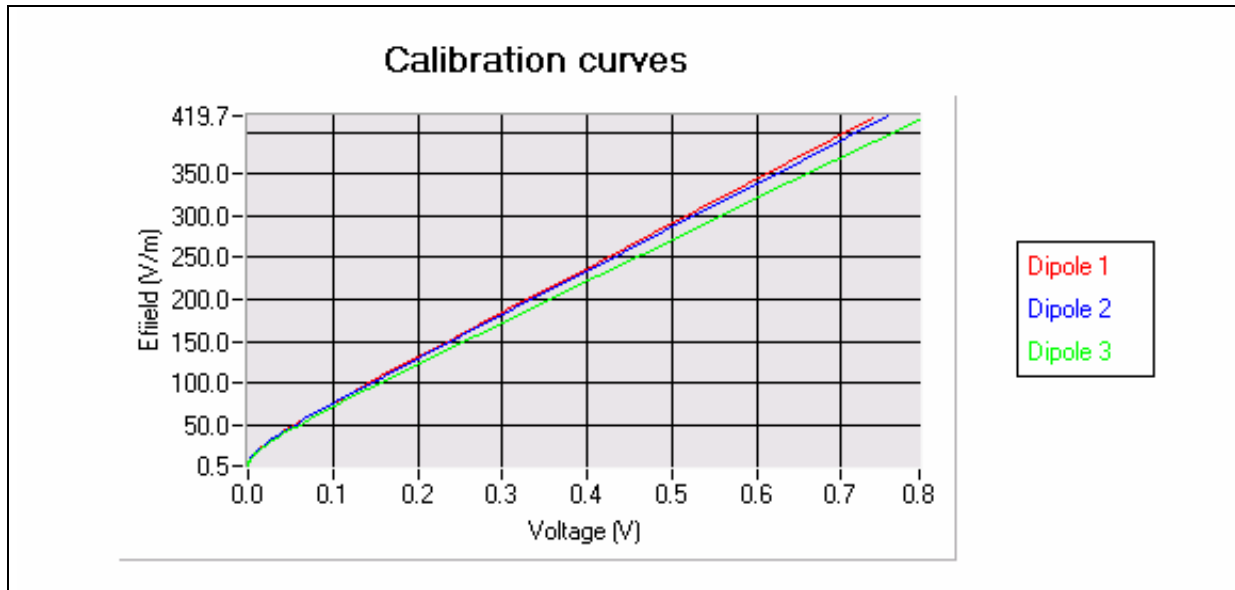
校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

2.1.2.2 Linearity: 0.04dB

Calibration curves of Probe:

Calibration curves  $e_i=f(V)$  ( $i=1,2,3$ ) allow to obtain E-field value using the formula:  
 $E=(e_1*e_1+e_2*e_2+e_3*e_3)^{pow(1/2)}$



Remark: Dipole 1: calibration curves of the dipole 1;  
Dipole 2: calibration curves of the dipole 2;  
Dipole 3: calibration curves of the dipole 3

校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

Calibration data of probe Factor

$v_1(V)$	$e_1(V/m)$	$v_2(V)$	$e_2(V/m)$	$v_3(V)$	$e_3(V/m)$
0.736397	416.278843	0.755159	419.744116	0.791775	415.708791
0.587520	337.358527	0.605268	341.452638	0.638480	339.858135
0.476409	278.378344	0.490802	281.589452	0.518454	280.403248
0.378406	226.251419	0.394181	230.967220	0.412711	227.935923
0.303133	186.093545	0.313865	188.771824	0.332361	187.968897
0.244274	154.561105	0.250836	155.525019	0.268297	155.992470
0.196185	128.647987	0.203919	130.643241	0.216363	129.944620
0.156181	106.911595	0.161882	108.178946	0.174679	108.896938
0.124762	89.643300	0.129403	90.634435	0.140821	91.644337
0.099806	75.716752	0.103885	76.653196	0.111779	76.655442
0.064716	55.629510	0.066425	55.629510	0.071887	55.629510
0.058448	51.797075	0.060057	51.856743	0.065085	51.856743
0.051319	47.512211	0.052782	47.512211	0.057306	47.512211
0.043597	42.687944	0.044882	42.687944	0.048852	42.687944
0.036561	38.133375	0.037672	38.133375	0.041138	38.133375
0.030305	33.986405	0.031281	33.986405	0.034202	33.947300
0.024945	30.220749	0.025776	30.220749	0.028280	30.220749
0.020386	26.841404	0.021102	26.872324	0.023187	26.841404
0.016549	23.839944	0.017154	23.839944	0.018875	23.839944
0.013405	21.198505	0.013911	21.198505	0.015378	21.198505
0.010806	18.849734	0.011226	18.849734	0.012436	18.849734
0.008677	16.741919	0.009020	16.761205	0.010013	16.761205
0.006944	14.886933	0.007214	14.904082	0.008027	14.886933
0.005548	13.252727	0.005779	13.267993	0.006399	13.267993
0.004421	11.797914	0.004623	11.811505	0.005116	11.811505
0.003491	10.514902	0.003661	10.514902	0.004086	10.514902
0.002779	9.339774	0.002902	9.360633	0.003249	9.343200
0.002194	8.333901	0.002279	8.297689	0.002540	8.292290
0.001745	7.470562	0.001825	7.459682	0.002058	7.494168
0.001353	6.625471	0.001432	6.649532	0.001566	6.580398
0.001061	5.918051	0.001133	5.959843	0.001272	5.967953
0.000825	5.277457	0.000847	5.215486	0.000973	5.272626
0.000620	4.649929	0.000685	4.742304	0.000796	4.813916
0.000480	4.167421	0.000522	4.212899	0.000579	4.183466
0.000380	3.785302	0.000383	3.702113	0.000421	3.656673
0.000281	3.364523	0.000283	3.285894	0.000363	3.443129
0.000195	2.950691	0.000221	2.998967	0.000242	2.948251
0.000124	2.559095	0.000143	2.593287	0.000145	2.481249

校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

$v_1(V)$	$e_1(V/m)$	$v_2(V)$	$e_2(V/m)$	$v_3(V)$	$e_3(V/m)$
0.000084	2.309418	0.000111	2.407156	0.000144	2.475976
0.000064	2.173853	0.000063	2.097212	0.000058	1.970384
0.000016	1.807476	0.000024	1.806645	0.000018	1.684283
-0.000012	1.552463	0.000000	1.601848	-0.000012	1.432200
-0.000032	1.341962	-0.000023	1.373385	-0.000034	1.218092
-0.000047	1.158865	-0.000040	1.182069	-0.000049	1.039973
-0.000059	0.993614	-0.000053	1.007888	-0.000060	0.895861
-0.000067	0.858854	-0.000063	0.863186	-0.000068	0.765098
-0.000073	0.740338	-0.000069	0.740049	-0.000074	0.657951
-0.000078	0.632729	-0.000074	0.631780	-0.000078	0.565448
-0.000082	0.542650	-0.000078	0.537234	-0.000081	0.485671
-0.000084	0.464178	-0.000081	0.459144	/	/

校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

2.1.2.3 Isotropy

- Axial isotropy: 0.10dB
- Hemispherical isotropy: 0.14 dB

Calibration data of isotropy

Axial (°)	Hemispherical (°)	V <sub>1</sub> (V)	V <sub>2</sub> (V)	V <sub>3</sub> (V)	E (V/m)
-180	-30	0.000426	0.001691	0.023839	28.481090
-180	-15	-0.000055	0.005002	0.021557	28.512421
-180	0	0.000647	0.009048	0.017107	28.472570
-180	15	0.002223	0.012930	0.011465	28.433440
-180	30	0.004211	0.015744	0.005703	28.337932
-165	-30	-0.000017	0.000240	0.025266	28.428626
-165	-15	0.001047	0.002026	0.022973	28.432610
-165	0	0.003226	0.005030	0.018501	28.432132
-165	15	0.005969	0.008187	0.012601	28.323073
-165	30	0.008359	0.011063	0.006502	28.236985
-150	-30	0.000880	-0.000037	0.024581	28.318367
-150	-15	0.003521	0.000204	0.022138	28.314743
-150	0	0.007025	0.001620	0.017716	28.303580
-150	15	0.010430	0.003863	0.011869	28.193841
-150	30	0.012884	0.006455	0.005969	28.107628
-135	-30	0.002472	0.001429	0.021893	28.190382
-135	-15	0.006453	0.000238	0.019227	28.185110
-135	0	0.010886	-0.000085	0.014820	28.088132
-135	15	0.014782	0.000762	0.009338	28.008079
-135	30	0.017102	0.002565	0.004229	27.941796
-120	-30	0.003859	0.004796	0.017688	28.152981
-120	-15	0.008711	0.002661	0.014682	28.064835
-120	0	0.013770	0.000837	0.010429	27.972343
-120	15	0.017849	-0.000039	0.005860	27.919312
-120	30	0.020074	0.000326	0.002122	27.878361
-105	-30	0.004660	0.009217	0.012280	28.001149
-105	-15	0.009882	0.006764	0.009087	27.949654
-105	0	0.015175	0.003827	0.005452	27.903699
-105	15	0.019270	0.001372	0.002329	27.926096
-105	30	0.021480	0.000028	0.000359	27.924354
-90	-30	0.004288	0.014257	0.006898	28.031207
-90	-15	0.009362	0.011655	0.004121	28.010117
-90	0	0.014556	0.008046	0.001682	28.033075
-90	15	0.018626	0.004092	0.000244	27.933767
-90	30	0.020951	0.001170	0.000100	28.009989

校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

Axial (°)	Hemispherical (°)	V <sub>1</sub> (V)	V <sub>2</sub> (V)	V <sub>3</sub> (V)	E (V/m)
-75	-30	0.003156	0.018629	0.002352	28.046337
-75	-15	0.007560	0.016139	0.000565	28.078604
-75	0	0.012266	0.012070	-0.000069	28.125746
-75	15	0.016185	0.007361	0.000410	28.171369
-75	30	0.018740	0.003086	0.001693	28.149816
-60	-30	0.001478	0.021804	0.000185	28.356748
-60	-15	0.004723	0.019309	0.000038	28.317214
-60	0	0.008697	0.015040	0.001108	28.308295
-60	15	0.012314	0.009774	0.003307	28.332835
-60	30	0.015077	0.004673	0.005459	28.298041
-45	-30	0.000204	0.023116	0.000208	28.608568
-45	-15	0.001898	0.020700	0.002016	28.651758
-45	0	0.004668	0.016310	0.004938	28.585319
-45	15	0.007786	0.010680	0.008057	28.422046
-45	30	0.010629	0.005251	0.010482	28.323890
-30	-30	0.000032	0.022626	0.001671	28.837312
-30	-15	0.000167	0.020010	0.005268	28.795318
-30	0	0.001446	0.015612	0.009614	28.724248
-30	15	0.003578	0.010161	0.013293	28.513048
-30	30	0.006167	0.004831	0.015625	28.256776
-15	-30	0.001427	0.020273	0.003954	29.001222
-15	-15	0.000185	0.017467	0.008911	28.903132
-15	0	-0.000028	0.013078	0.014007	28.725010
-15	15	0.000790	0.008002	0.017962	28.453925
-15	30	0.002544	0.003519	0.020120	28.219451
0	-30	0.004488	0.016506	0.005711	28.993907
0	-15	0.002373	0.013463	0.011478	28.851907
0	0	0.000656	0.009386	0.017105	28.665497
0	15	-0.000036	0.005116	0.021221	28.374676
0	30	0.000425	0.001767	0.023289	28.170818
15	-30	0.009106	0.012036	0.006588	29.296702
15	-15	0.006370	0.008718	0.012720	28.923716
15	0	0.003358	0.005178	0.018449	28.559149
15	15	0.001092	0.002071	0.022344	28.069073
15	30	-0.000052	0.000293	0.024033	27.625710
30	-30	0.013565	0.006678	0.005825	28.610426
30	-15	0.010873	0.003965	0.011777	28.480783
30	0	0.007295	0.001583	0.017462	28.284197
30	15	0.003645	0.000220	0.021823	28.185768
30	30	0.000946	-0.000030	0.023966	27.957184



校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

Axial (°)	Hemispherical (°)	V <sub>1</sub> (V)	V <sub>2</sub> (V)	V <sub>3</sub> (V)	E (V/m)
45	-30	0.018505	0.002790	0.004325	29.064014
45	-15	0.015555	0.000783	0.009461	28.604934
45	0	0.011145	-0.000025	0.014594	28.142701
45	15	0.006410	0.000192	0.018428	27.638418
45	30	0.002403	0.001362	0.020667	27.331602
60	-30	0.020841	0.000357	0.002021	28.402957
60	-15	0.018343	-0.000055	0.005740	28.194421
60	0	0.014043	0.000818	0.010229	28.033817
60	15	0.008851	0.002440	0.014285	27.797641
60	30	0.003983	0.004452	0.017085	27.660591
75	-30	0.022219	-0.000086	0.000258	28.364512
75	-15	0.019772	0.001284	0.002153	28.164679
75	0	0.015370	0.003786	0.005367	27.974604
75	15	0.009899	0.006562	0.008862	27.722036
75	30	0.004621	0.008981	0.011894	27.619527
90	-30	0.021656	0.001089	0.000055	28.458023
90	-15	0.019176	0.003998	0.000100	28.209521
90	0	0.014819	0.007815	0.001493	27.989712
90	15	0.009408	0.011331	0.003916	27.738652
90	30	0.004335	0.013777	0.006602	27.608961
105	-30	0.019362	0.002856	0.001773	28.509475
105	-15	0.016689	0.007157	0.000289	28.348440
105	0	0.012419	0.011804	-0.000009	28.091619
105	15	0.007549	0.015614	0.000663	27.767234
105	30	0.003185	0.017894	0.002423	27.596600
120	-30	0.015639	0.004335	0.005656	28.589052
120	-15	0.012795	0.009411	0.003207	28.388778
120	0	0.008829	0.014738	0.001217	28.245897
120	15	0.004740	0.018826	0.000099	28.021671
120	30	0.001546	0.020988	0.000201	27.831108
135	-30	0.011117	0.005067	0.010596	28.584137
135	-15	0.008156	0.010404	0.007967	28.432227
135	0	0.004847	0.015918	0.004823	28.368188
135	15	0.001971	0.020081	0.001930	28.208480
135	30	0.000227	0.022323	0.000174	28.042864
150	-30	0.006456	0.004823	0.015960	28.612395
150	-15	0.003833	0.009905	0.013371	28.538544
150	0	0.001537	0.015161	0.009610	28.482167
150	15	0.000177	0.019356	0.005386	28.404441
150	30	0.000021	0.021626	0.001810	28.201537

校准结果/说明（续页）：

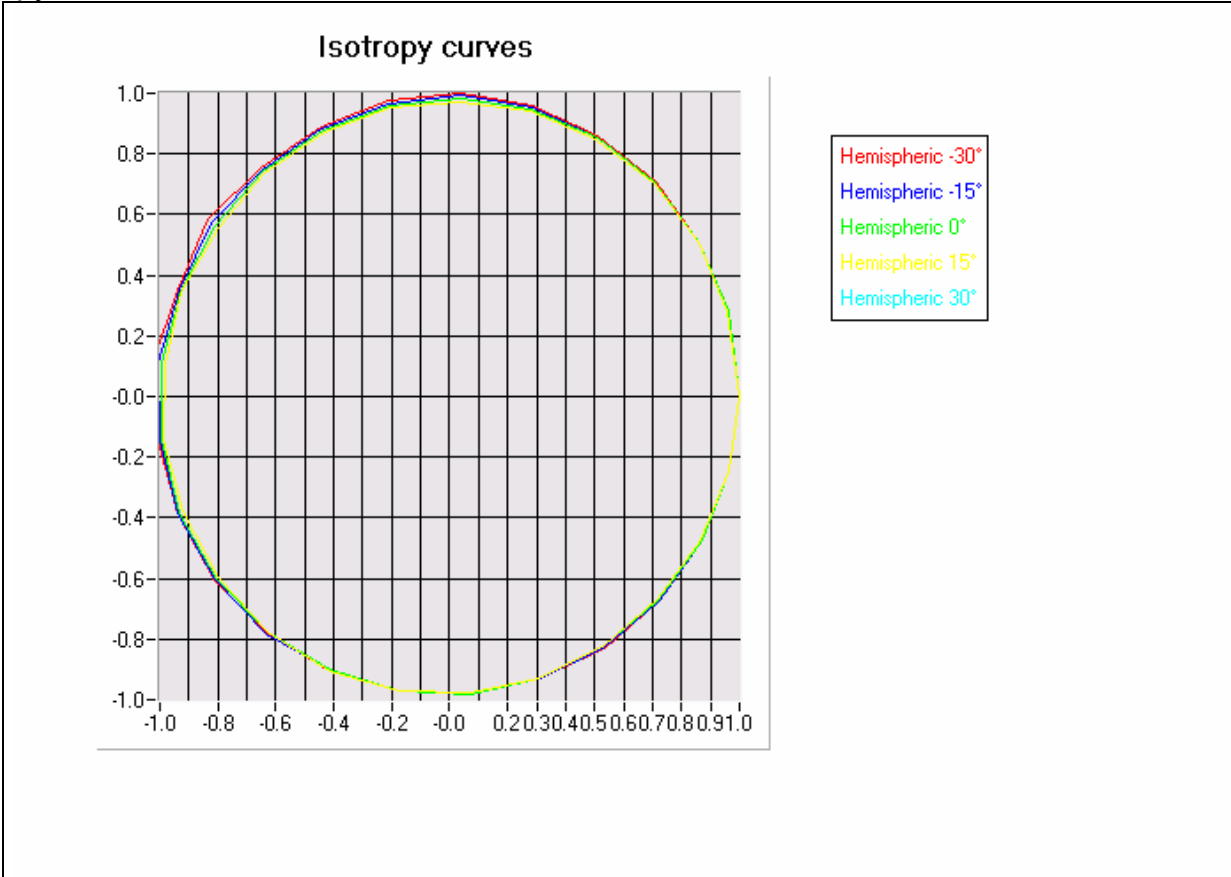
Results of calibration and additional explanation (continued page)

Axial (°)	Hemispherical (°)	V <sub>1</sub> (V)	V <sub>2</sub> (V)	V <sub>3</sub> (V)	E (V/m)
165	-30	0.002747	0.003355	0.020517	28.484130
165	-15	0.000910	0.007877	0.018065	28.509397
165	0	-0.000002	0.012780	0.013957	28.525487
165	15	0.000196	0.016856	0.008774	28.437299
165	30	0.001268	0.019534	0.003954	28.403411
180	-30	0.000477	0.001693	0.023824	28.500562
180	-15	-0.000101	0.005094	0.021606	28.577869
180	0	0.000578	0.009095	0.017197	28.515409
180	15	0.002192	0.012955	0.011567	28.489155
180	30	0.004245	0.015664	0.005634	28.270946

校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

Isotropy curves:



校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

2.2 Calibration Frequency: 835.00MHz HEAD

2.2.1 Calibration basic information

S/N	Calibration
1	Epsilon: 41.58
2	Sigma: 0.91 S/m
3	Temperature: 21°C
4	Cable loss: 0.20dB
5	Coupler loss: 19.77dB
6	Waveguide Return Loss: -20.36dB

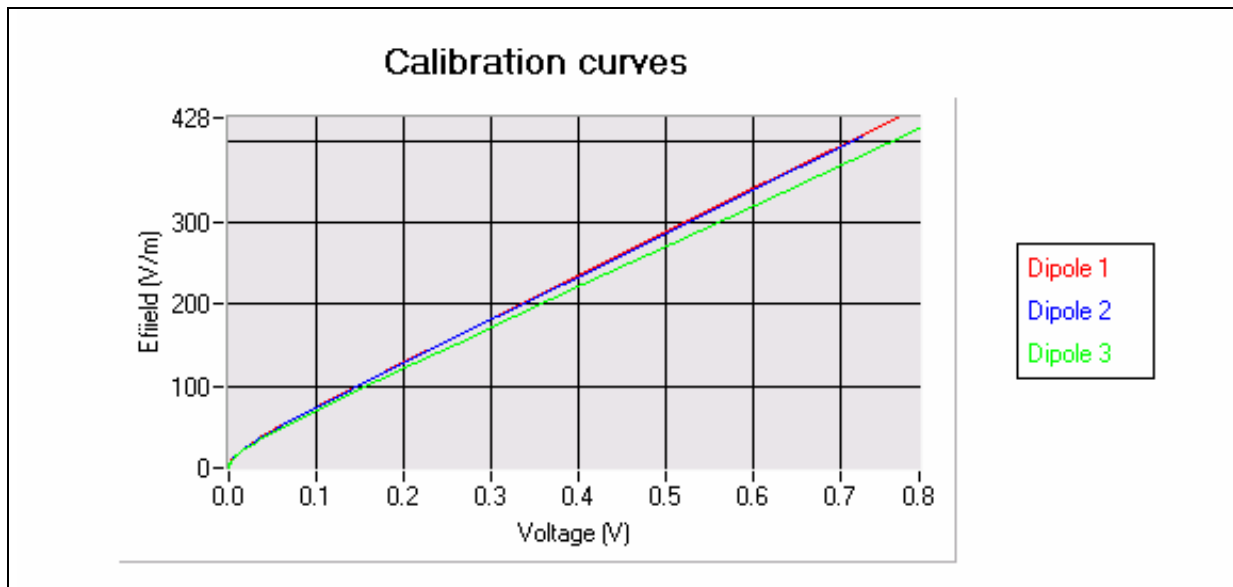
2.2.2 Calibration parameters

2.2.2.1 Sensitivity (Low limit detection): 0.81 V/m (0.60mW/kg)

2.2.2.2 Linearity: 0.04dB

Calibration curves of Probe:

Calibration curves  $e_i=f(V)$  ( $i=1,2,3$ ) allow to obtain E-field value using the formula:  
 $E=(e_1*e_1+e_2*e_2+e_3*e_3)^{pow(1/2)}$



Remark: Dipole 1: calibration curves of the dipole 1;  
 Dipole 2: calibration curves of the dipole 2;  
 Dipole 3: calibration curves of the dipole 3

校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

Calibration data of probe Factor

$v_1(V)$	$e_1(V/m)$	$v_2(V)$	$e_2(V/m)$	$v_3(V)$	$e_3(V/m)$
0.765846	427.697999	0.724623	403.450965	0.790392	414.067024
0.614872	348.491344	0.584177	330.150280	0.633462	336.642722
0.495694	285.886590	0.473749	272.439860	0.507346	274.346019
0.395588	233.200466	0.382424	224.622440	0.406031	224.210032
0.314673	190.492514	0.307158	185.102124	0.327608	185.303211
0.252721	157.660266	0.247016	153.396139	0.261656	152.462060
0.201253	130.226710	0.199688	128.306144	0.211196	127.203522
0.160080	108.099112	0.159649	106.913855	0.171237	107.061273
0.128297	90.826598	0.128222	89.941947	0.138871	90.594024
0.102359	76.520521	0.102771	75.999701	0.111984	76.742291
0.065927	55.960179	0.066930	55.895789	0.072386	55.960179
0.059683	52.225078	0.060651	52.225078	0.065716	52.225078
0.052417	47.849686	0.053330	47.849686	0.057841	47.849686
0.044508	42.941687	0.045314	42.941687	0.049251	42.941687
0.037311	38.360044	0.038012	38.360044	0.041442	38.360044
0.030935	34.149087	0.031563	34.149087	0.034469	34.188425
0.025457	30.365406	0.025996	30.365406	0.028476	30.365406
0.020826	27.000953	0.021278	27.000953	0.023370	27.000953
0.016898	23.954058	0.017300	23.954058	0.019052	23.981652
0.013682	21.324511	0.014020	21.299975	0.015459	21.324511
0.011040	18.939961	0.011312	18.939961	0.012519	18.939961
0.008859	16.841435	0.009084	16.841435	0.010066	16.841435
0.007087	14.975423	0.007263	14.975423	0.008079	14.975423
0.005651	13.331502	0.005819	13.331502	0.006466	13.331502
0.004501	11.868042	0.004624	11.868042	0.005156	11.868042
0.003569	10.565233	0.003686	10.565233	0.004100	10.565233
0.002840	9.405439	0.002915	9.405439	0.003267	9.405439
0.002240	8.383493	0.002300	8.362001	0.002581	8.382606
0.001767	7.489859	0.001817	7.470996	0.002032	7.439491
0.001381	6.672487	0.001435	6.682699	0.001617	6.672624
0.001065	5.919919	0.001123	5.962020	0.001254	5.920965
0.000822	5.268588	0.000862	5.284174	0.000995	5.320131
0.000626	4.677616	0.000671	4.726927	0.000781	4.766890
0.000492	4.226289	0.000516	4.220979	0.000576	4.168618
0.000385	3.827878	0.000379	3.716883	0.000458	3.781567
0.000257	3.288467	0.000289	3.344628	0.000358	3.419432
0.000193	2.982397	0.000199	2.925380	0.000273	3.078301
0.000107	2.513087	0.000152	2.680502	0.000210	2.798761
0.000080	2.346464	0.000091	2.324527	0.000104	2.251413

校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

$v_1(V)$	$e_1 (V/m)$	$v_2(V)$	$e_2 (V/m)$	$v_3(V)$	$e_3 (V/m)$
0.000054	2.173975	0.000057	2.100087	0.000085	2.138549
0.000032	2.016532	0.000032	1.918378	0.000031	1.779105
-0.000005	1.719533	0.000002	1.674499	-0.000020	1.354721
-0.000031	1.470873	-0.000023	1.442084	-0.000015	1.402018
-0.000050	1.272665	-0.000042	1.234040	-0.000034	1.208906
-0.000064	1.089269	-0.000055	1.068580	-0.000050	1.028807
-0.000074	0.934260	-0.000065	0.913263	-0.000060	0.890815
-0.000082	0.804216	-0.000073	0.779562	-0.000068	0.760050
-0.000087	0.696324	-0.000079	0.666072	-0.000074	0.647813
-0.000092	0.590880	-0.000083	0.568617	-0.000078	0.560545
-0.000095	0.508733	-0.000086	0.486410	-0.000082	0.480044
-0.000097	0.439368	/	/	/	/

校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

2.2.2.3 Isotropy

- Axial isotropy: 0.07dB
- Hemispherical isotropy: 0.08 dB

Calibration data of isotropy

Axial (°)	Hemispherical (°)	V <sub>1</sub> (V)	V <sub>2</sub> (V)	V <sub>3</sub> (V)	E (V/m)
-180	-30	0.000461	0.001758	0.024974	29.294468
-180	-15	-0.000081	0.005240	0.022442	29.230331
-180	0	0.000604	0.009516	0.017992	29.271762
-180	15	0.002350	0.013355	0.012106	29.125552
-180	30	0.004426	0.016419	0.006045	29.050775
-165	-30	-0.000048	0.000252	0.026432	29.220388
-165	-15	0.001056	0.002118	0.023967	29.148373
-165	0	0.003394	0.005195	0.019241	29.072735
-165	15	0.006230	0.008623	0.013126	29.006607
-165	30	0.008688	0.011791	0.006748	28.944527
-150	-30	0.000874	-0.000020	0.025745	29.109981
-150	-15	0.003680	0.000193	0.023193	29.081273
-150	0	0.007377	0.001687	0.018402	28.942764
-150	15	0.010912	0.004128	0.012442	28.901001
-150	30	0.013481	0.006910	0.006234	28.815075
-135	-30	0.002464	0.001621	0.023140	29.105947
-135	-15	0.006701	0.000213	0.020171	28.868651
-135	0	0.011443	0.000007	0.015478	28.825406
-135	15	0.015424	0.000923	0.009880	28.721034
-135	30	0.018017	0.002744	0.004378	28.604521
-120	-30	0.004016	0.005028	0.018619	28.946912
-120	-15	0.009157	0.002667	0.015428	28.770619
-120	0	0.014521	0.000839	0.010978	28.673770
-120	15	0.018840	-0.000062	0.006091	28.564175
-120	30	0.021178	0.000469	0.002262	28.647918
-105	-30	0.004720	0.009779	0.013137	28.837911
-105	-15	0.010330	0.007121	0.009729	28.736717
-105	0	0.015981	0.004030	0.005742	28.586117
-105	15	0.020258	0.001497	0.002464	28.614478
-105	30	0.022619	0.000083	0.000436	28.634735
-90	-30	0.004459	0.015051	0.007355	28.846270
-90	-15	0.009865	0.012232	0.004340	28.720853
-90	0	0.015326	0.008385	0.001684	28.636935
-90	15	0.019666	0.004417	0.000123	28.651175
-90	30	0.022092	0.001308	0.000040	28.700955

校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

Axial (°)	Hemispherical (°)	V <sub>1</sub> (V)	V <sub>2</sub> (V)	V <sub>3</sub> (V)	E (V/m)
-75	-30	0.003195	0.019593	0.002701	28.874128
-75	-15	0.007880	0.016952	0.000640	28.797711
-75	0	0.012808	0.012714	-0.000084	28.782571
-75	15	0.017041	0.007610	0.000365	28.740654
-75	30	0.019735	0.003205	0.001852	28.834110
-60	-30	0.001545	0.022838	0.000210	29.111431
-60	-15	0.004926	0.020226	0.000049	29.047737
-60	0	0.009084	0.015583	0.001206	28.877429
-60	15	0.012945	0.010199	0.003354	28.942971
-60	30	0.015827	0.004813	0.005695	28.888209
-45	-30	0.000205	0.024150	0.000147	29.312516
-45	-15	0.001992	0.021614	0.002013	29.317279
-45	0	0.004904	0.016806	0.005119	29.117878
-45	15	0.008184	0.011097	0.008353	29.039428
-45	30	0.011182	0.005466	0.010866	28.933573
-30	-30	0.000043	0.023519	0.001816	29.527509
-30	-15	0.000128	0.020807	0.005522	29.450678
-30	0	0.001546	0.016074	0.009867	29.222234
-30	15	0.003840	0.010337	0.013739	29.012945
-30	30	0.006556	0.004888	0.016182	28.859861
-15	-30	0.001489	0.021233	0.004058	29.752134
-15	-15	0.000219	0.018140	0.009154	29.498799
-15	0	-0.000020	0.013495	0.014384	29.244279
-15	15	0.000834	0.008289	0.018619	29.065602
-15	30	0.002708	0.003571	0.020806	28.770045
0	-30	0.004711	0.017325	0.005844	29.692849
0	-15	0.002446	0.013999	0.011886	29.457199
0	0	0.000673	0.009731	0.017799	29.314165
0	15	-0.000068	0.005244	0.022022	28.974997
0	30	0.000453	0.001777	0.024170	28.792820
15	-30	0.009206	0.012422	0.006616	29.548153
15	-15	0.006425	0.009064	0.013159	29.389813
15	0	0.003517	0.005444	0.019149	29.222608
15	15	0.001166	0.002161	0.023445	28.902579
15	30	-0.000022	0.000279	0.025696	28.765656
30	-30	0.014171	0.007240	0.006175	29.403861
30	-15	0.011305	0.004326	0.012311	29.172393
30	0	0.007610	0.001757	0.018174	28.973259
30	15	0.003786	0.000345	0.022673	28.877294
30	30	0.000956	0.000013	0.024900	28.623259



校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

Axial (°)	Hemispherical (°)	V <sub>1</sub> (V)	V <sub>2</sub> (V)	V <sub>3</sub> (V)	E (V/m)
45	-30	0.018724	0.002992	0.004348	29.197613
45	-15	0.015971	0.000904	0.009735	28.989980
45	0	0.011720	-0.000048	0.015170	28.783175
45	15	0.006832	0.000320	0.019677	28.704482
45	30	0.002614	0.001476	0.022291	28.566654
60	-30	0.021981	0.000511	0.002082	29.143789
60	-15	0.019346	-0.000061	0.006069	28.903869
60	0	0.014772	0.000789	0.010812	28.719438
60	15	0.009266	0.002578	0.015015	28.539417
60	30	0.004153	0.004646	0.017910	28.396363
75	-30	0.023461	-0.000021	0.000317	29.135088
75	-15	0.020820	0.001323	0.002386	28.893032
75	0	0.016203	0.003871	0.005623	28.592295
75	15	0.010450	0.006802	0.009363	28.428591
75	30	0.004891	0.009267	0.012507	28.296447
90	-30	0.022882	0.001216	0.000114	29.247025
90	-15	0.020127	0.004360	0.000157	28.960960
90	0	0.015493	0.008206	0.001691	28.645597
90	15	0.009960	0.011854	0.003975	28.376853
90	30	0.004567	0.014367	0.006880	28.244370
105	-30	0.020428	0.003010	0.002027	29.305979
105	-15	0.017538	0.007495	0.000440	29.035925
105	0	0.013064	0.012421	-0.000165	28.771099
105	15	0.007875	0.016486	0.000662	28.495676
105	30	0.003297	0.018911	0.002502	28.374325
120	-30	0.016572	0.004541	0.005843	29.306665
120	-15	0.013469	0.009990	0.003391	29.178799
120	0	0.009281	0.015395	0.001240	28.887483
120	15	0.004927	0.019642	0.000088	28.663275
120	30	0.001583	0.021919	0.000146	28.468565
135	-30	0.011906	0.005276	0.011123	29.399068
135	-15	0.008626	0.011005	0.008434	29.285667
135	0	0.005083	0.016517	0.005143	29.039737
135	15	0.002036	0.020822	0.002070	28.819793
135	30	0.000219	0.023182	0.000223	28.671098
150	-30	0.006966	0.004954	0.016553	29.336932
150	-15	0.004068	0.010396	0.013908	29.263066
150	0	0.001631	0.015809	0.009990	29.163705
150	15	0.000173	0.020202	0.005637	29.109727
150	30	0.000029	0.022631	0.001844	28.919753

校准结果/说明（续页）：

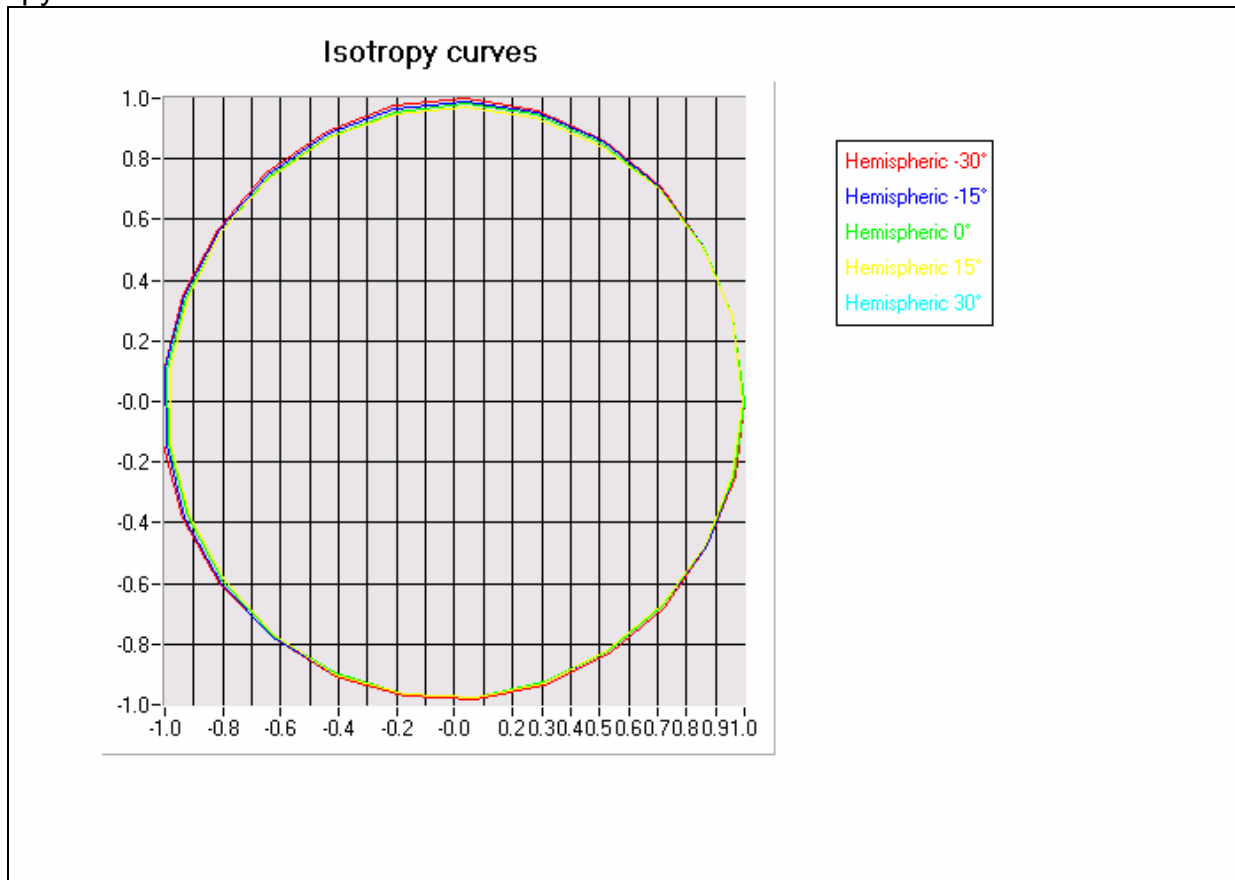
Results of calibration and additional explanation (continued page)

Axial (°)	Hemispherical (°)	V <sub>1</sub> (V)	V <sub>2</sub> (V)	V <sub>3</sub> (V)	E (V/m)
165	-30	0.002970	0.003531	0.021447	29.281186
165	-15	0.000967	0.008238	0.018941	29.298580
165	0	-0.000057	0.013316	0.014694	29.291897
165	15	0.000198	0.017484	0.009272	29.131843
165	30	0.001408	0.020320	0.004070	29.086058
180	-30	0.000500	0.001844	0.024860	29.286629
180	-15	-0.000103	0.005252	0.022446	29.230943
180	0	0.000658	0.009473	0.017882	29.211064
180	15	0.002332	0.013518	0.011979	29.147962
180	30	0.004476	0.016438	0.005928	29.033861

校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

Isotropy curves:



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Attachment 1

名称/型号 Name/Model	编号 Number	证书编号/有效期限 Certificate No./Due date	测量范围/准确度等级或 最大允差或不确定度 Measurement range/accuracy class or maximum permissible errors or uncertainty of measurement
6 axis Robot KR3	容-027-01	/	6 axes, Repeatability: $\pm 0.05$ mm, Nominal payload: 3 kg
Vector Network Analyzer ZVB 8	容-027-27	2009F31-10-002461 2010.06.23	300 kHz ~ 8 GHz, Frequency resolution: 100 $\mu$ Hz, Measurement time: < 8 ms, Measurement bandwidths: 1 Hz ~ 500 kHz / uncertainty: +10 dB ~ +3 dB : 0.6 dB ; +3 dB ~ -15 dB : 0.4 dB; -15 dB ~ -25 dB : 1 dB; -25 dB ~ -35 dB : 3 dB
Signal Generator SMT 06	容-027-15	2009F33-10-000470 2010.06.25	5 kHz ~ 6 GHz, Resolution: 0.1Hz, -144dBm ~ +13 dBm, Max.RF power: 1W, Max.DC voltage: 0V / Level > -127 dBm: f < 1.5 GHz: < 1dB; f > 1.5 GHz: < 1.5dB; f > 3GHz: < 2dB
Power Meter NRVD	容-027-16	2009F31-10-002965 2010.06.23	100 kHz ~ 6 GHz, 10nW ~ 500mW
Millivoltmeter 2000	容-027-26	2009F11-20-000607 2010.06.18	Fastest System rate: 4.5m s Resistance range: 100.0000 $\Omega$ ~ 100.000M $\Omega$ Measurement Sensibility: 100 $\mu$ $\Omega$ ~ 100 $\Omega$ Voltage range: 100.0000mV ~ 1000.000V Measurement Sensibility : 0.1 $\mu$ V ~ 1m V
Isotropic E-Field Probe E-FIELD PROBE	容-027-02	2009J10-10-902005 2010.02.16	Dipole resistance (in the connector plane): 1M $\Omega$ to 2M $\Omega$ Axial isotropy in human-equivalent liquids: <0.25dB Hemispherical Isotropy in humanequivalent liquids <0.5dB, Linearity <0.5dB, Lower SAR detection threshold: 0.0015 Watts/kg
Solid State Power Amplifier BLMA 0820-6	容-027-18	2009F33-10-000472 2010.06.25	0.8 GHz ~ 2 GHz; Output: 6W; Gain: min 37.8 / typ 40, $\pm 2$ dB; Harmonics: 2nd: 20dBc, 3rd: 20dBc; Line power: 125 W.

名称/型号 Name/Model	编号 Number	证书编号/有效期限 Certificate No./Due date	测量范围/准确度等级或 最大允差或不确定度 Measurement range/accuracy class or maximum permissible errors or uncertainty of measurement
Directional Coupler CPL-5220-20-SMA- 79	容-027-31	2009J10-10-906008 2010.06.23	0.5 GHz ~ 2.0 GHz
Waveguide 069Y7-15892-714/0 69Y7-628415-724	容-027-39	2009F31-10-002981 2010.06.22	800 MHz ~ 950 MHz

以上计量标准器具的量值溯源至国家基准。

Quantity values of above measurement standards used in this calibration are traced to those of the national primary standards in the P.R. China.

Attachment 2: Photograph

