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校准
CNAS L0134

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

校准证书编号: 2009J10-10-912007
Calibrated certificate series No.

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 (EMC)

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 (1900MHz)
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 Approved by / Functions 王竹 副主任

(机构检测专用章) 核 验 员 Checked by 刘 健

检 测 员 Tested by 高 晨

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: 1880.00MHz BODY

2.1.1 Calibration basic information

S/N	Calibration
1	Epsilon: 54.37
2	Sigma: 1.57S/m
3	Temperature: 21°C
4	Cable loss: 0.30dB
5	Coupler loss: 19.46dB
6	Waveguide Return Loss: -19.46dB

2.1.2 Calibration parameters

2.1.2.1 Sensitivity (Low limit detection): 0.83V/m (1.07mW/Kg)

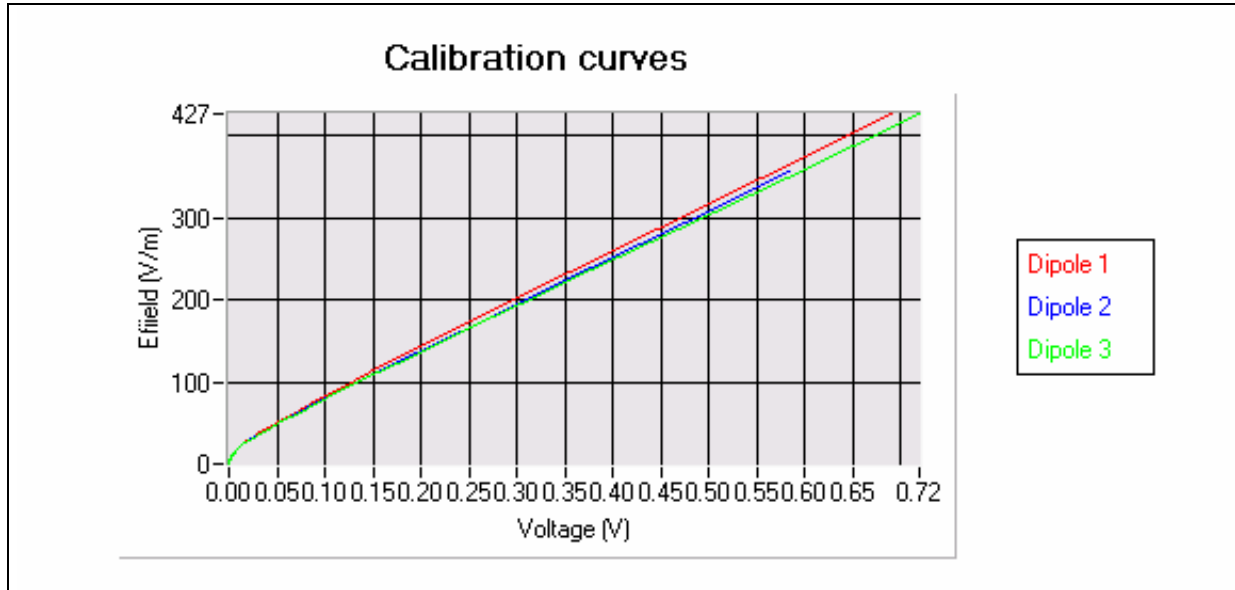
校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

2.1.2.2 Linearity: 0.05dB

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

$v_1(V)$	$e_1(V/m)$	$v_2(V)$	$e_2(V/m)$	$v_3(V)$	$e_3(V/m)$
0.690048	426.988679	0.583670	356.639131	0.719914	426.861135
0.556062	349.591675	0.474500	294.959194	0.581147	349.747459
0.446593	286.259916	0.376683	239.583518	0.468655	287.150584
0.355528	233.453203	0.301109	196.671627	0.378364	236.809953
0.284007	191.838840	0.241730	162.813199	0.305027	195.806732
0.227197	158.623536	0.194542	135.748328	0.242120	160.488211
0.182009	132.025076	0.154565	112.627880	0.194900	133.819295
0.147319	111.420605	0.124479	95.030624	0.155712	111.506761
0.119718	94.835012	0.099940	80.465628	0.125532	94.133523
0.096119	80.432830	0.064298	58.726747	0.101802	80.280275
0.061903	58.929933	0.057200	54.179619	0.066004	58.794398
0.054869	54.304515	0.050442	49.812226	0.058645	54.242031
0.048300	49.869607	0.043541	45.220561	0.051746	49.869607
0.041647	45.324805	0.036869	40.675785	0.044708	45.272653
0.035238	40.769553	0.030770	36.377759	0.037941	40.722642
0.029389	36.461619	0.025468	32.421712	0.031689	36.419665
0.024284	32.533886	0.020865	28.829423	0.026234	32.496452
0.019838	28.929168	0.016976	25.635155	0.021516	28.895881
0.016137	25.723849	0.013795	22.821067	0.017532	25.664686
0.013073	22.900024	0.011160	20.292518	0.014229	22.847356
0.010570	20.362727	0.008998	18.064916	0.011518	20.339297
0.008500	18.127418	0.007221	16.081848	0.009288	18.106560
0.006795	16.137489	0.005725	14.250691	0.007471	16.118920
0.005387	14.299997	0.004565	12.715573	0.005934	14.283543
0.004290	12.744886	0.003629	11.319727	0.004743	12.730221
0.003407	11.358892	0.002888	10.088717	0.003773	11.332767
0.002703	10.094430	0.002281	8.988795	0.003001	10.094150
0.002128	8.998130	0.001795	8.013492	0.002361	8.997520
0.001697	8.079423	0.001403	7.130286	0.001864	8.043436
0.001333	7.212956	0.001115	6.404247	0.001459	7.172725
0.001043	6.439732	0.000866	5.702497	0.001150	6.429586
0.000802	5.718152	0.000667	5.072334	0.000882	5.707225
0.000614	5.084652	0.000502	4.483163	0.000665	5.047141
0.000464	4.515903	0.000378	3.983448	0.000508	4.509729
0.000347	4.016758	0.000287	3.572524	0.000397	4.087356
0.000260	3.601023	0.000212	3.194357	0.000285	3.611453
0.000194	3.250359	0.000154	2.867918	0.000207	3.238974
0.000134	2.894946	0.000104	2.553223	0.000131	2.829266

校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

$v_1(V)$	$e_1(V/m)$	$v_2(V)$	$e_2(V/m)$	$v_3(V)$	$e_3(V/m)$
0.000068	2.445031	0.000066	2.285253	0.000067	2.431274
0.000031	2.152046	0.000030	1.998514	0.000027	2.145359
0.000006	1.929055	0.000004	1.762650	0.000009	2.003428
-0.000021	1.657549	-0.000020	1.517598	-0.000024	1.713787
-0.000040	1.434512	-0.000037	1.310675	-0.000047	1.480434
-0.000055	1.219947	-0.000050	1.123759	-0.000065	1.257504
-0.000066	1.051846	-0.000060	0.955673	-0.000078	1.074482
-0.000074	0.903443	-0.000067	0.820791	-0.000088	0.913666
-0.000079	0.780944	-0.000073	0.703726	-0.000095	0.777077
-0.000084	0.674392	-0.000076	0.605695	-0.000100	0.663447
-0.000087	0.578225	-0.000079	0.516445	-0.000104	0.571511
-0.000089	0.499803	-0.000081	0.442299	-0.000106	0.488091

校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

2.1.2.3 Isotropy

- Axial isotropy: 0.12dB
- Hemispherical isotropy: 0.15 dB

Calibration data of isotropy

Axial (°)	Hemispherical (°)	V ₁ (V)	V ₂ (V)	V ₃ (V)	E (V/m)
-180	-30	0.000834	0.001153	0.027360	34.429168
-180	-15	-0.000068	0.004380	0.025025	33.950883
-180	0	0.000589	0.008918	0.020345	33.600419
-180	15	0.002295	0.013701	0.013987	33.396193
-180	30	0.004456	0.017818	0.007114	33.283892
-165	-30	-0.000086	0.000075	0.028991	34.564118
-165	-15	0.000920	0.001578	0.026523	34.103400
-165	0	0.003301	0.004665	0.021632	33.613916
-165	15	0.006174	0.008720	0.015054	33.238190
-165	30	0.008771	0.012851	0.007945	33.111580
-150	-30	0.000667	0.000152	0.028550	34.683162
-150	-15	0.003407	0.000046	0.025835	34.203318
-150	0	0.007270	0.001254	0.020684	33.476098
-150	15	0.011095	0.003789	0.014041	32.928436
-150	30	0.013896	0.007391	0.007140	32.737088
-135	-30	0.002128	0.001925	0.026137	34.650458
-135	-15	0.006388	0.000546	0.022729	33.976521
-135	0	0.011354	-0.000064	0.017487	33.243247
-135	15	0.015840	0.000637	0.011100	32.698413
-135	30	0.018670	0.002855	0.005100	32.466452
-120	-30	0.003534	0.005464	0.021867	34.314781
-120	-15	0.008823	0.003294	0.017789	33.565868
-120	0	0.014545	0.001277	0.012454	32.930847
-120	15	0.019406	-0.000005	0.006838	32.468083
-120	30	0.022294	0.000222	0.002377	32.373783
-105	-30	0.004286	0.010563	0.016019	33.816484
-105	-15	0.010142	0.008013	0.011592	33.171510
-105	0	0.016174	0.004940	0.006747	32.720538
-105	15	0.021011	0.002007	0.002831	32.559508
-105	30	0.023889	0.000105	0.000427	32.587515
-90	-30	0.003967	0.016442	0.009495	33.441501
-90	-15	0.009743	0.013777	0.005400	32.919110
-90	0	0.015689	0.009655	0.002102	32.621309
-90	15	0.020613	0.005199	0.000178	32.662523
-90	30	0.023530	0.001639	0.000097	32.933360

校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

Axial (°)	Hemispherical (°)	V ₁ (V)	V ₂ (V)	V ₃ (V)	E (V/m)
-75	-30	0.002865	0.021824	0.003685	33.286029
-75	-15	0.007732	0.019101	0.001036	32.925328
-75	0	0.013249	0.014212	0.000019	32.771974
-75	15	0.017996	0.008711	0.000511	32.900543
-75	30	0.021251	0.003624	0.001978	33.177024
-60	-30	0.001238	0.025682	0.000398	33.566119
-60	-15	0.004815	0.022677	0.000003	33.173426
-60	0	0.009361	0.017433	0.001432	33.018775
-60	15	0.013779	0.011150	0.003865	33.127319
-60	30	0.017393	0.005207	0.006160	33.386879
-45	-30	0.000071	0.027297	0.000206	34.030229
-45	-15	0.001857	0.023937	0.002401	33.588668
-45	0	0.005051	0.018449	0.005825	33.342404
-45	15	0.008890	0.011982	0.009060	33.277126
-45	30	0.012565	0.005770	0.011470	33.428886
-30	-30	0.000114	0.026893	0.001986	34.602876
-30	-15	0.000036	0.023235	0.006331	34.114921
-30	0	0.001436	0.017602	0.011071	33.690856
-30	15	0.004059	0.011186	0.014934	33.405514
-30	30	0.007348	0.005229	0.017375	33.440137
-15	-30	0.001865	0.024216	0.004408	34.784352
-15	-15	0.000348	0.020179	0.010293	34.357782
-15	0	-0.000055	0.014558	0.016042	33.891250
-15	15	0.000845	0.008729	0.020348	33.628586
-15	30	0.003020	0.003627	0.022546	33.507717
0	-30	0.005301	0.020064	0.006237	34.772448
0	-15	0.002823	0.015727	0.013108	34.404606
0	0	0.000825	0.010358	0.019458	33.966916
0	15	-0.000035	0.005372	0.024002	33.769522
0	30	0.000458	0.001721	0.026199	33.705135
15	-30	0.009978	0.014732	0.007031	34.518016
15	-15	0.007126	0.010223	0.014199	34.165434
15	0	0.003925	0.005716	0.020741	33.910459
15	15	0.001289	0.002278	0.025488	33.916820
15	30	-0.000077	0.000347	0.027877	33.907055
30	-30	0.015442	0.008752	0.006250	34.067793
30	-15	0.012435	0.004735	0.013064	33.712953
30	0	0.008317	0.001691	0.019660	33.640118
30	15	0.004220	0.000064	0.024513	33.722009
30	30	0.001091	-0.000030	0.027215	33.874245

校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

Axial (°)	Hemispherical (°)	V ₁ (V)	V ₂ (V)	V ₃ (V)	E (V/m)
45	-30	0.020471	0.003675	0.004272	33.790117
45	-15	0.017361	0.001091	0.010188	33.448384
45	0	0.012642	-0.000006	0.016337	33.387861
45	15	0.007373	0.000296	0.021493	33.608797
45	30	0.002751	0.001588	0.024758	33.833430
60	-30	0.024122	0.000631	0.001785	33.709950
60	-15	0.021125	-0.000043	0.006120	33.320833
60	0	0.015993	0.000919	0.011351	33.106659
60	15	0.010000	0.002822	0.016492	33.215355
60	30	0.004368	0.004899	0.020278	33.411385
75	-30	0.025875	-0.000062	0.000111	33.878598
75	-15	0.022888	0.001481	0.002145	33.363733
75	0	0.017658	0.004260	0.005905	32.931717
75	15	0.011288	0.007284	0.010357	32.763266
75	30	0.005168	0.009723	0.014501	32.897708
90	-30	0.025480	0.001115	0.000186	34.204250
90	-15	0.022259	0.004592	0.000123	33.535784
90	0	0.017031	0.008857	0.001551	32.819736
90	15	0.010897	0.012654	0.004435	32.422562
90	30	0.004877	0.015231	0.008239	32.439856
105	-30	0.023007	0.003014	0.002548	34.424338
105	-15	0.019521	0.007721	0.000773	33.569287
105	0	0.014520	0.013061	-0.000110	32.812177
105	15	0.008704	0.017671	0.000628	32.366504
105	30	0.003511	0.020356	0.002903	32.225509
120	-30	0.018931	0.004362	0.006779	34.351442
120	-15	0.015178	0.009989	0.004274	33.564921
120	0	0.010339	0.016033	0.001856	32.924964
120	15	0.005530	0.020912	0.000128	32.419780
120	30	0.001710	0.023885	0.000161	32.361416
135	-30	0.013855	0.004808	0.012411	34.290919
135	-15	0.009943	0.010671	0.009908	33.613097
135	0	0.005799	0.016829	0.006427	33.043017
135	15	0.002361	0.022017	0.002780	32.670287
135	30	0.000249	0.025260	0.000342	32.681973
150	-30	0.008372	0.004170	0.018096	33.951030
150	-15	0.004934	0.009647	0.015818	33.514906
150	0	0.002019	0.015749	0.011850	33.253254
150	15	0.000285	0.021079	0.007048	33.142553
150	30	-0.000001	0.024542	0.002610	33.122420

校准结果/说明（续页）：

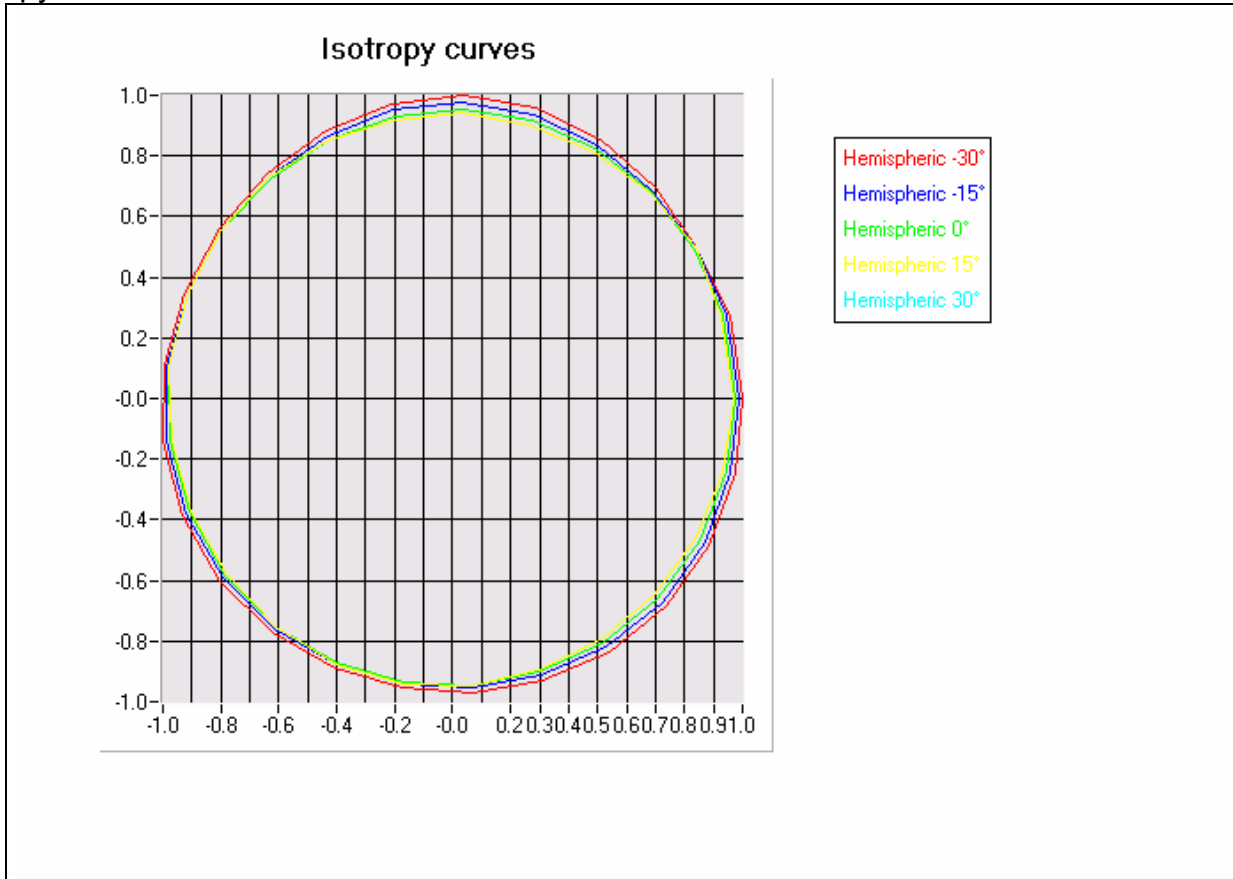
Results of calibration and additional explanation (continued page)

Axial (°)	Hemispherical (°)	V ₁ (V)	V ₂ (V)	V ₃ (V)	E (V/m)
165	-30	0.003704	0.002746	0.022940	33.696509
165	-15	0.001273	0.007327	0.020989	33.506133
165	0	0.000028	0.012899	0.016908	33.443283
165	15	0.000141	0.018266	0.011283	33.547702
165	30	0.001378	0.022316	0.005365	33.684642
180	-30	0.000843	0.001083	0.027113	34.226895
180	-15	-0.000103	0.004356	0.024961	33.881114
180	0	0.000559	0.008848	0.020352	33.546611
180	15	0.002183	0.013630	0.014004	33.301372
180	30	0.004372	0.017706	0.007177	33.200790

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: 1880.00MHz HEAD

2.2.1 Calibration basic information

S/N	Calibration
1	Epsilon: 39.06
2	Sigma: 1.44S/m
3	Temperature: 21°C
4	Cable loss: 0.30dB
5	Coupler loss: 19.46dB
6	Waveguide Return Loss: -22.33dB

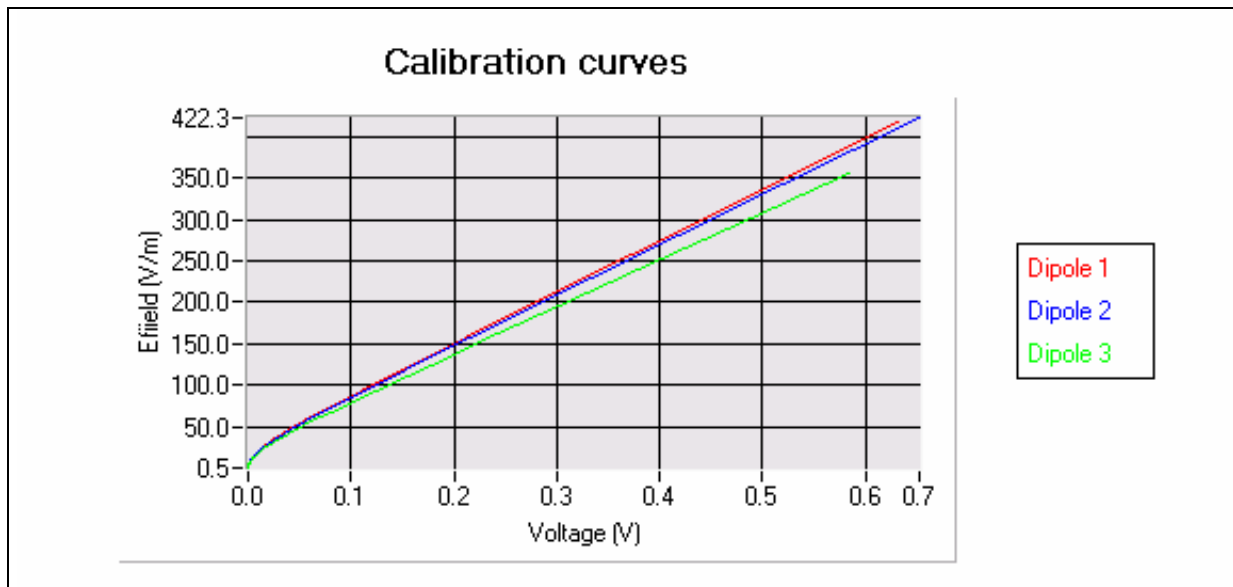
2.2.2 Calibration parameters

2.2.2.1 Sensitivity (Low limit detection): 0.81 V/m (0.94mW/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 linearization probe Factor

v1(V)	e1 (V/m)	v2(V)	e2 (V/m)	v3(V)	e3 (V/m)
0.631138	416.369349	0.652358	422.286499	0.584617	355.077834
0.511138	342.792086	0.518886	341.714915	0.466651	288.662911
0.411599	281.656855	0.417849	280.622500	0.378744	239.078656
0.329281	230.971321	0.333690	229.613553	0.301374	195.318789
0.261503	189.080661	0.266836	188.950528	0.241385	161.251702
0.210363	157.305429	0.215892	157.813922	0.196024	135.351041
0.170882	132.601775	0.171519	130.506382	0.155697	112.147215
0.136887	111.126400	0.138006	109.683634	0.123583	93.463857
0.108845	93.171454	0.111914	93.271589	0.079794	67.367288
0.069666	67.367288	0.071760	67.367288	0.071193	62.079622
0.061922	62.079622	0.063927	62.151135	0.063047	57.075413
0.054667	57.075413	0.056512	57.075413	0.054784	51.873919
0.047279	51.814232	0.048941	51.873919	0.046723	46.660465
0.040110	46.660465	0.041607	46.660465	0.039306	41.682049
0.033601	41.682049	0.034878	41.730066	0.032780	37.191960
0.027889	37.191960	0.028981	37.234803	0.027084	33.071132
0.022891	33.071132	0.023847	33.109229	0.022196	29.406888
0.018681	29.406888	0.019479	29.406888	0.018168	26.178759
0.015193	26.178759	0.015891	26.178759	0.014791	23.304998
0.012342	23.304998	0.012892	23.304998	0.011985	20.746702
0.009966	20.746702	0.010408	20.746702	0.009678	18.469242
0.007989	18.469242	0.008385	18.469242	0.007694	16.366246
0.006347	16.366246	0.006649	16.366246	0.006189	14.586432
0.005084	14.586432	0.005344	14.586432	0.004917	12.985212
0.004023	12.985212	0.004248	12.985212	0.003924	11.586415
0.003213	11.586415	0.003388	11.586415	0.003113	10.284550
0.002557	10.314521	0.002692	10.326403	0.002474	9.202507
0.002018	9.185450	0.002135	9.189292	0.001963	8.235537
0.001599	8.228008	0.001682	8.202522	0.001534	7.325835
0.001245	7.322167	0.001320	7.318958	0.001197	6.522842
0.000947	6.461922	0.001036	6.542776	0.000927	5.799824
0.000751	5.827300	0.000797	5.809777	0.000722	5.183950
0.000573	5.184076	0.000615	5.182520	0.000556	4.625542
0.000429	4.598343	0.000458	4.572815	0.000432	4.159792
0.000332	4.157528	0.000347	4.087229	0.000311	3.648437
0.000229	3.631332	0.000270	3.713264	0.000235	3.286827
0.000173	3.310330	0.000183	3.239193	0.000173	2.959281
0.000102	2.851864	0.000130	2.912815	0.000129	2.702855
0.000049	2.454427	0.000081	2.574518	0.000048	2.152341

校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

$v_1(V)$	$e_1(V/m)$	$v_2(V)$	$e_2(V/m)$	$v_3(V)$	$e_3(V/m)$
0.000035	2.338191	0.000051	2.343418	0.000011	1.847062
0.000017	2.179657	0.000022	2.095938	-0.000016	1.583693
-0.000012	1.896567	-0.000006	1.825428	-0.000037	1.354352
-0.000036	1.630369	-0.000029	1.569912	-0.000052	1.149602
-0.000053	1.403037	-0.000046	1.354149	-0.000063	0.983646
-0.000066	1.198648	-0.000058	1.162157	-0.000071	0.841160
-0.000076	1.022537	-0.000068	0.992844	-0.000077	0.719793
-0.000083	0.879420	-0.000075	0.851844	-0.000081	0.623049
-0.000088	0.752907	-0.000080	0.733735	-0.000084	0.533117
-0.000092	0.651933	-0.000084	0.626428	-0.000086	0.458668
-0.000095	0.553227	-0.000086	0.540971	/	/
-0.000097	0.478264	-0.000088	0.463598	/	/

校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

2.2.2.3 Isotropy

- Axial isotropy: 0.12dB
- Hemispherical isotropy: 0.16 dB

Calibration data of isotropy

Axial (°)	Hemispherical (°)	V ₁ (V)	V ₂ (V)	V ₃ (V)	E (V/m)
-180	-30	0.001098	0.001376	0.032606	38.432754
-180	-15	-0.000105	0.005423	0.029992	38.123885
-180	0	0.000657	0.010758	0.024368	37.932200
-180	15	0.002736	0.016157	0.016854	37.942405
-180	30	0.005411	0.020613	0.008719	38.121028
-165	-30	-0.000081	0.000097	0.034566	38.525524
-165	-15	0.001052	0.001920	0.031743	38.076690
-165	0	0.003956	0.005591	0.025987	37.792851
-165	15	0.007473	0.010159	0.018232	37.736296
-165	30	0.010653	0.014791	0.009830	37.941177
-150	-30	0.000690	0.000345	0.034047	38.690237
-150	-15	0.004094	-0.000029	0.030769	38.092284
-150	0	0.008768	0.001455	0.024767	37.621367
-150	15	0.013281	0.004594	0.017095	37.530002
-150	30	0.016654	0.008551	0.008958	37.676547
-135	-30	0.002434	0.002693	0.030994	38.686256
-135	-15	0.007603	0.000681	0.027088	38.030113
-135	0	0.013547	-0.000056	0.020969	37.557119
-135	15	0.018779	0.000806	0.013599	37.383563
-135	30	0.022235	0.003308	0.006434	37.529356
-120	-30	0.004025	0.007183	0.025713	38.534435
-120	-15	0.010376	0.004202	0.021188	37.861774
-120	0	0.017197	0.001569	0.015122	37.483792
-120	15	0.022734	0.000111	0.008734	37.384028
-120	30	0.026211	0.000361	0.003232	37.539155
-105	-30	0.004890	0.013019	0.018813	38.284902
-105	-15	0.011705	0.009952	0.013914	37.782249
-105	0	0.018838	0.005964	0.008363	37.450534
-105	15	0.024568	0.002460	0.003588	37.499306
-105	30	0.028089	0.000253	0.000606	37.829202
-90	-30	0.004558	0.019646	0.011276	38.277936
-90	-15	0.011180	0.016468	0.006520	37.728509
-90	0	0.018197	0.011658	0.002561	37.570719
-90	15	0.023863	0.006504	0.000298	37.704823
-90	30	0.027524	0.002146	0.000072	38.094340

校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

Axial (°)	Hemispherical (°)	V ₁ (V)	V ₂ (V)	V ₃ (V)	E (V/m)
-75	-30	0.003188	0.025499	0.004530	38.389874
-75	-15	0.008958	0.022270	0.001266	37.918011
-75	0	0.015283	0.016933	0.000007	37.792374
-75	15	0.020912	0.010603	0.000479	37.951612
-75	30	0.024824	0.004580	0.002354	38.258461
-60	-30	0.001401	0.029772	0.000527	38.880519
-60	-15	0.005506	0.026308	0.000085	38.305678
-60	0	0.010880	0.020533	0.001754	38.092692
-60	15	0.016174	0.013393	0.004479	38.110385
-60	30	0.020490	0.006416	0.007261	38.324139
-45	-30	0.000106	0.031538	0.000171	39.399678
-45	-15	0.002188	0.027977	0.002624	38.825620
-45	0	0.005914	0.021966	0.006740	38.387784
-45	15	0.010441	0.014555	0.010778	38.134930
-45	30	0.014805	0.007296	0.013876	38.262979
-30	-30	0.000221	0.031073	0.002215	39.956207
-30	-15	0.000070	0.027129	0.007418	39.267028
-30	0	0.001840	0.020942	0.013063	38.580480
-30	15	0.004972	0.013530	0.017901	38.122901
-30	30	0.008909	0.006527	0.020764	37.978938
-15	-30	0.002347	0.028313	0.005143	40.253300
-15	-15	0.000432	0.023876	0.012280	39.505749
-15	0	-0.000047	0.017505	0.019061	38.587488
-15	15	0.001089	0.010743	0.024296	38.104222
-15	30	0.003748	0.004606	0.027122	37.874777
0	-30	0.006542	0.023615	0.007553	40.271461
0	-15	0.003538	0.018659	0.015789	39.406889
0	0	0.001041	0.012653	0.023404	38.676939
0	15	-0.000066	0.006740	0.028819	38.095299
0	30	0.000690	0.002159	0.031391	37.766119
15	-30	0.012327	0.017378	0.008620	40.005670
15	-15	0.008866	0.012225	0.017172	39.149586
15	0	0.004862	0.007020	0.025060	38.490477
15	15	0.001657	0.002659	0.030651	38.029034
15	30	0.000031	0.000254	0.033343	37.823651
30	-30	0.018823	0.010502	0.007639	39.651520
30	-15	0.015096	0.005965	0.016070	38.903423
30	0	0.010149	0.002196	0.023765	38.218886
30	15	0.005158	0.000230	0.029544	37.981520
30	30	0.001316	0.000048	0.032615	37.895459

校准结果/说明（续页）：

Results of calibration and additional explanation (continued page)

Axial (°)	Hemispherical (°)	V ₁ (V)	V ₂ (V)	V ₃ (V)	E (V/m)
45	-30	0.024673	0.004497	0.005263	39.386876
45	-15	0.021018	0.001320	0.012481	38.619573
45	0	0.015276	-0.000020	0.019852	38.077868
45	15	0.009003	0.000281	0.025809	37.831218
45	30	0.003434	0.001940	0.029480	37.834226
60	-30	0.028834	0.000682	0.002367	39.362000
60	-15	0.025271	-0.000134	0.007449	38.548895
60	0	0.019187	0.001160	0.013790	37.942529
60	15	0.012106	0.003568	0.019655	37.703840
60	30	0.005286	0.006217	0.024136	37.715728
75	-30	0.030637	0.000025	0.000282	39.565587
75	-15	0.027063	0.001872	0.002843	38.779807
75	0	0.020862	0.005227	0.007204	37.908659
75	15	0.013511	0.008839	0.012368	37.479846
75	30	0.006300	0.011895	0.017050	37.395589
90	-30	0.030054	0.001414	0.000376	39.813095
90	-15	0.026359	0.005505	0.000083	38.935092
90	0	0.020108	0.010546	0.001856	37.945122
90	15	0.012844	0.015225	0.005384	37.463424
90	30	0.005881	0.018235	0.009584	37.208074
105	-30	0.027300	0.003585	0.003040	39.905106
105	-15	0.023094	0.009360	0.000982	39.026104
105	0	0.017124	0.015544	-0.000123	38.083449
105	15	0.010398	0.020651	0.000757	37.444793
105	30	0.004307	0.023788	0.003423	37.270268
120	-30	0.022592	0.005261	0.008376	39.721650
120	-15	0.018100	0.012094	0.005253	38.970592
120	0	0.012374	0.018880	0.002277	38.156499
120	15	0.006660	0.024529	0.000251	37.752830
120	30	0.002073	0.027689	0.000297	37.543840
135	-30	0.016750	0.005757	0.015073	39.328722
135	-15	0.012137	0.012988	0.011829	38.786124
135	0	0.007099	0.020024	0.007579	38.156166
135	15	0.002868	0.025863	0.003455	37.982511
135	30	0.000384	0.029231	0.000415	37.903270
150	-30	0.010442	0.005121	0.022178	38.977107
150	-15	0.006125	0.011817	0.019166	38.448651
150	0	0.002468	0.018918	0.014341	38.237889
150	15	0.000365	0.024771	0.008454	38.201569
150	30	0.000010	0.028578	0.003077	38.358797

校准结果/说明（续页）：

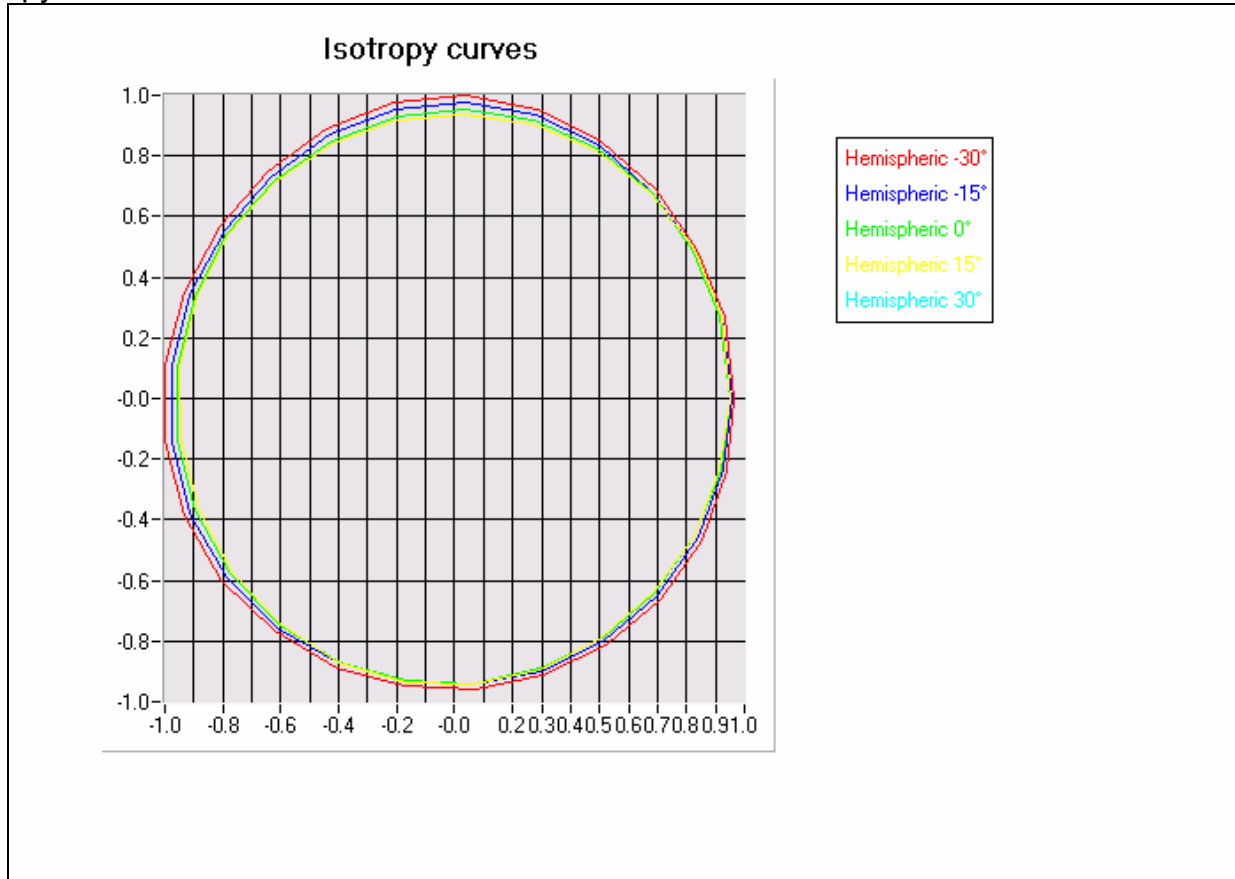
Results of calibration and additional explanation (continued page)

Axial (°)	Hemispherical (°)	V ₁ (V)	V ₂ (V)	V ₃ (V)	E (V/m)
165	-30	0.004850	0.003427	0.028542	38.766986
165	-15	0.001674	0.009092	0.025706	38.315763
165	0	0.000044	0.015606	0.020417	38.208611
165	15	0.000169	0.021470	0.013520	38.315671
165	30	0.001661	0.025670	0.006395	38.540236
180	-30	0.001179	0.001342	0.032899	38.659571
180	-15	-0.000078	0.005470	0.030239	38.322780
180	0	0.000656	0.010819	0.024580	38.096229
180	15	0.002754	0.016328	0.017036	38.161373
180	30	0.005457	0.020874	0.008896	38.409133

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: ± 0.05 mm, Nominal payload: 3 kg
Vector Network Analyzer ZVB 8	容-027-27	2009F31-10-002461 2010.06.23	300 kHz \sim 8 GHz, Frequency resolution: 100 μ Hz, Measurement time: < 8 ms, Measurement bandwidths: 1 Hz \sim 500 kHz / uncertainty: +10 dB \sim +3 dB : 0.6 dB ; +3 dB \sim -15 dB : 0.4 dB; -15 dB \sim -25 dB : 1 dB; -25 dB \sim -35 dB : 3 dB
Signal Generator SMT 06	容-027-15	2009F33-10-000470 2010.06.25	5 kHz \sim 6 GHz, Resolution: 0.1Hz, -144dBm \sim + 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 \sim 6 GHz, 10nW \sim 500mW
Millivoltmeter 2000	容-027-26	2009F11-20-000607 2010.06.18	Fastest System rate: 4.5m s Resistance range: 100.0000 Ω \sim 100.000M Ω Measurement Sensibility: 100 μ Ω \sim 100 Ω Voltage range: 100.0000mV \sim 1000.000V Measurement Sensibility : 0.1 μ V \sim 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 Ω to 2M Ω 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 \sim 2 GHz; Output: 6W; Gain: min 37.8 / typ 40, ± 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 069Y7-15813-701/0 69Y7-63355-712	容-027-40	2009F31-10-002980 2010.06.22	1700 MHz ~ 2450 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

