



Internal Antenna Product Specification

Customer Name: 上海华勤技术通讯有限公司

Project Name: W90 内置 GSM,BLUETOOTH 天线组

Part Number: SAA30480A

Customer PN: HQ20601700138

VENDOR NAME: 圣丹纳电子科技有限公司

Tel: 021- 36307272 **Fax: 021- 36307757**

Approval Sheet	
Customer	Saintenna

Rev	Change Summary	Date	Author
1.0	Preliminary Release	Sep/02 2010	Kevin Cui

PREPARED BY

上海圣丹纳电子科技有限公司

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1. Purpose and Scope

The purpose of this document is to establish a product specification for the antenna that Saintenna is developing for the Cell Phone. This specification is preliminary. Any changes or additions to this specification can affect schedule and/or cost or the product and should be negotiated between Saintenna and Customer before being incorporated into the specification. Any changes requested by Customer will be given to Saintenna with sufficient time to evaluate the cost impact and react as required.

This project has two kinds of design: GSM850/PCS/ Bluetooth.

2. Electrical Specifications

The design will be evaluated in free space. The antenna will comply with the Electrical Specification requirements, as set out below, while mounted on the handset containing the PCB. The handset and PCB are to be provided by the customer and should be representative of the latest design version of all parts. It is recommended that the latest product design incorporates the recommendations in design guidelines provided by Saintenna. Any modifications in the handset or PCB can affect the performance of the antenna and should be discussed with Saintenna to determine the affect of such changes on the antenna performance and delivery requirements.

Frequency Range

The antenna is required to meet the performance characteristics specified over the GSM850, PCS, Bluetooth frequency bands, designated as the transmit and receive bands.

Frequency Band	Frequency Range
GSM850	824-894MHz
PCS	1850MHz-1990MHz
Bluetooth	2400-2500 MHz

Antenna Input VSWR

All VSWR measurements are to be carried out within a 50 Ohms system. Antenna VSWR shall be measured at the input of the antenna. For flip phone, the performance is mainly concentrated on flip open position. The maximum allowable VSWR for all frequencies within the defined bands are listed in the table below.

Frequency Band	Maximum VSWR	Minimum Return Loss*
GSM850	6.0:1	-3.0 dB
PCS	6.0:1	-3.0 dB
Bluetooth	3.0:1	-5.0dB

- Across the designated band in free-space

3. Mechanical Specifications

Mechanical Configuration

The mechanical configuration is driven by the product Industrial Design, customer requirements, and the antenna requirements.

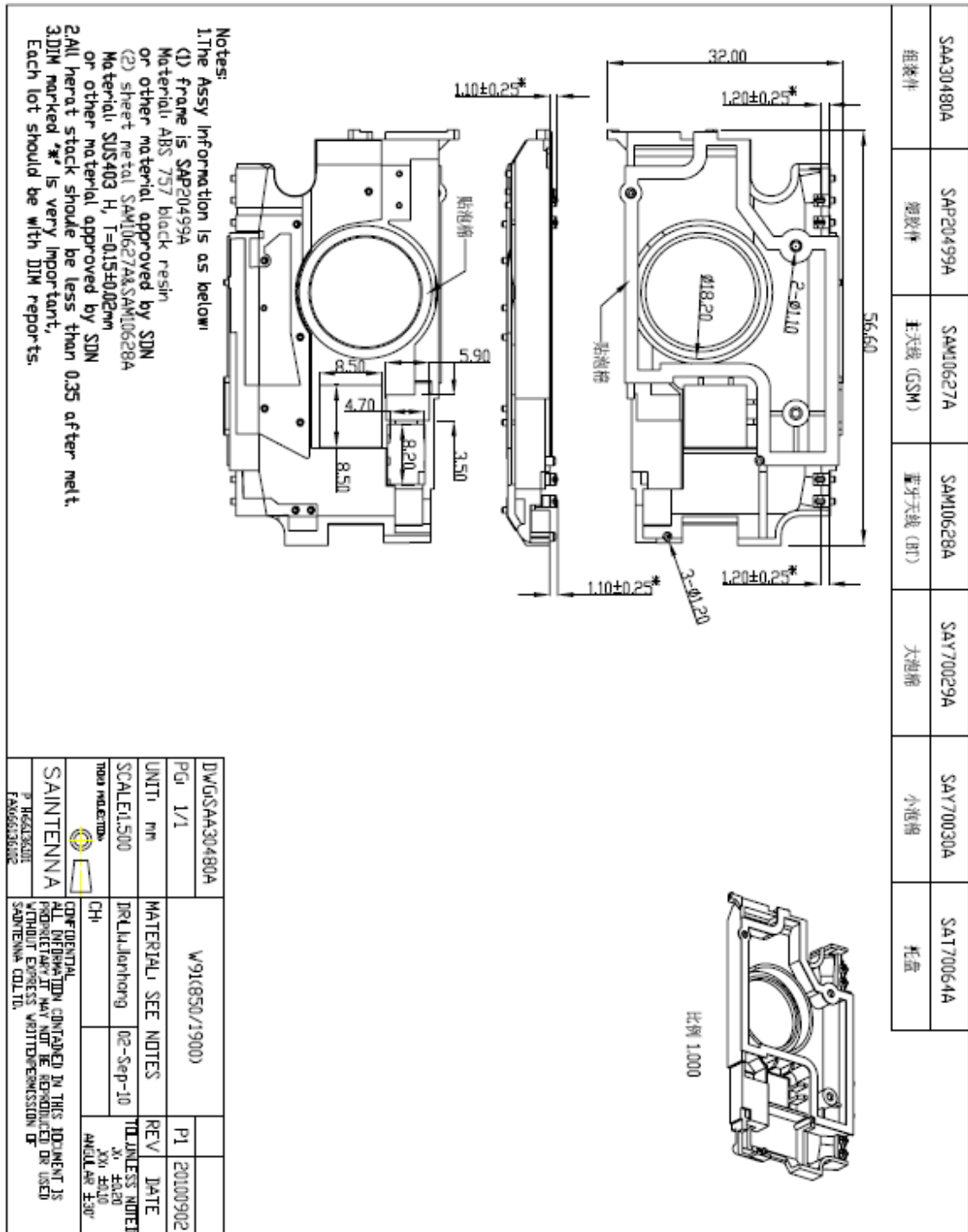
Antenna Mounting

The antenna will be designed for a heat stake mount to the Cell phone enclosure or an antenna support, depending on the design. This design will require features (heat stake posts) to be added to the Cell phone enclosure. Saintenna will provide recommendation and design files for the customer to make the appropriate modification to their mechanical design.

Connection Type

The interface between the antenna and the antenna pads on the PCB will be mechanical spring contact, or pogo pin contact point, depending on the customer requirements. This design is using spring contact.

4. Spec/Engineer drawing



5. All dimensions report



ANTENNA SPECIFICATION
Project Number: S0394

Rev. 1.0

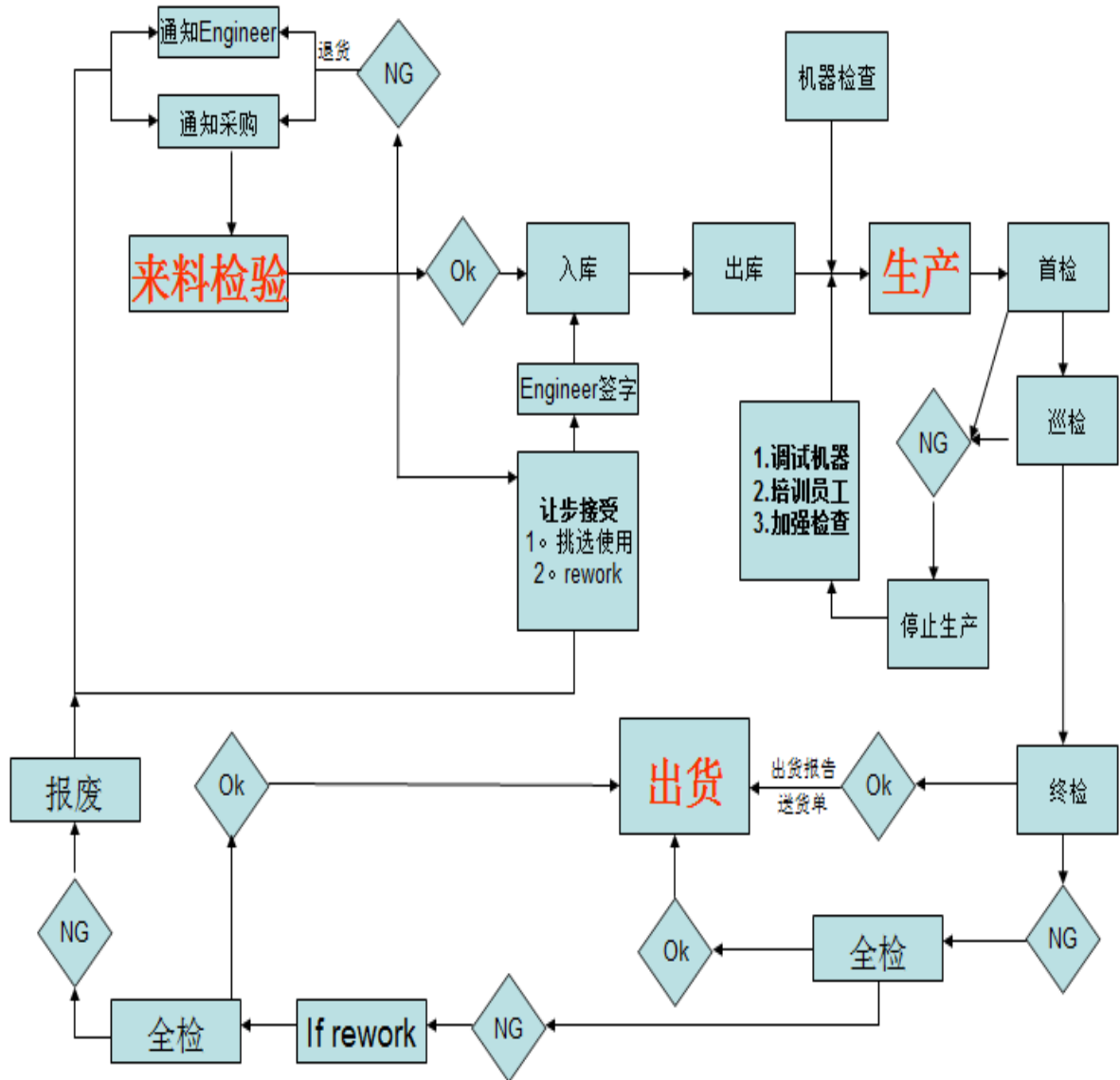
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Shanghai Saintenna Electronic Technology Co., Ltd.

品名	W91						客户名称	华勤		
料号	SAA30490A						客户编号	HQ20601700138		
规格	内置GSM天线组						制表日期	2010-9-2		
编号	SPEC	MIN	MAX	1	2	3	4	5	判定	备注
尺寸检测	56.60	56.50	56.70	56.58	56.57	56.59	56.63	56.64	OK	
	32.00	31.90	32.10	31.98	31.97	31.99	32.03	32.04	OK	
	1.20	0.95	1.45	1.18	1.17	1.19	1.23	1.22	OK	
	1.10	1.00	1.20	1.08	1.07	1.09	1.13	1.12	OK	
	18.20	18.10	18.30	18.18	18.17	18.19	18.23	18.22	OK	
	1.20	0.95	1.45	1.18	1.17	1.19	1.23	1.22	OK	
	1.20	1.10	1.30	1.18	1.19	1.19	1.23	1.22	OK	
9	1.10	0.85	1.35	1.07	1.05	1.08	1.12	1.07	OK	
10	5.90	5.80	6.00	5.88	5.87	5.89	5.93	5.92	OK	
11	3.50	3.40	3.60	3.48	3.47	3.49	3.53	3.52	OK	
12	8.20	8.10	8.30	8.18	8.17	8.19	8.23	8.22	OK	
13	8.50	8.40	8.60	8.48	8.47	8.49	8.53	8.52	OK	
14	4.70	4.60	4.80	4.68	4.67	4.69	4.73	4.72	OK	
15	8.50	8.40	8.60	8.45	8.46	8.48	8.55	8.51	OK	
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
外观要求	√ <input type="checkbox"/> ok						<input type="checkbox"/> NG			
最终判定	√ <input type="checkbox"/> ok						<input type="checkbox"/> NG			

6. Manufacturing flow chart

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制造流程图



7. Process control sheet



上海圣丹纳电子科技有限公司																
(IPQC)巡 检 记 录 表																
编码: PG-8.2.3-03-A0										文件编号:						
客户	华勤			料号	HQ20601400138			日期				批号				尺寸/外观:1PCS/5pcs
尺 寸 检 查(单位: mm)																
序号	规格															
1	2.19+/-0.30															
2	0.8+/-0.30															
3	37.3+/-0.10															
4	14.8+/-0.10															
5																
6																
7																
8																
9																
10																
外 观 检 查																
1	压伤															
2	变形															
3	缺料															
4	毛刺															
5	污点															
6	热熔															
7																
8																
9																
	螺母位置															
说明: 外观检查5PCS, 如此项确认“ok”时则填“√”, 如NG时则写不良数																
备注																

8. Reliability of test report

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The antenna has been tested and passed the environmental specifications and reliability tests listed in this section. The antenna tested was of a similar design, with shrapnel contacts and heat stake mounting. The materials and construction methods are equivalent.

Item		Specification	Test Method
Heat resistance	Visual	No evidence of mechanical damage	Dwell in 90 +/- 2°C chamber for 96 hours then stabilize at room temperature for measurement.
	Δ R/R	+/- 0.5% of the initial value	
Temperature cycle	Visual	No evidence of mechanical damage	Perform 10 cycles as follows: -40 +/- 2°C for 30 minutes 90 +/- 2°C for 30 minutes
	Δ R/R	+/- 0.5% of the initial value	
Moisture resistance	Visual	No evidence of mechanical damage	Dwell in test chamber at +65° C and 90 to 95% Relative Humidity for 96 hours and then stabilize at room temperature for measurement.
	Δ R/R	Minimum 1 +/- 0.5 N of force required for deflection.	
Corrosion (IEC 68-2-11)	Visual	No evidence of mechanical damage	Exposed to 5% sodium atmosphere at +35°C for 96 hours.
	Δ R/R	Minimum 1 +/- 0.5 N of force required for deflection.	

9. Bill of major material

The whole part is composed of the shrapnel and plastic; The material of shrapnel is Sus304H, Composition is as below:

日期: 2010-01-02

序号	钢卷号	机台	型号	数量 (件)	重量 (kg)	化学成分 (%)							
						C	Si	Mn	P	S	Ni	Cr	N
1	40-02-135-1	1	0.15	1	-	0.047	0.390	1.060	0.035	0.005	8.060	18.340	0.037
2													
3													
4													

序号	机械性能			硬度测试	宏观检查	
	屈服强度 Re Map	抗拉强度 Rm Map	伸长率%	HV	表面外形	尺寸检验
1	887	1130	-	396	合格	合格
2						
3						
4						

The material of plastic is ABS granule, Composition is as below:

Acrylonitrile-butadiene-styrene copolymer

10. Standard of packaging

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The antennas will be packed in compartmentalized vacuum formed trays. The trays are packed in a corrugated cardboard box. Each box must be with the same amount except mantissa, and OQC report should be in the mantissa. The box will be labeled for shipping;

The label should provide the following information:

- Customer PN
- Production Model
- Packing Count
- Produce Date
- Sales Order Number
- Rohs label
- Notice: the information must be printed, no writing

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11. Report of output(OQC)

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上海圣丹纳电子科技有限公司
Shanghai Saintenna Elcetricon Technology Co., Ltd.

出 货 产 品 报 告 书

品名	W91					客户名称	华勤				
料号	SAA30458A					客户编号	HQ20601700138				
规格	V71天线组件					制表日期	2010-9-2				
AQL值	CR: 0		Major:0.65			Minor:1.00			单位: mm		
抽样标准:		MIL-STD-105E II级					抽样数:		批量		
NO	SPEC	UP	LOW	1	2	3	4	5	判定	备注	
1	56.60	56.70	56.50	56.57	56.64	56.58	56.59	56.62	OK		
2	32.00	32.10	31.90	31.97	32.04	31.98	31.99	32.02	OK		
3	1.20	1.45	0.95	1.17	1.24	1.18	1.19	1.22	OK		
4	1.20	1.45	0.95	1.18	1.22	1.16	1.15	1.23	OK		
5	1.10	1.35	0.85	1.07	1.14	1.08	1.05	1.12	OK		
6	1.10	1.35	0.85	1.06	1.08	1.04	1.07	1.15	OK		
7											
8											
9											
10											
11											
12											
13											
14											
15											
16	热熔螺母扭力测试 $\geq 0.8kgf*cm$										
电性能	是否符合封样产品								OK	见续页	
外观	目测								OK		
最终判定	是否合格 (盖章)										
制表						审核					

12. Limited substance surveying sheet for ROHS

Limited substance for ROHS in the shrapnel can be found viewing the first chart;
And the second chart surveying the limited substance in the plastic.
It see the substance can meet the ROHS standard.

化学方法的试验结果 (单位: mg/kg)

测试项目:	方法 (参见)	1	MDL	RoHS 限值
镉(Cd)	(1)	ND	2	100
铅(Pb)	(2)	ND	2	1000
汞(Hg)	(3)	ND	2	1000
点测试沸水萃取法测六价铬(Cr VI)	(4)	Negative	#	-

Test Item (s):	Method (Refer to)	Result	MDL	RoHS Limit
		No.1		
Cadmium (Cd)	(1)	n.d.	2	100
Lead (Pb)	(2)	n.d.	2	1000
Mercury (Hg)	(3)	n.d.	2	1000
Hexavalent Chromium Cr(VI) by alkaline extraction	(4)	n.d.	2	1000

13. ROHS authentication report



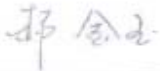
测试报告 No. SH9052970/CHEM Date: Apr. 2, 2009 Page 1 of 4

苏州旭景金属材料有限公司
江苏省昆山市陆杨镇友谊南路 66 号

委托检验的样品及客户对样品的说明如下:

样品名称 : SUS304
SGS 相关号 : 11719471-2
样品收到日期 : 2009-03-30
样品试验日期 : 2009-03-30—2009-04-02
试验要求 : 参照 RoHS 指令 2002/95/EC 及后续修正指令。
试验方法 : 参照 IEC 62321:2008:
(1) 用 ICP 测定锡的含量
(2) 用 ICP 和 AAS 测定铅的含量
(3) 用 ICP 测定汞的含量
(4) 用点测试法/比色法测定六价铬的含量
试验结果 : 见后续页
试验结论 : 基于所送样品进行的测试, 测试结果与欧盟 RoHS 指令 2002/95/EC 以及后续修正指令的要求相符。

SGS-CSTC 化学实验室授权签字



郝金玉
实验室经理

本报告发布日期为 2009 年 04 月 02 日编号为 SH9052970/CHEM 英文检测报告中文译本, 如有异议, 以英文版本为准。

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SHCHEM 2547639



测试报告

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Date: Apr. 2, 2009

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化学方法的测试结果 (单位: mg/kg)

测试项目	方法 (参见)	1	MDL	RoHS 限值
镉(Cd)	(1)	ND	2	100
铅(Pb)	(2)	ND	2	1000
汞(Hg)	(3)	ND	2	1000
点滴测试/沸水萃取法测六价铬(Cr VI)	(4)	Negative	#	-

测试部件外观描述:

1. 银色金属板

备注:

- (1) 毫克每千克=百万分之一(mg/kg=ppm)
- (2) ND = 未检出
- (3) MDL = 检测限值
- (4) # = 点滴测试:
 Negative = 镀层中未检测到六价铬, Positive = 镀层中检测到六价铬;
 (当点滴测试结果为 Negative 或无法确定时,将采用沸水萃取法作进一步的结果验证。)
 沸水萃取法:
 Negative = 镀层中未检测到六价铬
 Positive = 镀层中检测到六价铬;表明 50 cm² 表面积的被测试样品的沸水萃取液中六价铬的浓度等于或大于 0.02 mg/kg
 针对金属表面的防腐涂层,由于未获知样品的存储条件和生产日期,样品的六价铬测试结果仅代表测试时样品的状态
- (5) "-" = 未规定
- (6) 最大允许限值引用自 2002/95/EC RoHS 指令和后续修正指令 2005/618/EC.

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测试报告

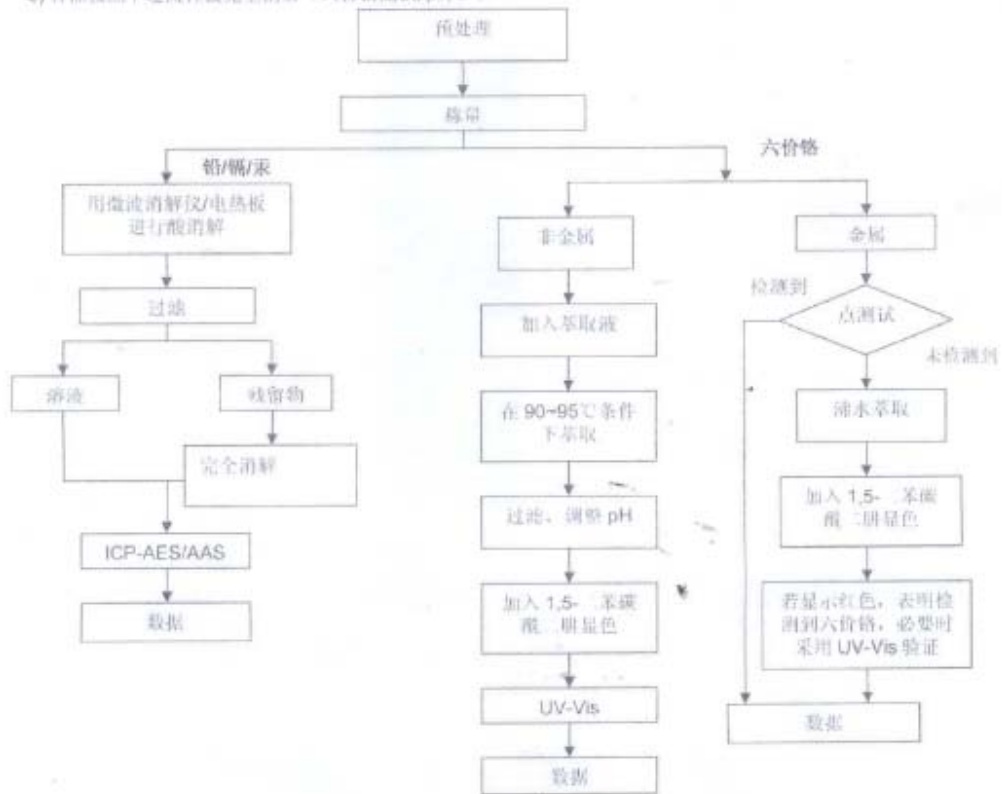
No. SH9052970/CHEM

Date: Apr. 2, 2009

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附件

- 1) 分析人员: 张春华/赵超群/方何奇
- 2) 项目负责人: 丁卫
- 3) 样品按照下述流程被完全溶解 (六价铬测试除外)。



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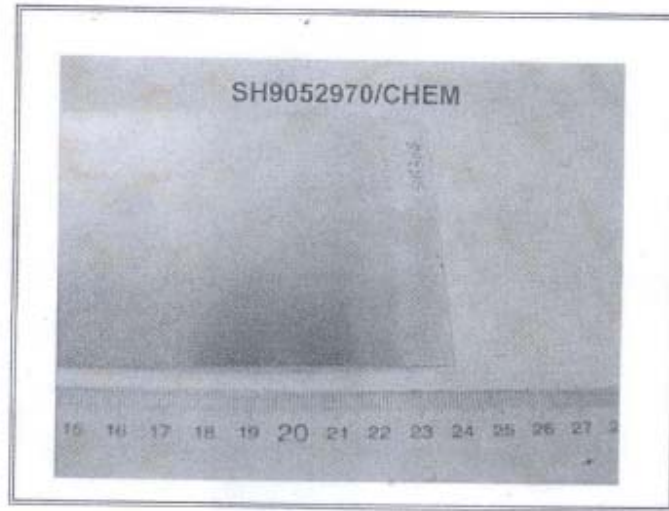
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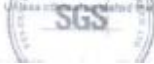
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ANTENNA DESIGN/TEST REPORT

华勤 W90

GSM850/PCS/ W850/W2100 BAND

Rev	B	Author: 沈波	
Date	2010-9-1	Check: 曾至慧	
Shanghai Saintenna Electronic Technology Co., Ltd.			

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1 Summary

1.1 Description of EUT

Equipment under Test (EUT) is a model of phone detailed as below.

Description	Model	Serial Number	Manufacturer
Handset	W90		

2 Test Results

2.1 Matching Circuits

0ohm

2.2 TRP/TIS Data

Band	Channel	TRP	TIS
GSM850	128	26.43	-105.5
	190	27.66	-104.1
	251	28.72	-103.5
PCS1900	512	26.6	-105.1
	661	26.3	-105.6
	810	26.2	-105.3
W850	4132	18.46	-107.71
	4183	19.43	-106.98
	4233	19.58	-104.90
W2100	9612	21.9	-102.90
	9750	20.1	-102.80
	9888	19.8	-104.3

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