Shenzhen VITE Technology Co., Ltd
Tel: +86-755-89486194 Fax: +86-755-89486187

MPE TEST REPORT

FCC ID: XMHQM-790-U1

Report Reference No.....:	**VITE1008001R-1**
Compiled by (position+printed name+signature) .:	File administrators Tracy Qi
Name of the organization performing the tests (position+printed name+signature) .:	Test Engineer Kendy Wang
Approved by (position+printed name+signature) .:	Manager Andy Zhang
Date of issue .....:	Aug 20, 2010
Testing Laboratory Name.....:	**Shenzhen VITE Technology Co., Ltd**
Address .....:	Suite 2123, Building 4, Hongfa Centre, Central Area Baoan, Baoan District, Shenzhen, Guangdong, 518101, P.R. China
Applicant's name.....:	**Quantun Electronics, LLC**
Address .....:	1379 Shotgun Road Sunrise, Florida 33326, USA
Test specification:	
Standard .....:	**FCC Per 47 CFR 2.1091(b)**
TRF Originator.....:	Shenzhen VITE Technology Co., Ltd
Master TRF.....:	Dated 2009-03

Test item description .....:	Two-way Mobile Radio
Trade Mark .....:	Quantun
Model/Type reference.....:	QM-790-U1
Listed Models .....:	/
Modulation……..:	FM
Emission Type……..:	16K0F3E for 25KHz; 11K0F3E for 12.5KHz
Power Supply……..:	DC 13.6V
Maximum Transmitter Power……..:	45W
Operating Frequency Range…..……:	400MHz~470MHz
Result .....:	**Positive**

MPE TEST REPORT

Test Report No. :	VITE1008001R-1	Aug 20, 2010 Date of issue

Equipment under Test	:	Two-way Mobile Radio
Model /Type	:	QM-790-U1
Listed Models	:	/
Applicant	:	Quantun Electronics, LLC
Address	:	1379 Shotgun Road Sunrise, Florida 33326, USA
Manufacture	:	Shenzhen Surwave Technologies Co., LTD
Address	:	RM.602,No.535 Building East , Bagua RD.2, Bagualing, Futian District, Shenzhen, China

Test Result according to the standards on page 4:	**Positive**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laborator

Contents

1. Measurement Uncertainty

The information below presents an estimate of the possible errors that are associated with the measurement system.

Description	Error
NARDA Survey Meter	**± 3%**
Repeatability Accuracy	**± 7%**

2. Measurement System/Equipment

Equipment Type	Model#	SN	Calibration Date
Automobile	Citroen C-Quatre, 4-Door	N/A	N/A
Survey Meter/ Probe-E-Field (Electric Field)	ETS HI-6005&FM5004	00064170&300239	10/28/2008

Note: Test Date: Aug 16, 2010
The Automobile date of produce: July 31, 2009

3. Method of measurement

3.1. EME measurements made on trunk mounted antennas

3.1.1. External vehicle EME measurement

(Antenna mounted in trunk center)
With the survey meter and probe, take ten (10) measurements, at the standard test distance of 60 cm to the antenna, from the back of the vehicle in a vertical line and then average the results. These measurements are taken and recorded at every twenty (20) centimeters over a range starting at twenty (20) centimeters above ground and ending at 2.0 meters.

3.1.2. Internal vehicle EME measurement

(Antenna mounted in trunk center)
While rotating survey meter probe through 180 degrees to ensure that the highest level is found, scan the inside of the vehicle, both front and back seating areas, for the highest level in each location. After the highest level is found, scan vertically making two (2) additional measurements within an area approximately 40 cm wide (representing the width of a person) so as to have a total of three (3) measured points as indicated below that will be averaged
.
a) Head area
b) Chest area
c) Lower Trunk area

3.2. EME measurements made on center roof mounted antennas

2.2.1. External vehicle EME measurement

With the survey meter and probe, take ten (10) measurements, at the standard test distance of 110 cm from the vehicle-mounted antenna, in a vertical line and then average the results. These measurements are taken and recorded at every twenty (20) centimeters over a range starting at twenty (20) centimeters above ground and ending at 2.0 meters; this would be representative of a person standing next to a vehicle during a mobile radio transmission.

2.2.2. Internal vehicle EME measurement

While rotating survey meter probe through 180 degrees to ensure that the highest level is found, scan the inside of the vehicle, both front and back seating areas, for the highest level in each location. After the highest level is found, scan vertically making two (2) additional measurements within an area approximately 40 cm wide (representing the width of a person) so as to have a total of three (3) measured points as indicated below that will be averaged.

a) Head area
b) Chest area
c) Lower Trunk area

4. Test Result

Measurement Information			
Measurement Freq.(MHz)	406.1000	435.3000	469.9000
Raw Data Power(W)	44.67	44.77	45.19
Controlled Limit	1.00	1.00	1.00
Uncontrolled Limit	0.20	0.20	0.20
Cal.	1.00	1.00	1.00
Antenna / gain(dBi)	Whip / 5.5	Whip / 5.5	Whip / 5.5
External Vehicle Power Density(50% duty)	average over body/2		
Internal Vehicle Power Density(50% duty)	average over (head/chest/leg)/2		

External Vehicle MPE Assessment at 406.1000 MHz						
Antenna Location	**Antenna/ gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average Over Body**	**Pwr. Density (mW/cm^2)**
Trunk	Whip / 5.5	60	E	1.00	0.118	0.059
Measurement grid						
Test position	**Height (cm)**	**% of uncontrolled limit**	**Test position**	**Height (cm)**	**% of uncontrolled limit**	
1	20	6	6	120	20	
2	40	7	7	140	21	
3	60	9	8	160	11	
4	80	11	9	180	12	
5	100	13	10	200	8	

External Vehicle MPE Assessment at 435.3000 MHz						
Antenna Location	**Antenna/ gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average Over Body**	**Pwr. Density (mW/cm^2)**
Trunk	Whip / 5.5	60	E	1.00	0.118	0.059
Measurement grid						
Test position	**Height (cm)**	**% of Uncontrolled limit**	**Test position**	**Height (cm)**	**% of uncontrolled limit**	
1	20	5	6	120	17	
2	40	8	7	140	20	
3	60	10	8	160	15	
4	80	10	9	180	12	
5	100	13	10	200	8	

External Vehicle MPE Assessment at 469.9000 MHz						
Antenna Location	**Antenna/ gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average Over Body**	**Pwr. Density (mW/cm^2)**
Trunk	Whip / 5.5	60	E	1.00	0.131	0.066
Measurement grid						
Test position	**Height (cm)**	**% of uncontrolled limit**	**Test position**	**Height (cm)**	**% of uncontrolled limit**	
1	20	8	6	120	19	
2	40	10	7	140	22	
3	60	11	8	160	13	
4	80	13	9	180	11	
5	100	14	10	200	10	

External Vehicle MPE Assessment at 406.1000 MHz						
Antenna Location	**Antenna/ gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average Over Body**	**Pwr. Density (mW/cm^2)**
Trunk	Whip / 5.5	110	E	1.00	0.064	0.032
Measurement grid						
Test position	**Height (cm)**	**% of uncontrolled limit**	**Test position**	**Height (cm)**	**% of uncontrolled limit**	
1	20	4	6	120	10	
2	40	4	7	140	11	
3	60	5	8	160	7	
4	80	5	9	180	7	
5	100	6	10	200	5	

Internal Vehicle MPE Assessment at 406.1000 MHz						
Antenna Location	**Antenna/ gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average over Head,Chest,Leg Back/Front Seats (mW/cm^2)**	**Pwr. Density of Higher Level (mW/cm^2)**
Trunk	Whip / 5.5	Highest Reading	E	1.00	0.043/0.027	0.022/0.014
Measurement grid						
Test position	**% of uncontrolled Limit Head**		**% of uncontrolled Limit Chest**		**% of uncontrolled Limit Leg**	
Back Seat	7		5		1	
Front Sea	4		3		1	

Internal Vehicle MPE Assessment at 435.3000 MHz						
Antenna Location	**Antenna/ gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average over Head,Chest,Leg Back/Front Seats (mW/cm^2)**	**Pwr. Density of Higher Level (mW/cm^2)**
Trunk	Whip / 5.5	Highest Reading	E	1.00	0.037/0.023	0.019/0.012
Measurement grid						
Test position	**% of uncontrolled Limit Head**		**% of uncontrolled Limit Chest**		**% of uncontrolled Limit Leg**	
Back Seat	6		4		1	
Front Sea	4		2		1	

Internal Vehicle MPE Assessment at 469.9000 MHz						
Antenna Location	**Antenna/ gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average over Head,Chest,Leg Back/Front Seats (mW/cm^2)**	**Pwr. Density of Higher Level (mW/cm^2)**
Trunk	Whip /5.5	Highest Reading	E	1.00	0.033/0.020	0.017/0.010
Measurement grid						
Test position	**% of uncontrolled Limit Head**		**% of uncontrolled Limit Chest**		**% of uncontrolled Limit Leg**	
Back Seat	5		4		1	
Front Sea	3		2		1	

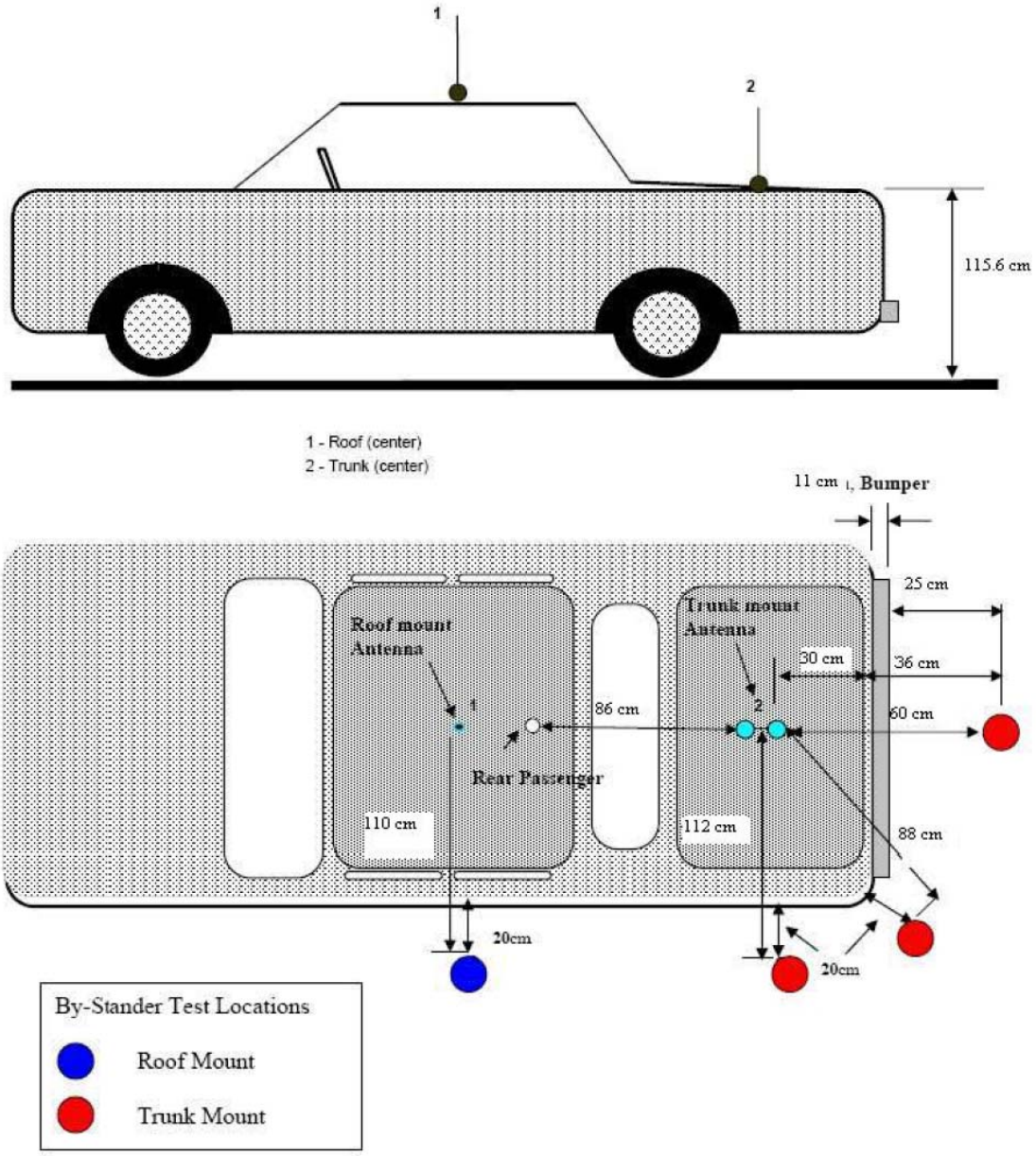
Internal Vehicle MPE Assessment at 469.9000 MHz						
Antenna Location	**Antenna/ gain**	**Meas. Distance (cm)**	**E/H Field**	**Calibration Factor**	**Average over Head,Chest,Leg Back/Front Seats (mW/cm^2)**	**Pwr. Density of Higher Level (mW/cm^2)**
Roof	Whip /5.5	Highest Reading	E	1.00	0.023/0.013	0.012/0.007
Measurement grid						
Test position	**% of uncontrolled Limit Head**		**% of uncontrolled Limit Chest**		**% of uncontrolled Limit Leg**	
Back Seat	4		2		1	
Front Sea	2		1		1	

4. Conclusion

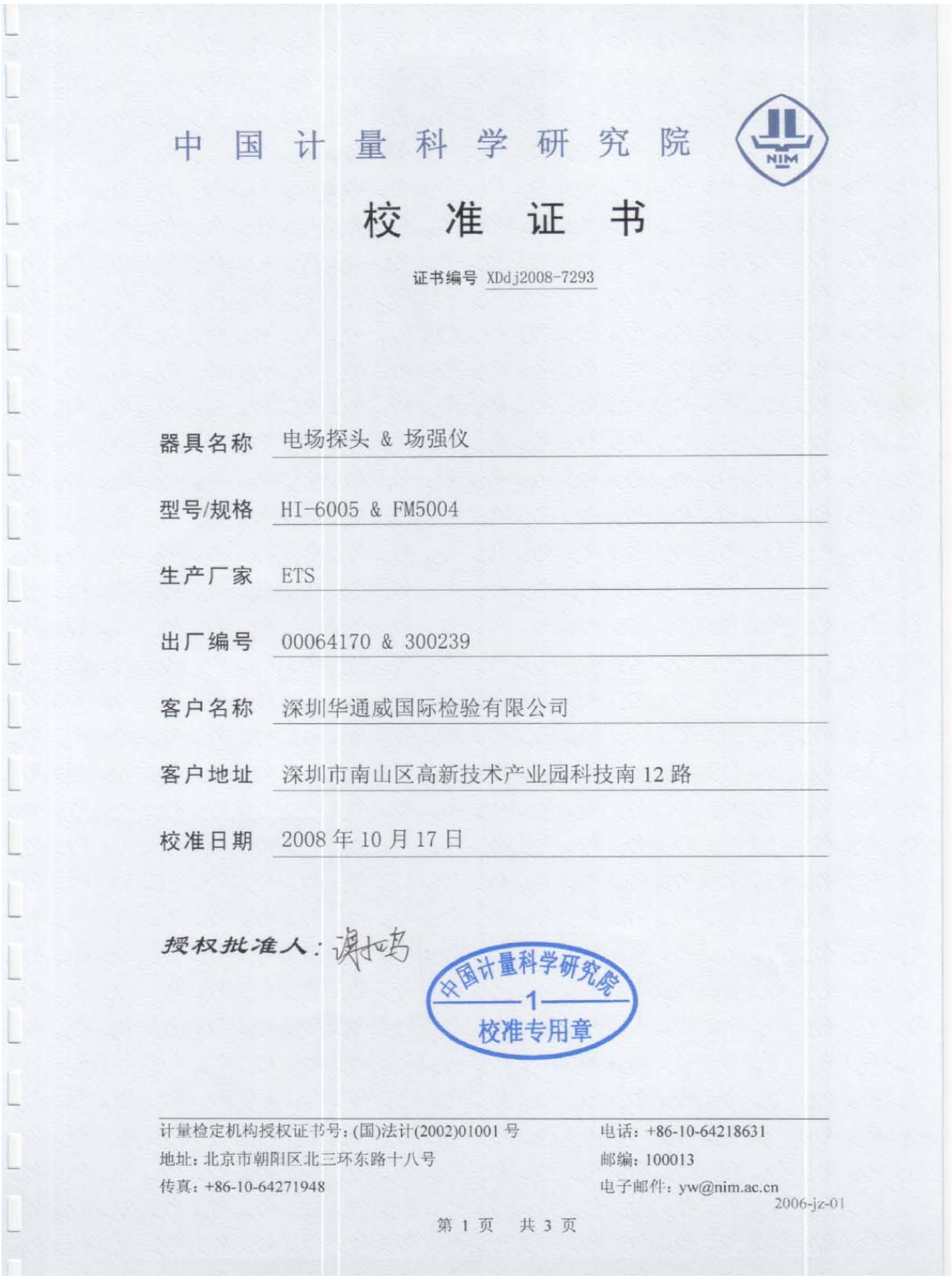
The measurement results comply with the FCC Limit Per 47 CFR 2.1091 (b) for the uncontrolled RF Exposure.

5. Antenna Location Drawing

Antenna Location Drawing with Test Locations Identified



6. Meter/Probe Calibration Certificates



中 国 计 量 科 学 研 究 院

NIM

校 准 证 书

证书编号 XDdj2008-7293

器具名称	电场探头 & 场强仪
型号/规格	HI-6005 & FM5004
生产厂家	ETS
出厂编号	00064170 & 300239
客户名称	深圳华通威国际检验有限公司
客户地址	深圳市南山区高新技术产业园科技南 12 路
校准日期	2008 年 10 月 17 日

授权批准人：

中国计量科学研究院 1 校准专用章

计量检定机构授权证书号：(国)法计(2002)01001 号 电话：+86-10-64218631

地址：北京市朝阳区北三环东路十八号 邮编：100013

传真：+86-10-64271948 电子邮件：yw@nim.ac.cn

2006-jz-01

第 1 页 共 3 页

中 国 计 量 科 学 研 究 院

证书编号 XDdj2008-7293

一九九九年中国计量科学研究院代表中国在国际计量局（BIPM）签署了“国家测量标准及国家计量研究院出具的校准和测量证书相互承认的协议”
中国实验室国家认可委员会（CNAL）认可证书号：No.L0502

校准所依据的技术文件（代号、名称）

参照 IEEE 1309 Standard for Calibration of Electromagnetic Field Sensors and Probes

校准环境条件及地点

温 度： 20.5 ℃ 湿 度： 45 %(RH)
地 点： 信电所 305 其 它： /

校准使用的计量（基）标准

名 称	型号/规格	不确定度/准确度	证书编号
Power Sensor	NRV-Z1	2.0%	XDwb2008-1923
GTEM Cell	NIM8815	/	XDdj2008-0033

注：
1. 我院仅对加盖“中国计量科学研究院校准专用章”完整证书负责
2. 本证书的校准结果仅对所校准的计量器具有效
3. 请妥善保管此证书

2006-jz-02

第 2 页 共 3 页

中 国 计 量 科 学 研 究 院

证书编号 XDdj2008-7293

校 准 结 果

表 1 场强频率响应

频率 (MHz)	标准值 (V/m)	X 轴 实测值 (V/m)	X 轴 校准 因子	Y 轴 实测值 (V/m)	Y 轴 校准 因子	Z 轴 实测值 (V/m)	Z 轴 校准 因子	通道 匹配 (%)
10	20.1	20.6	0.97	20.6	0.97	20.5	0.97	99.5
30	19.9	19.7	1.01	19.7	1.01	19.6	1.02	99.5
50	19.8	19.5	1.03	19.4	1.03	19.4	1.03	99.5
100	19.8	18.7	1.06	18.5	1.07	18.6	1.07	98.9
200	19.8	19.4	1.03	19.7	1.01	19.9	1.00	97.5
300	20.0	20.0	1.00	19.9	1.01	19.6	1.02	98.0
400	19.9	19.6	1.03	19.6	1.03	19.2	1.05	98.0
500	20.0	18.8	1.06	19.2	1.04	18.9	1.06	97.9
600	20.0	19.4	1.03	19.1	1.05	18.9	1.06	97.4
700	20.0	19.2	1.04	19.1	1.05	19.2	1.04	99.5
800	19.9	18.4	1.09	17.4	1.15	18.1	1.10	94.6
900	20.0	20.6	0.97	19.6	1.02	18.7	1.07	90.8
1000	19.9	19.2	1.04	19.9	1.00	20.3	0.98	94.6

注：场强值=仪表指示值×校准因子

校准结果不确定度的描述

U=1.5dB（k=2）

敬告：

1. 被校准仪器修理后，应立即进行校准。
2. 在使用过程中,如对被校准仪器的技术指标产生怀疑，请重新校准。
3. 为确保被校准仪器技术指标的准确可靠，通常情况下应一年校准一次。

校 准 员：佳 欣　　核 验 员：

2006-jz-04

第 3 页　共 3 页

中 国 计 量 科 学 研 究 院

校 准 证 书

证书编号 XDdj2008-7310

器具名称 电场探头 & 场强仪

型号/规格 HI-6005 & FM5004

生产厂家 ETS

出厂编号 00064170 & 300239

客户名称 深圳华通威国际检验有限公司

客户地址 深圳市南山区高新技术产业园科技南 12 路

校准日期 2008 年 10 月 28 日

授权批准人：

中国计量科学研究院 1 校准专用章

计量检定机构授权证书号：(国)法计(2002)01001 号
地址：北京市朝阳区北三环东路十八号
传真：+86-10-64271948
电话：+86-10-64218631
邮编：100013
电子邮件：yw@nim.ac.cn

2006-jz-01

中 国 计 量 科 学 研 究 院

证书编号 XDdj2008-7310

一九九九年中国计量科学研究院代表中国在国际计量局（BIPM）签署了“国家测量标准及国家计量研究院出具的校准和测量证书相互承认的协议”
中国实验室国家认可委员会（CNAL）认可证书号：No.L0502

校准所依据的技术文件（代号、名称）
参照 IEEE 1309 Standard for Calibration of Electromagnetic Field Sensors and Probes

校准环境条件及地点
温 度： 16.5 ℃ 湿 度： 28.2 %(RH)
地 点： 信息电子所 419 其 它： /

校准使用的计量（基）标准

名 称	型号/规格	不确定度/准确度	证书编号
功率探头	NRV-Z51	U=2.50%(k=2)	XDwb2008-1963
功率探头	NRV-Z55	U=2.50%(k=2)	XDwb2008-1911
信号源	MG3694B	U=1.0dB (k=2)	XDst2008-8585
功率放大器	100S1G4	U=1.5dB (k=2)	XDdj2008-0134
功率放大器	20T4G18A	U=1.5dB (k=2)	XDdj2008-0135

注：
1. 我院仅对加盖“中国计量科学研究院校准专用章”完整证书负责
2. 本证书的校准结果仅对所校准的计量器具有效
3. 请妥善保管此证书

2006-jz-02

第 2 页 共 4 页

中 国 计 量 科 学 研 究 院

证书编号 XDdj2008-7310

校 准 结 果

f = 1.8GHz

标准值	实测值	校准因子
mW/cm^2	mW/cm^2	
0.1	0.097	1.03
0.5	0.47	1.06
1.0	0.94	1.06
2.0	1.85	1.08
5.0	4.55	1.10
8.0	7.38	1.08
10.0	9.42	1.06

f = 2.45GHz

标准值	实测值	校准因子
mW/cm^2	mW/cm^2	
0.1	0.098	1.02
0.5	0.48	1.04
1.0	0.95	1.05
2.0	1.87	1.07
5.0	4.58	1.09
8.0	7.27	1.10
10.0	9.04	1.11

2006-jz-03

中 国 计 量 科 学 研 究 院

证书编号 XDdj2008-7310

校 准 结 果

f = 4.8GHz

标准值	实测值	校准因子
mW/cm^2	mW/cm^2	
0.1	0.097	1.03
0.3	0.28	1.07
0.5	0.46	1.09
0.8	0.71	1.13
1.0	0.86	1.16
1.5	1.27	1.18
2.0	1.69	1.18

注：功率密度值=仪表指示值×校准因子

校准结果不确定度的描述

f = 1.8GHz，U=0.47dB（k=2）；　　f = 2.45GHz，U=0.55dB（k=2）；

f = 4.8GHz，U=0.50dB（k=2）

敬告：

1. 被校准仪器修理后，应立即进行校准。
2. 在使用过程中,如对被校准仪器的技术指标产生怀疑，请重新校准。
3. 为确保被校准仪器技术指标的准确可靠，通常情况下应一年校准一次。

校 准 员：　　核 验 员：

2006-jz-04

第 4 页　共 4 页

.....End of Report.....