

Specification For Approval

Date: 2016 / 11 / 16

File No.: 161116002

Version: 1.0

Customer: 聯豪

Customer P/N: _____

INVAX P/N: SM-H004-01CN

Description : Antenna

Cortec Checked By:

Customer Approved By:

LINKHIGH
2016.11.17
承认章

Invax 

INVAX System Technology Corp.

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1. Revision History

Revision	Date	Change Notification	Description
1.0			

2. Specification

Sample Photo



A. Electrical Characteristics

Frequency	2400~2500 MHz
S.W.R.	≤ 2.0 @ 2400 ~ 2500 MHz (For Machine)
Antenna Efficiency(%)	43 ~ 49% @ 2400 ~ 2500 MHz
Polarization	Linear
Impedance	50 Ohm

B. Material & Mechanical Characteristics

Material of Radiator	C7521
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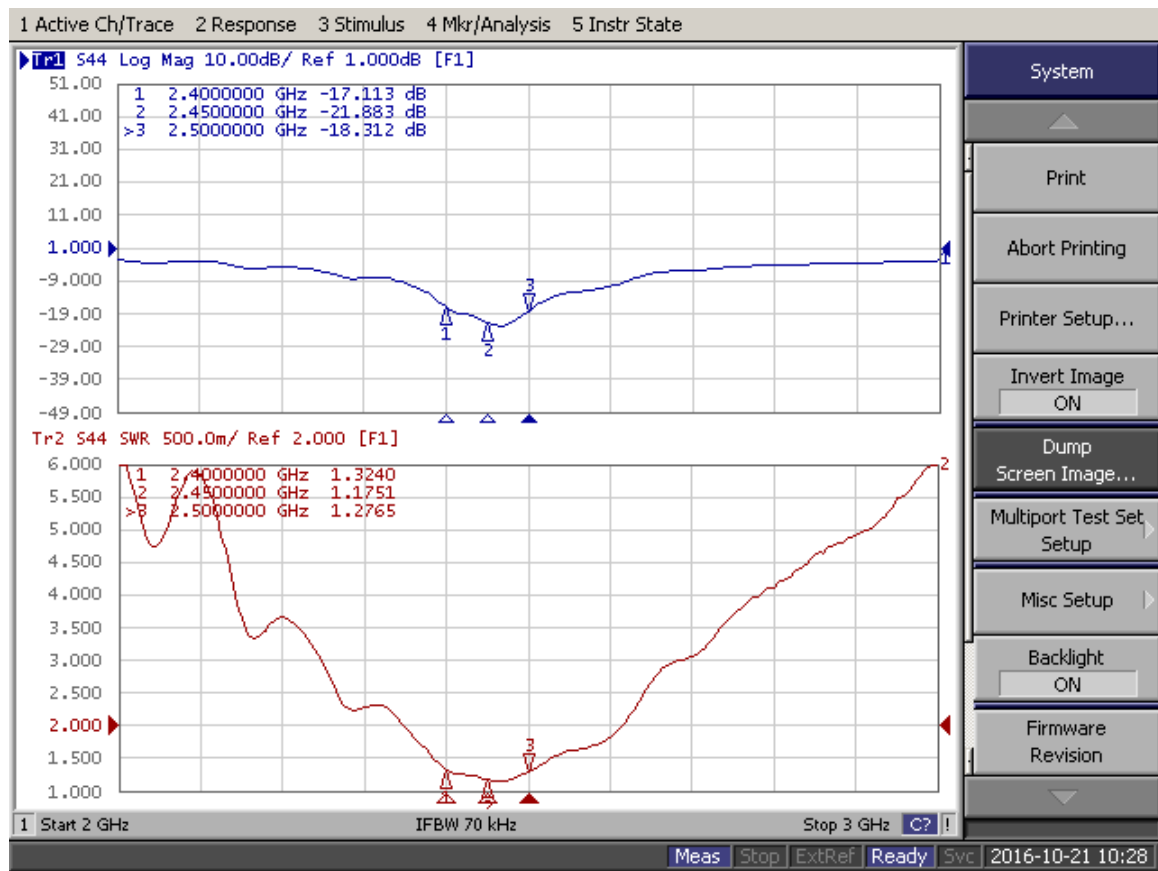
C. Environmental

Operation Temperature	- 40 °C ~ + 65 °C
Storage Temperature	- 40 °C ~ + 80 °C

3. Characteristics and Reliability Test

Test Items		Test Condition and Procedure	Requirements
C1	S.W.R.	Set DUT on Network Analyzer; make individual calibration to test	Directive DUT specification
C2	Antenna Gain	Set DUT on Antenna Chamber; make individual calibration to test	Directive DUT specification
M1	Vibration	GB / T2423 . 48-1997 Amplitude: 0.03 inch (1.5mm); Freq: 20 to 80 to 20 Hz 3 directions; 2 hours for each direction	1. No Visual Damage 2. Frequency Tol.<= 5%
M2	Random Drop	GB / T2423.8-1995 Height: 0.76 Meter/1Kg; 6 faces, 8 corners, 12 edges; 2 time for each direction	1. No parts separated 2. Frequency Tol.<= 5%
M4	Terminal-Pull Test	Holding with individual specification; force applied to axis of terminal	1. Directive DUT specification 2. Frequency Tol.<= 5%
M5	Terminal-Torque Test	Holding with individual specification; applied clockwise and counterclockwise to the axis of terminal	1. Directive DUT specification 2. Frequency Tol.<= 5%
M6	Dimension	Inspection of dimension, color, material, package, surface process	Directive DUT specification
E1	Salt Spray	GB / T 2423 . 17- 93 Temp: 35°C; RH: >= 95%; NaCl solution: >= 5%; Time: 24 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E2	Humidity	GB / T 2423 . 4 - 93 Temp: 70°C / 24 H; -20°C / 24H RH: >= 95%; Time: 48 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E3	Thermal Shock	GB / T 2423 . 22 - 87 1 Cycle: - 20°C (30 minutes) to + 70°C (30 minutes) Cycles: 72H	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E4	Life (High Temp.)	GB /T 2423 . 2 - 89 Temp: 70°C; Time: 48 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
R1	RoHS	With Reference to IEC 62321:2008 with flow chart	Directive RoHS 2011/65/EU
R2	PFOS	With Reference to USA EPA 3540C:1996 by LC/MS	Directive RoHS 2006/122/EC
R3	PFOA	With Reference to USA EPA 3540C:1996 by LC/MS	Directive RoHS 2006/122/EC

4. Antenna - S Parameter and Radiation Pattern Test Data



Testing Equipment Specification:

Antenna Anechoic Chamber Dimension: 8 x 4 x 4 m

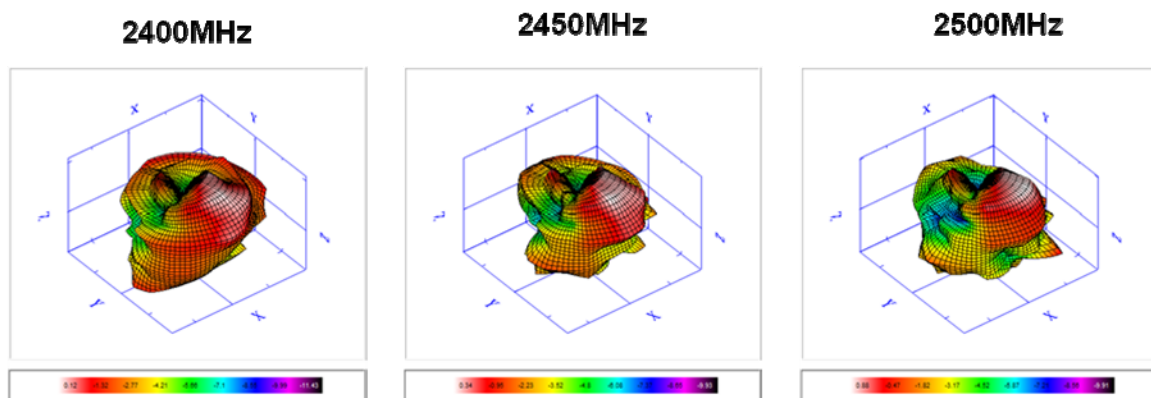
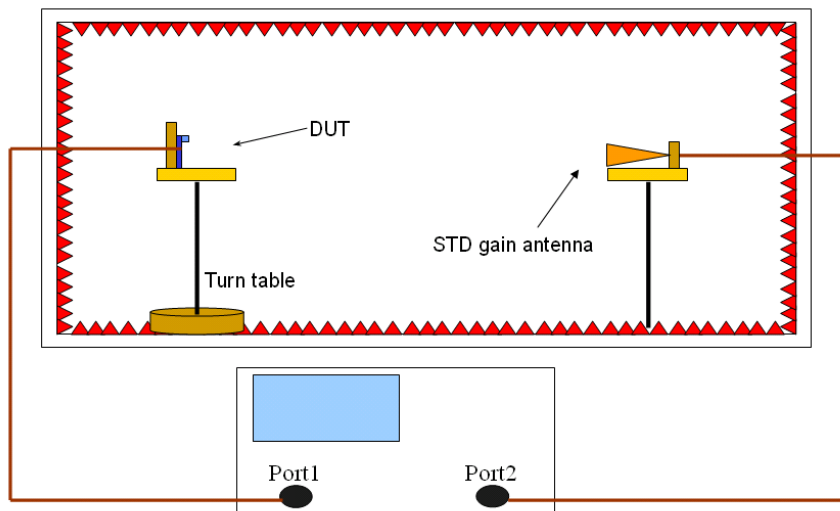
Quiet Zone: 600mm @1 GHz

Isolation: >100dB @ 1 MHz ~ 10 GHz

Testing Equipment: Agilent 5071B

Received Antenna: 0.7 ~ 6.0 GHz for Gain Calibration

Double Ridged Horn Antenna



Frequency	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
E-Total Peak Gain (dBi)	0.12	0.01	0.18	0.46	0.57	0.34	0.98	1.47	1.42	1.39	0.88
Efficiency (%)	44.46	45.56	46.85	46.62	45.92	44.11	48.22	48.66	49.69	48.16	48.1
Average Gain (dB)	-3.52	-3.41	-3.29	-3.31	-3.38	-3.55	-3.17	-3.13	-3.04	-3.17	-3.18

5. Mechanical Drawing

See attached files

6. Material Description and RoHS Test Report

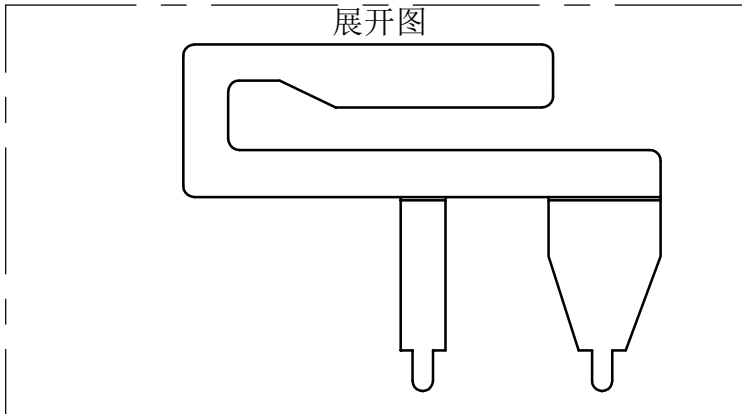
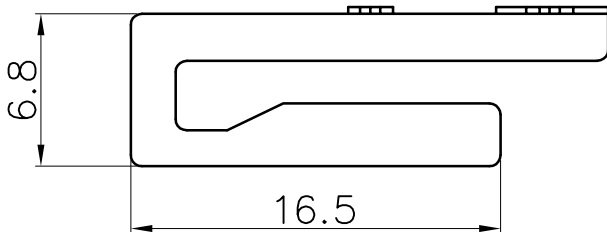
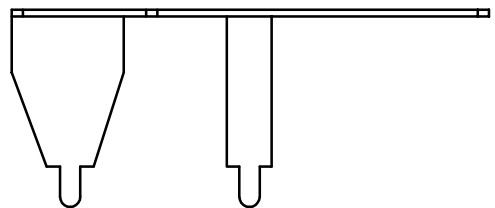
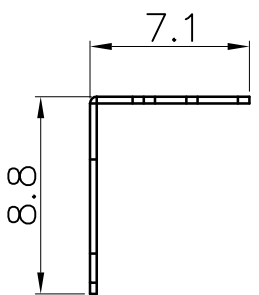
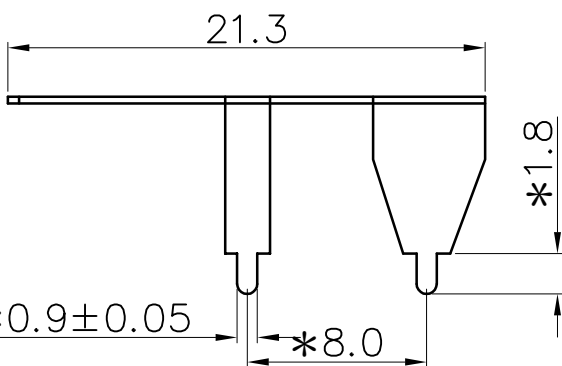
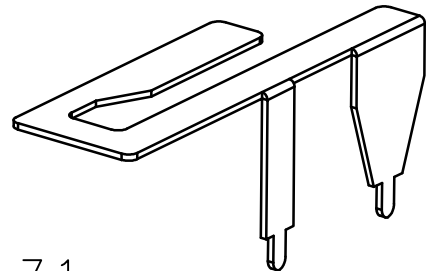
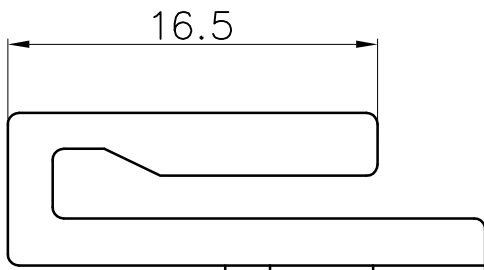
See attached files

RoHS

Compatible



SIGN	DATE	DESCRIPTION	APPROVER
△			
△			
△			



备注:

- 1. 材质: C7521 T=0.3mm
- 2. 表面处理: 鍍銀 120U"
- 3. 尺寸: 带*为重点尺寸;带Cpk尺寸需做制程能力管控(≥ 1.33)
- 4. 公差: 未标注公差请参照标准公差.
- 5. 毛边一致向内.
- 6. 粗糙度: 表面未注粗糙度按 $1.6/\sqrt{\quad}$; 切面 $12.5/\sqrt{\quad}$
- 7. 孔及相关配合尺寸以实配为准.
- 8. 环境等检验请参照《天线检验标准》及《承认书》.

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Cortec
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E-mail: info@invox.com.tw

Cortec Technology Inc.
Tel: 886-2-27885218
Fax: 886-2-27831658

TITLE: 金属片					
PART NO.: SM-H004-01CN			CUSTOMER P/N: /		
APP BY	CHK BY	RF BY	DES BY	Tolerance	X.X ±0.1 X.XX ±0.05 X° ±1
Grant	Jack	TW	Kenny		
2016/10/24	2016/10/24	2016/10/24	2016/10/24	UNITS: mm	
				SCALE: 3/1	
				REVISION: A	



东莞市金峰金属材料有限公司
DONG GUAN JINFENG ALLOY MATERIAL .CO.,LTD

产品技术质量证明书

NO.0018262

PRODUCT CERTIFICATE

合同号(Contract No.): _____
货单位(Buyer): _____

运输号 Transport No.		到站 Destination	
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日期(Date): 2007年(y) 05月(m) 22日(d) 包装(packting) () 件(Pcs) TXCY/JL/JJ10-032

产品名称 Description	金属及合金牌号 Designation of Alloys	状态 Temper	规格(mm) Size	数量(kg) Quantity	技术条件 Specification	加工批号 Processing Batch No.	熔炼批号 Melt No.	制造方法 Manufacture Methods	班次 Shift No.
锌白铜带	C7521	H/2	0.3		参照 Ge/F14P45-64	752001001-04	Z42129	压延	016

机械性能及其它检测项目(Mechanical properties and inspection items)

抗拉强度 (Mpa) Tensile strength	延伸率 () % Elongation	硬度 (HV) Hardness	晶粒度 (mm) Grain Size	电阻率 () 导电率 (IACS%)	缠绕试验 Wrapping Test	扩口试验 Expansion	压扁试验 Flattenig Test	内应力试验 Residual Stress	断口试验 Fracture Surface Test	探伤检查 Nondestructive Test	表面质量 尺寸检查 Qual.and Dim	合格印鉴 Accepted Signet
513	26.5	180	/	/	/	/	/	/	/	Ok	Ok	

化学成份(Composition)(%)

杂质 Impurity	化学成份 Composition	填表 List-maker
0.04%	OK	



说明: 1. 买方在货物及资料到达之日起十五日内提出书面异议, 请将本证书或复印件寄回, 以便处理;
2. 本产品技术质量证明书检测项目填实测数据, 定性检测项目合格划“√”, 不检测项目划斜线“/”;
3. 本产品技术质量证明书未加盖产品合格证专用章无效;
4. 本产品技术质量证明书复印无效。

地址: 东莞市长安镇沙头南区振安中路 509 号 邮编: _____ 电话: 0769-81666008

Note: 1. If there are any discrepancies after buyer's inspection, it's buyer's responsibility to inform the seller in written form 15 days after the date of receiving of the products and documents, please submit this Product Certificate or its duplicates to seller for disposal.
2. In this Product Certificate, actual data for quantitative analysis, acceptance shall be signed with "√" for quantitative analysis and diagonal ("/") for non-inspected items.
3. This is invalid without a special signet of product certification.
4. This product Certificate is invalid if it is copied.

Test Report

No. CANEC1606164101

Date: 18 Apr 2016

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DONGGUAN CITY QUANDA METAL MATERIAL CO.,LTD

DONGHUA SCIENCE AND TECHNOLOGY PARK,NO.2, DONGHUA, XIAOBIAN, CHANG AN TOWN,
DONGGUAN

The following sample(s) was/were submitted and identified on behalf of the clients as : Nickel Silver Copper

SGS Job No. : CP16-021147 - GZ

Model No. : C7521

Date of Sample Received : 13 Apr 2016

Testing Period : 13 Apr 2016 - 18 Apr 2016

Test Requested : Selected test(s) as requested by client.

Test Method : Please refer to next page(s).

Test Results : Please refer to next page(s).

Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch



Merry Lv
Approved Signatory



SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch Testing Service Chemical Laboratory

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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

198 Kezhu Road, Sciencetech Park Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075113 www.sgs.com.cn
中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075113 e sgs.china@sgs.com

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN16-061641.001	Silver-grey metal sheet

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : (1)With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.
 (2)With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.
 (3)With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.
 (4)With reference to IEC 62321-7-1:2015 , determination of Hexavalent Chromium by Colorimetric Method using UV-Vis.

Test Item(s)	Limit	Unit	MDL	001
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	21
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm ²	0.10	ND

Notes :

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (2) ▼= a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm2. The sample coating is considered to contain CrVI
 b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 µg/cm2). The coating is considered a non-CrVI based coating
 c. The result between 0.10 µg/cm2 and 0.13 µg/cm2 is considered to be inconclusive - unavoidable coating variations may influence the determination

Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

IEC 62321 series is equivalent to EN 62321 series

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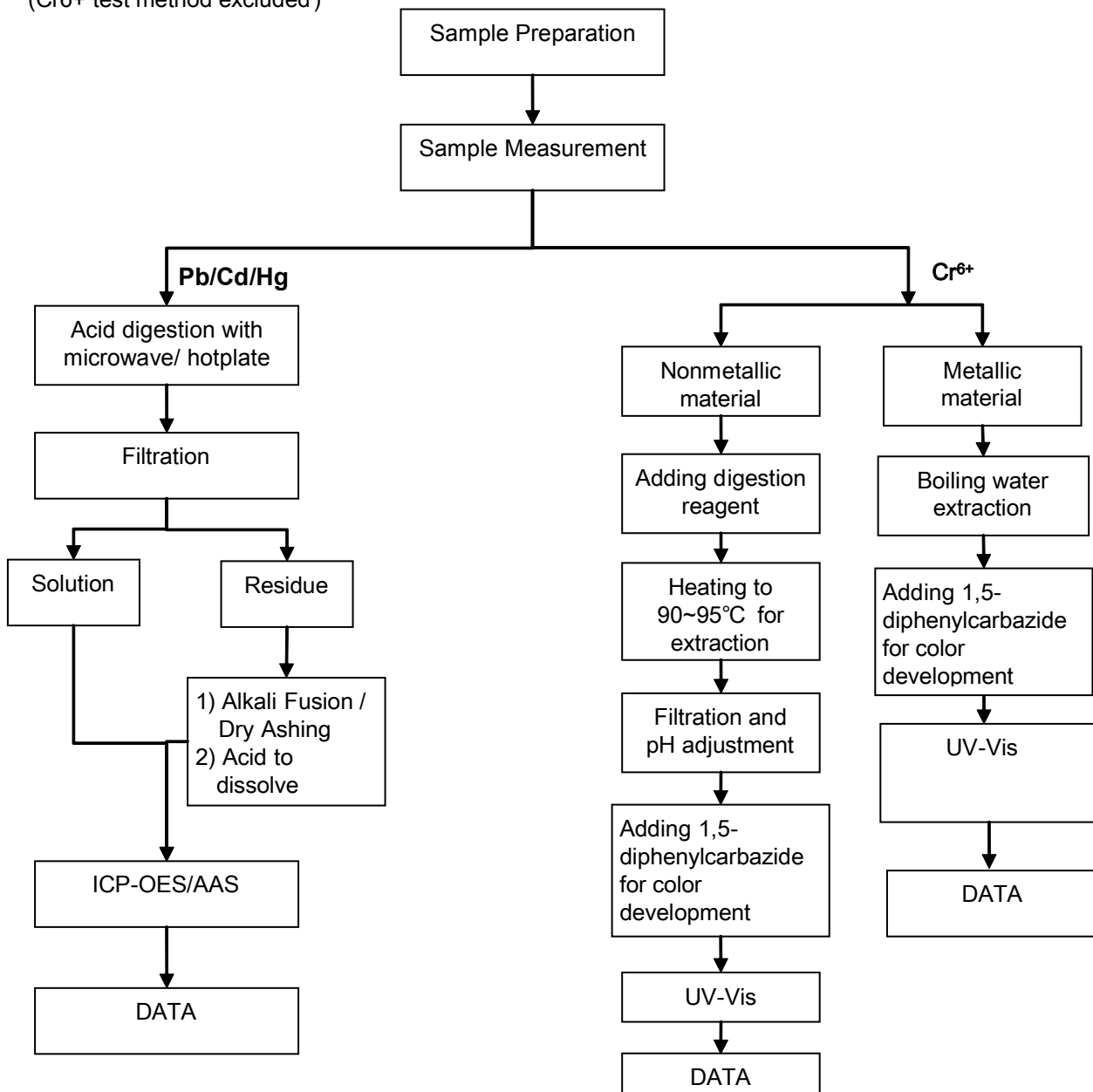
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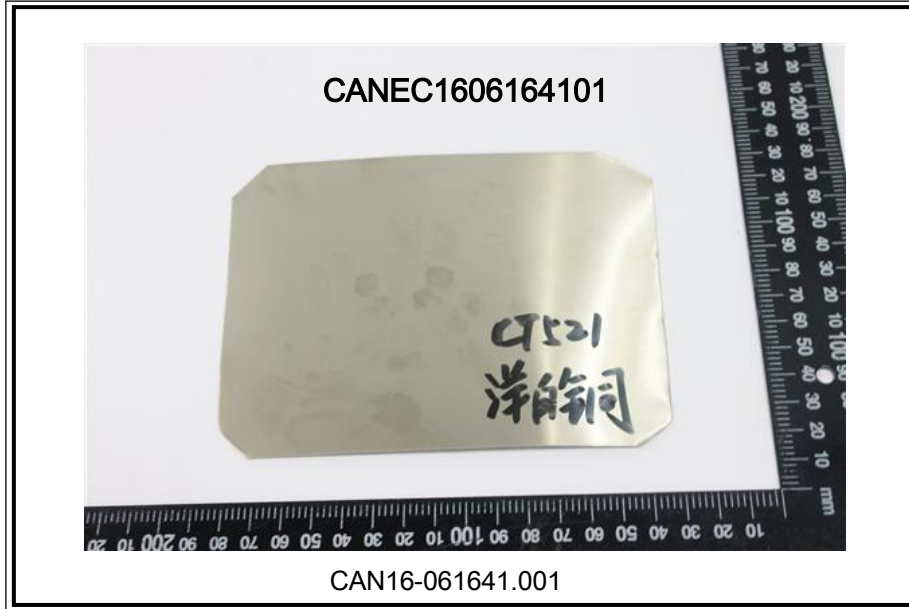
ATTACHMENTS

Pb/Cd/Hg/Cr⁶⁺ Testing Flow Chart

- 1) Name of the person who made testing: Bruce Xiao
- 2) Name of the person in charge of testing: Bella Wang
- 3) These samples were dissolved totally by pre -conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)



Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***