Vehicle VOC test chamber introduction

东莞市升微机电设备科技有限公司
SIMPLEWELL TECHNOLOGY CO., LTD

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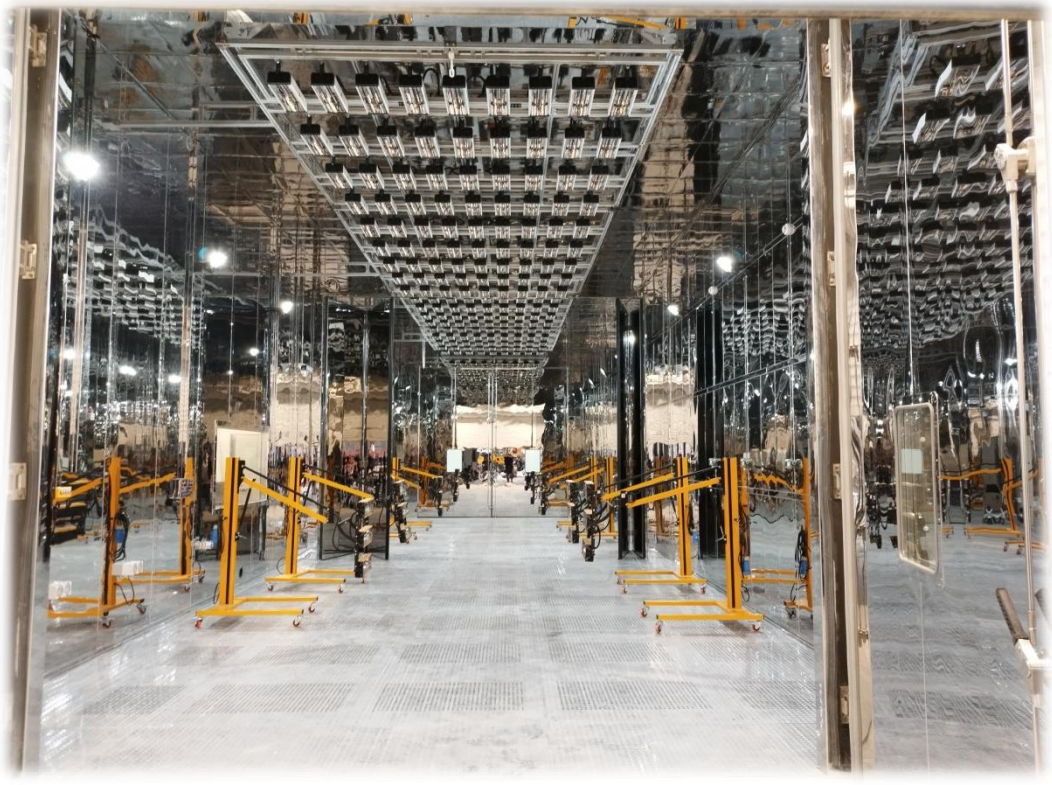
Simplewell昇微

◆Temperature index
Temperature range: 20℃~30℃ high temperature cleaning (70℃)
Temperature deviation ±1℃
Temperature fluctuation ±0.5℃
Measurement accuracy ±0.1℃
◆ Humidity index
Humidity range: 40~70% R.H.
Humidity deviation ±5% R.H.
Fluctuation degree: ±1% R.H
◆Chamber pressure
10~50pa
◆Ventilation volume
Adjustment range 300~1200m³/H, air change rate 2.0-10 times/h
◆Wind speed
≤0.3 m/s air outlet from the ceiling mesh at the top, air return from the bottom ≤0.3 m/s, the measuring point is >0.5M away from the car body
Environmental chamber pollutant background concentration value : blank background (unit mg-m³) 1. Benzene content <0.010; 2. Toluene ≤ 0.02; 3. Xylene ≤ 0.02; 4. Ethylbenzene ≤ 0.02; 5. Styrene ≤ 0.020; 6. Formaldehyde ≤ 0.02; 7. Acetaldehyde ≤ 0.01; 8. Acrolein ≤ 0.01; 9. TVOC content < 0.200; 10. Single VOC and aldehydes and ketones ≤ 0.020 Ensure that the single-component VOC is less than 0.02mg/m³, or the single-component VOC is less than 10% of the limit value, the formaldehyde content is <0.02mg/m³; the TVOC content is <0.2mg/m³

Product presentation

Appearance



Internal

Product presentation

- **Equipment door optional**

Electric sliding door

Double door

Product feature

- **The VOC treatment device inside the test chamber is simply arranged for easy cleaning and maintenance.**

1. The internal air treatment system is arranged on the side of the test chamber and is made of stainless steel. The air handling system is not arranged at the bottom to facilitate bottom cleaning (there are dripping oil, dust and clean water from the car at the bottom, which must be cleaned). There is an air handling system at the bottom that cannot be cleaned. Side-mounted air handling systems do not have this drawback. Meanwhile, replacement and maintenance are easy. If there is water at the bottom, the activated carbon in the bottom air treatment system will fail. (See Figure 1)
2.The air handling system is arranged on the side and divided into many compartments. The air handling device adopts multi-unit processing, and the drawer structure is installed, disassembled and maintained. Extremely easy to use. The installation seal of each unit is made of polytetrafluoroethylene and fixed with screws. (See Figure 1)
3. The test chamber adopts a ceiling air supply and bottom floor trough air return structure, and the wind direction is controlled by an up and down air supply method. If the customer does not allow a floor trough at the bottom, use side air return, and the wind speed and other parameters will not be affected (see Figure 1)
Adopt: Air circulation fan at the top of the air-conditioning room → Ceiling mesh plate → Floor trough, side return air baffle → Internal filter → Air-conditioning room side return air outlet Ensure that the air flow is in the up and down direction, and the wind speed is within 0.3M/S

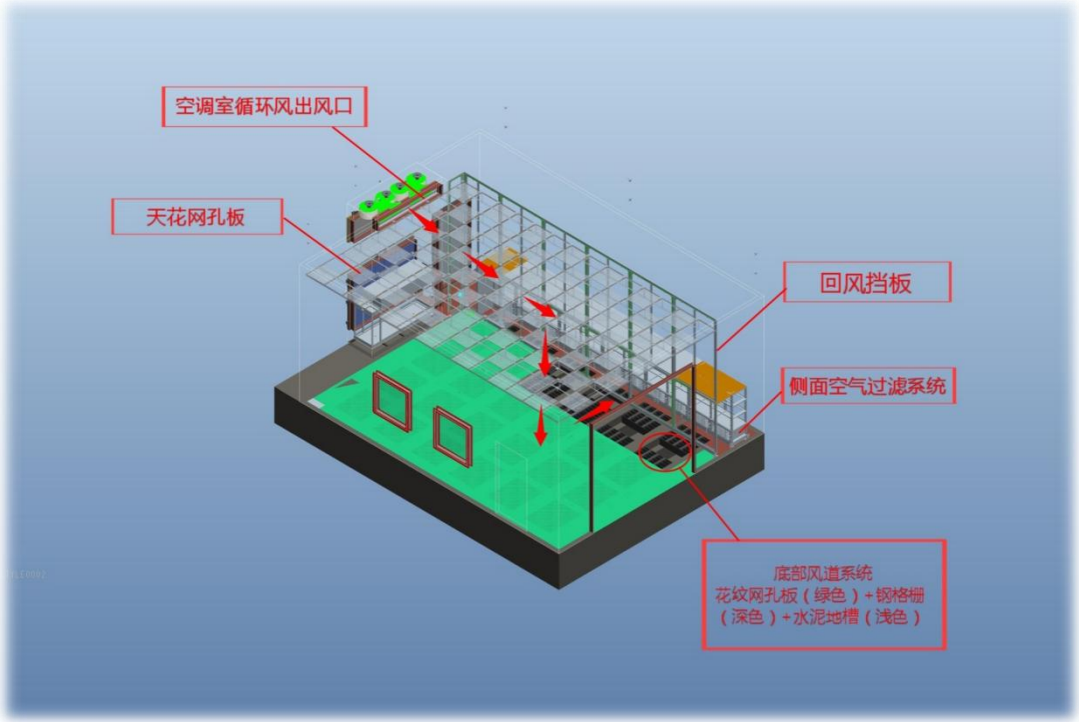
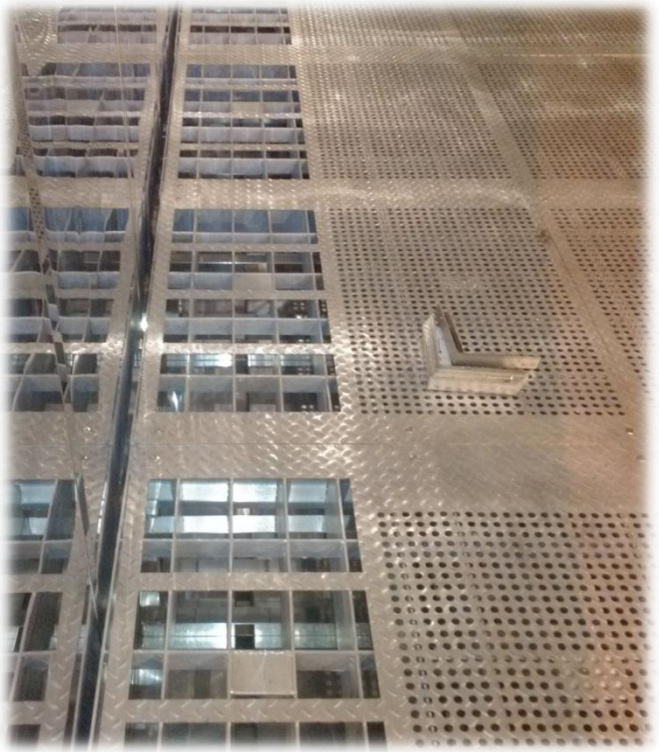


Figure 1 Air duct + floor trough return air + side internal air handling system

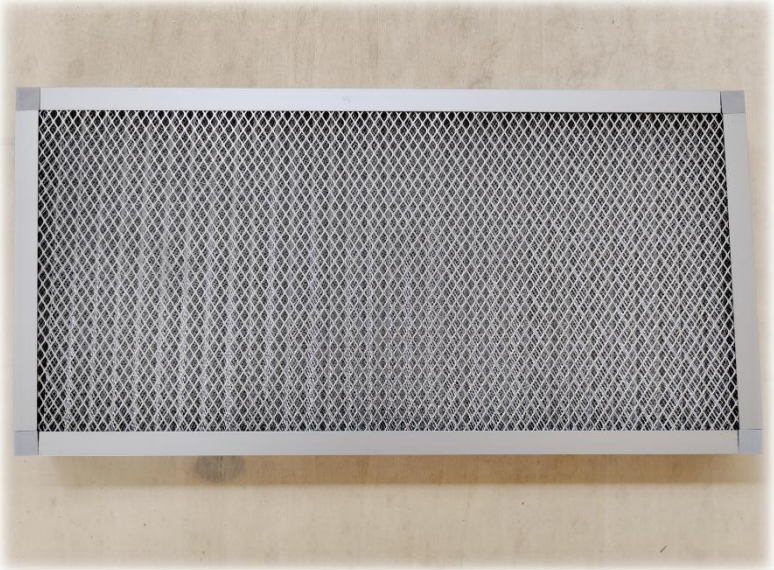


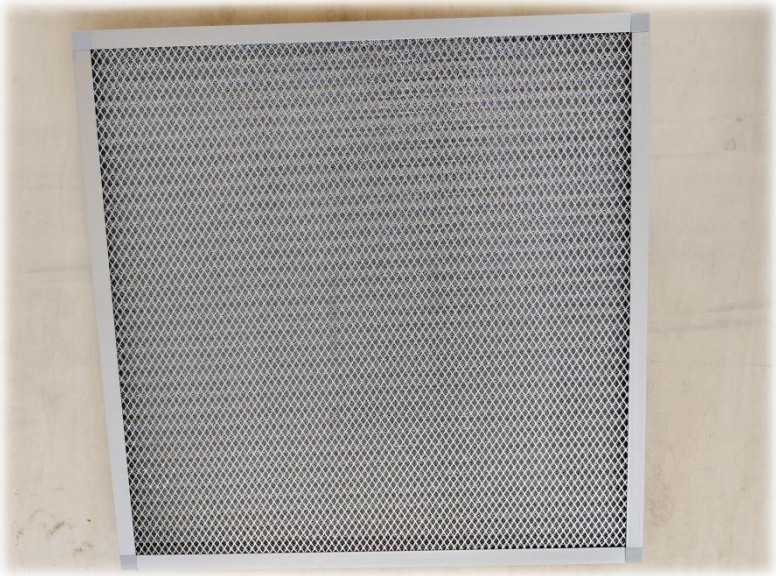
Steel grating + pattern plate

Product feature

• High efficiency/safe filter

•The air treatment VOC/formaldehyde unit uses imported products, with a theoretical treatment efficiency of up to 99.5%.
•VOC/formaldehyde treatment materials pass UL fire protection certification
•Non-toxic. No pollution. No bacteria/mold growth.
•The dust filter in the air handling unit is made of metal, a product of a Sino-Japanese joint venture, and has no flammable fire risk.
•The filter material in the air treatment device outside the test chamber is also an imported filter.
•The filter material has a large adsorption ratio of pollutants per unit weight, extending the service life of the filter material and ensuring a material replacement period of more than 2 years (the material used by SGS actually reaches a 5-year replacement period). The nitrogen oxide adsorption ratio is 6.6%, the toluene adsorption ratio is 20%, and the formaldehyde removal ratio is 2.5%.
•The side arrangement of the VOC filter material prevents water from entering the filter material when cleaning the storage board, and also extends the service life of the filter material.
•The imported filter material adsorbs a wide range of volatile organic compounds, and effectively adsorbs formaldehyde/VOC/hydrocarbons/nitrogen oxides.
•The internal air treatment unit and external air treatment device include VOC/formaldehyde filter materials, dust filters, and external holding structures. Make it form a whole for easy installation, transportation and disassembly.





Product feature

●Air treatment system: external fresh air supply system/internal low damping and large air volume air circulation system

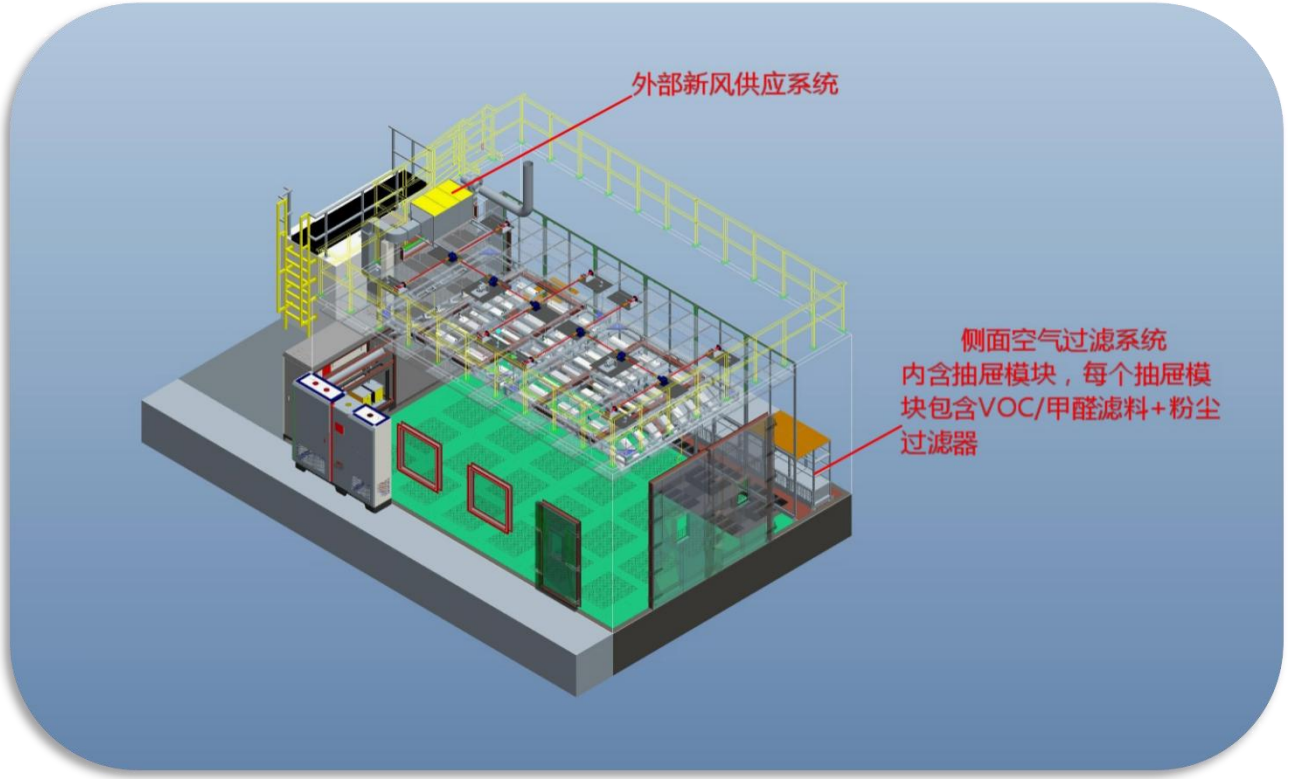


Figure 2 External fresh air supply system + internal side air filtration system

A/ The internal air circulation treatment device (imported VOC and formaldehyde treatment materials) is installed on the side of the test chamber, and all internal circulating air passes through the filter device.

B/ The fresh air system is installed in the air handling room (see Figure 2)

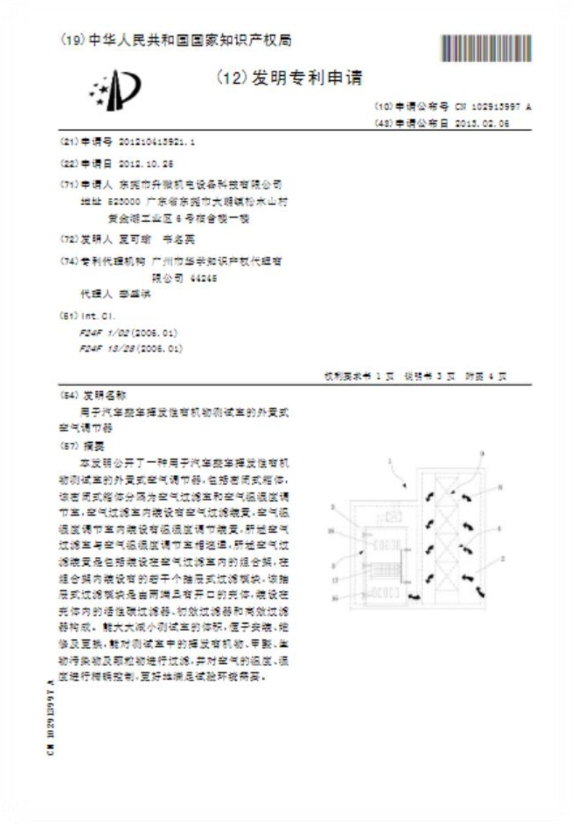
C/ Internal air circulation and fresh air intake, see air treatment diagram

D/ A total of 60-90 units are installed in the internal air circulation treatment device (the number can be increased or reduced according to design requirements, up to several hundred units). Each unit contains a set of imported formaldehyde/VOC filters and dust filters. The VOC and formaldehyde loading capacity of each unit (volume W295*H295*150MM) is convenient for manual replacement. In order to enhance the VOC/formaldehyde treatment effect, the number of air treatment units arranged is higher than the theoretical design.

Product feature

●Fresh air treatment device

4 units in a single group, each unit contains a set of imported formaldehyde/VOC filters and dust filters. VOC and formaldehyde loading per unit.


(19) 中华人民共和国国家知识产权局

(12) 发明专利申请

(10) 申请公布号 CN 102913997 A
(43) 申请公布日 2013.02.06

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(22) 申请日 2012.10.26
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代理人 [illegible]
(51) Int. Cl.
F24F 1/02 (2006.01)
F24F 13/28 (2006.01)

权利要求书 1 页 说明书 3 页 附图 4 页

(54) 发明名称
用于汽车整车挥发性有机物测试室的外置式空气调节器

(57) 摘要
本发明公开了一种用于汽车整车挥发性有机物测试室的外置式空气调节器，包括密闭式箱体，该密闭式箱体分隔为空气过滤室和空气温湿度调节室，空气过滤室内装设有空气过滤装置，空气温湿度调节室内装设有温湿度调节装置，所述空气过滤室与空气温湿度调节室相连通，所述空气过滤装置是包括装设在空气过滤室内的组合架，在组合架内装设有的若干个抽屉式过滤模块，该抽屉式过滤模块是由两端具有开口的壳体，装设在壳体内的活性炭过滤器、初效过滤器和高效过滤器构成。能大大减小测试室的体积，便于安装、维修及更换，能对测试室中的挥发有机物、甲醛、尘物污染物及颗粒物进行过滤，并对空气的温度、湿度进行精确控制，更好地满足试验环境需要。

CN 102913997 A

- ## Equipment manufacturing process and requirements

The storage boards, wires, activated carbon, dust filters, silencer cotton, insulation, etc. used in the entire set of equipment are all flame-retardant materials.


燃烧性能等级标识授权使用证书

证书编号：Fs2021174

委托单位：深圳市金环宇电线电缆有限公司
注册地址：深圳市宝安区松岗街道潭头西部工业区14栋
生产单位：深圳市金环宇电线电缆有限公司
生产地址：深圳市宝安区松岗街道潭头西部工业区14栋
产品名称：铜芯耐热125℃无卤低烟阻燃1级（B1）交联聚烯烃绝缘耐火电缆
型号规格：WDZB1N-BYJ-125-450/750V 1×2.5
执行标准：GB 31247-2014《电缆及光缆燃烧性能分级》

委托单位送检的的型号规格为WDZB1N-BYJ-125-450/750V 1×2.5的铜芯耐热125℃无卤低烟阻燃1级（B1）交联聚烯烃绝缘耐火电缆，按GB 31247-2014《电缆及光缆燃烧性能分级》进行防火安全性能型式检验（检验报告编号为2021310667），其燃烧性能达到GB 31247-2014规定的B_1 (d_0、t_0、a_1)级。现授权委托单位可在上述规格合格的产品及包装上使用本证书规定的燃烧性能等级标识，请严格遵守[illegible]的有关规定。

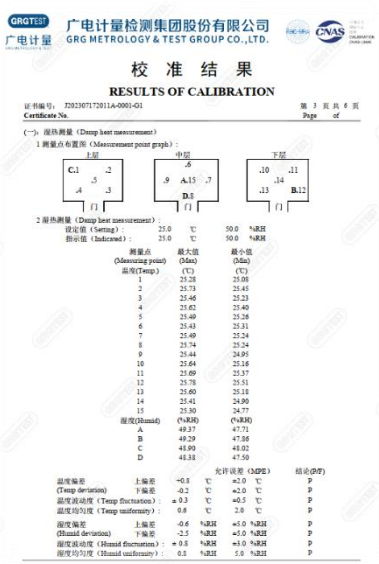
签发人：

发证日期：2021年11月18日
证书有效期至：2024年11月17日

应急管理部四川消防研究所

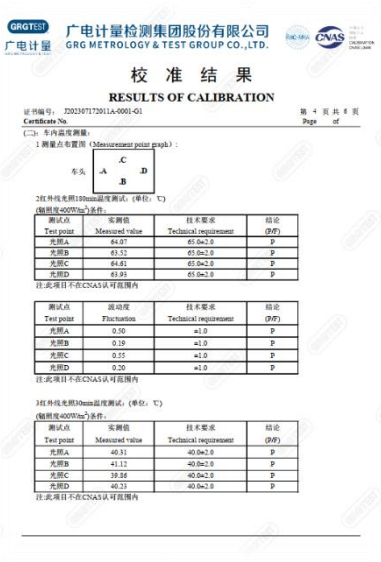
Some case reports

检 测 报 告



广电计量检测集团股份有限公司
GRG METROLOGY & TEST GROUP CO.,LTD.

校 准 结 果
RESULTS OF CALIBRATION



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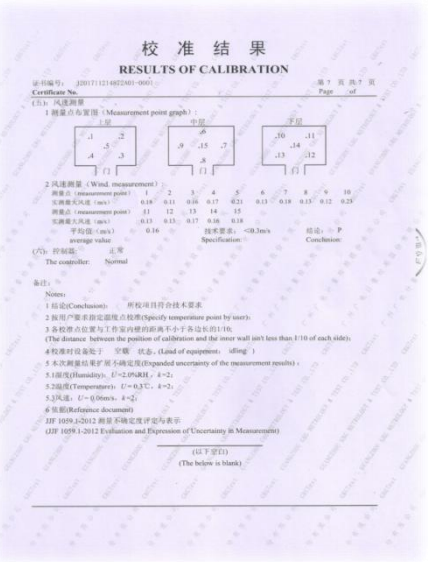
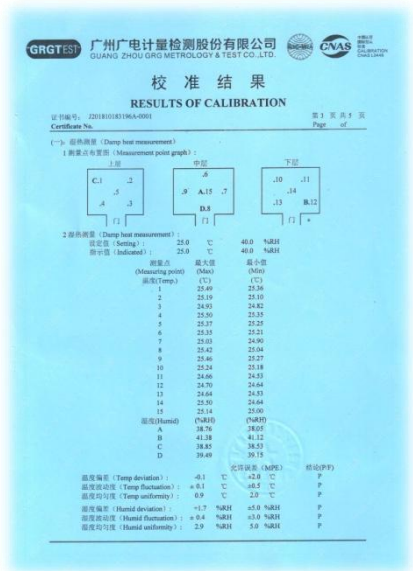


校 准 结 果
RESULTS OF CALIBRATION



广州广电计量检测股份有限公司
GUANG ZHOU GRG METROLOGY & TEST CO.,LTD.

校 准 结 果
RESULTS OF CALIBRATION

国家法定计量检定机构计量授权证书号(中心/院):(国)法计(2017)01039号/(2017)01019号

本次校准所依据的技术规范(代号、名称):

JJG 458-1996《总辐射表检定规程》

本次校准所使用的主要计量标准器具:

名称	型号规格	编号	测量范围	不确定度或准确度等级或最大允许误差	溯源机构名称	证书编号/有效期限
总辐射表	CMP22	130504	(200~3600) nm	U_{rel}=0.7% (k=2)	国家气象计量站	FS2018-0287 2020-11-21

以上计量标准器具的量值溯源至国家基准/测量标准。

其他校准信息:

地点: 院总部电学楼401室

温度: 21℃ 湿度: 56%RH 其它: /

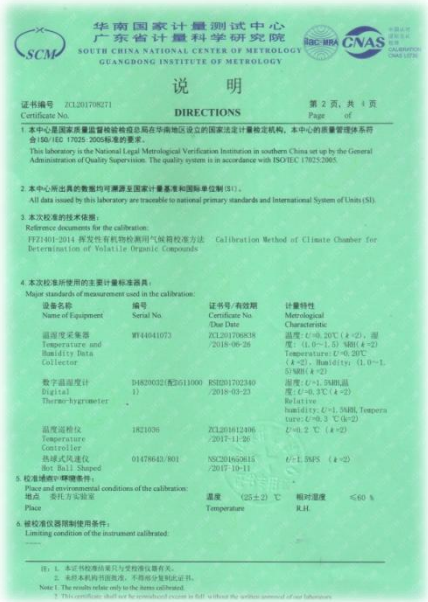
受样日期 2019年09月19日 校准日期 2019年09月19日

备注: /

本证书提供的结果仅对本次被校的器具有效。

校准证书续页专用

第 2 页共 3 页



华南国家计量测试中心
广东省计量科学研究院
SOUTH CHINA NATIONAL CENTER OF METROLOGY
GUANGDONG INSTITUTE OF METROLOGY

说 明
DIRECTIONS

证书编号 ZCL201708271 第 2 页, 共 4 页

1. 本中心是国家质量监督检验检疫总局在华南地区设立的国家法定计量检定机构, 本中心的质量管理体系符合ISO/IEC 17025: 2005标准的要求。

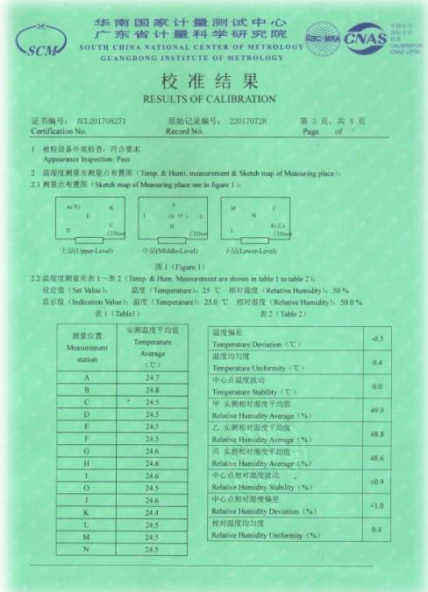
2. 本中心所出具的数据均可溯源至国家计量基准和国际单位制(SI)。

3. 本次校准的技术依据:

4. 本次校准所使用的主要计量标准器具:

5. 校准地点和环境条件:

6. 被校准仪器预制使用条件:



华南国家计量测试中心
广东省计量科学研究院
SOUTH CHINA NATIONAL CENTER OF METROLOGY
GUANGDONG INSTITUTE OF METROLOGY

校 准 结 果
RESULTS OF CALIBRATION

证书编号: ZCL201708271 原始记录编号: 220170728 第 3 页, 共 4 页

1 被校设备外观检查: 符合要求

2 温湿度测量及测量点布置图(Temp. & Humi. measurement & Sketch map of Measuring place):

2.1 测量点布置图(Sketch map of Measuring place see in figure 1):

上层(Upper-Level) 中层(Middle-Level) 下层(Lower-Level)

图 1 (Figure 1)

2.2 温湿度测量见表1~表2 (Temp. & Hum. Measurement are shown in table 1 to table 2):

设定值(Set Value): 温度(Temperature): 25 ℃ 相对湿度(Relative Humidity): 50 %

显示值(Indication Value): 温度(Temperature): 25.0 ℃ 相对湿度(Relative Humidity): 50.0 %

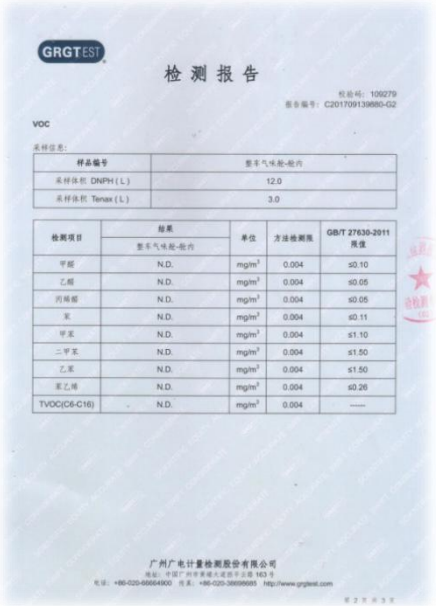
表 1 (Table)

测量位置 Measurement station	实测温度平均值 Temperature Average (℃)
A	24.7
B	24.8
C	24.5
D	24.5
E	24.5
F	24.5
G	24.6
H	24.6
I	24.6
O	24.5
J	24.6
K	24.4
L	24.5
M	24.5
N	24.5

表 2 (Table 2)

温度偏差 Temperature Deviation (℃)	-0.5
温度均匀度 Temperature Uniformity (℃)	0.4
中心点温度波动 Temperature Stability (℃)	0.0
甲 实测相对湿度平均值 Relative Humidity Average (%)	49.0
乙 实测相对湿度平均值 Relative Humidity Average (%)	48.8
丙 实测相对湿度平均值 Relative Humidity Average (%)	48.6
中心点相对湿度波动 Relative Humidity Stability (%)	±0.9
中心点相对湿度偏差 Relative Humidity Deviation (%)	+1.0
相对湿度均匀度 Relative Humidity Uniformity (%)	0.4

Excellent background testing report

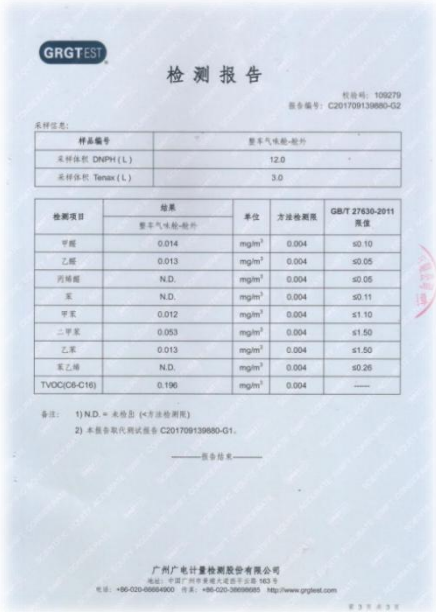


GRGTEST

检 测 报 告

VOC

检测项目	结果	单位	方法检测限	GB/T 27630-2011 限值
	整车气味舱-舱内			
甲醛	N.D.	mg/m³	0.004	≤0.10
乙醛	N.D.	mg/m³	0.004	≤0.05
丙烯醛	N.D.	mg/m³	0.004	≤0.05
苯	N.D.	mg/m³	0.004	≤0.11
甲苯	N.D.	mg/m³	0.004	≤1.10
二甲苯	N.D.	mg/m³	0.004	≤1.50
乙苯	N.D.	mg/m³	0.004	≤1.50
苯乙烯	N.D.	mg/m³	0.004	≤0.26
TVOC(C6-C16)	N.D.	mg/m³	0.004	------



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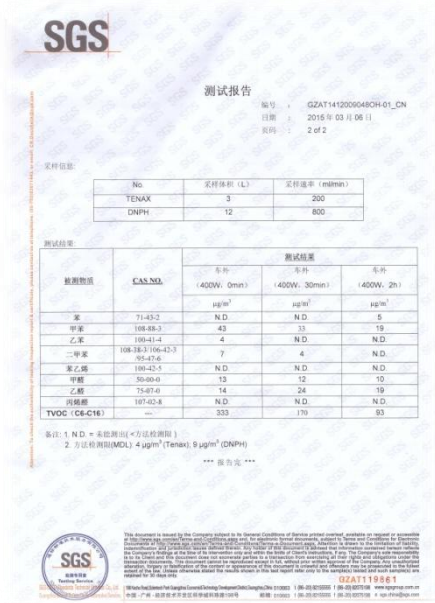
检 测 报 告

检测项目	结果	单位	方法检测限	GB/T 27630-2011 限值
	整车气味舱-舱外			
甲醛	0.014	mg/m³	0.004	≤0.10
乙醛	0.013	mg/m³	0.004	≤0.05
丙烯醛	N.D.	mg/m³	0.004	≤0.05
苯	N.D.	mg/m³	0.004	≤0.11
甲苯	0.012	mg/m³	0.004	≤1.10
二甲苯	0.053	mg/m³	0.004	≤1.50
乙苯	0.013	mg/m³	0.004	≤1.50
苯乙烯	N.D.	mg/m³	0.004	≤0.26
TVOC(C6-C16)	0.196	mg/m³	0.004	------

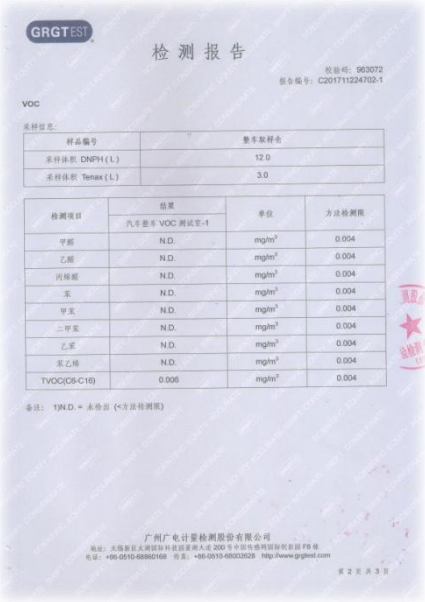


SGS

测试报告

No.	采样体积（L）	采样速率（ml/min）
TENAX	3	200
DNPH	12	800

检测物质	CAS NO.	测试结果 车外（400W，0min） μg/m³	车外（400W，30min） μg/m³	车外（400W，2h） μg/m³
苯	71-43-2	N.D.	N.D.	5
甲苯	108-88-3	43	33	19
乙苯	100-41-4	4	N.D.	N.D.
二甲苯	108-38-3/106-42-3/95-47-6	7	4	N.D.
苯乙烯	100-42-5	N.D.	N.D.	N.D.
甲醛	50-00-0	13	12	10
乙醛	75-07-0	14	24	19
丙烯醛	107-02-8	N.D.	N.D.	N.D.
TVOC（C6-C16）	---	333	170	93

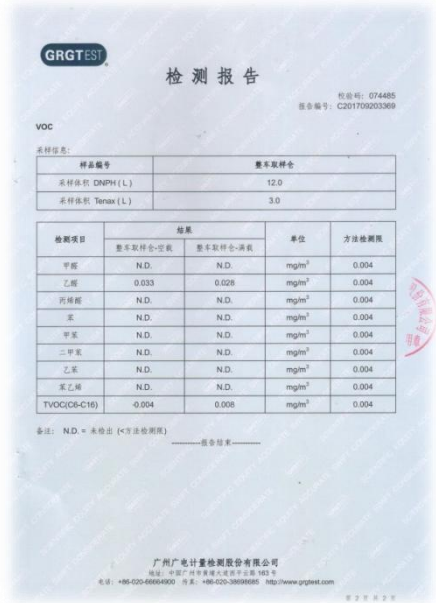


GRGTEST

检 测 报 告

VOC

检测项目	结果	单位	方法检测限
	汽车整车 VOC 测试室-1		
甲醛	N.D.	mg/m³	0.004
乙醛	N.D.	mg/m³	0.004
丙烯醛	N.D.	mg/m³	0.004
苯	N.D.	mg/m³	0.004
甲苯	N.D.	mg/m³	0.004
二甲苯	N.D.	mg/m³	0.004
乙苯	N.D.	mg/m³	0.004
苯乙烯	N.D.	mg/m³	0.004
TVOC(C5-C18)	0.006	mg/m³	0.004

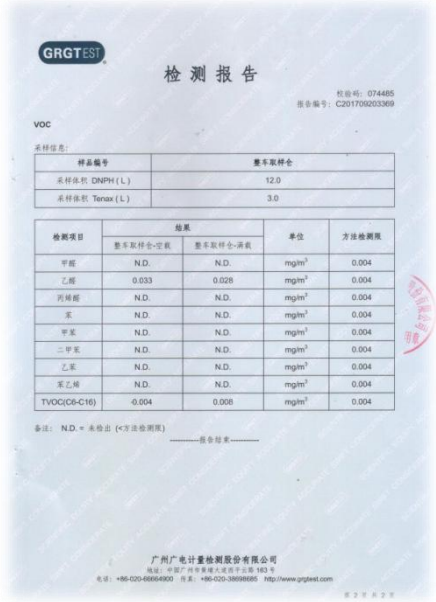


GRGTEST

检 测 报 告

VOC

检测项目	结果		单位	方法检测限
	整车取样仓-空载	整车取样仓-满载		
甲醛	N.D.	N.D.	mg/m³	0.004
乙醛	0.033	0.028	mg/m³	0.004
丙烯醛	N.D.	N.D.	mg/m³	0.004
苯	N.D.	N.D.	mg/m³	0.004
甲苯	N.D.	N.D.	mg/m³	0.004
二甲苯	N.D.	N.D.	mg/m³	0.004
乙苯	N.D.	N.D.	mg/m³	0.004
苯乙烯	N.D.	N.D.	mg/m³	0.004
TVOC(C6-C16)	-0.004	0.008	mg/m³	0.004

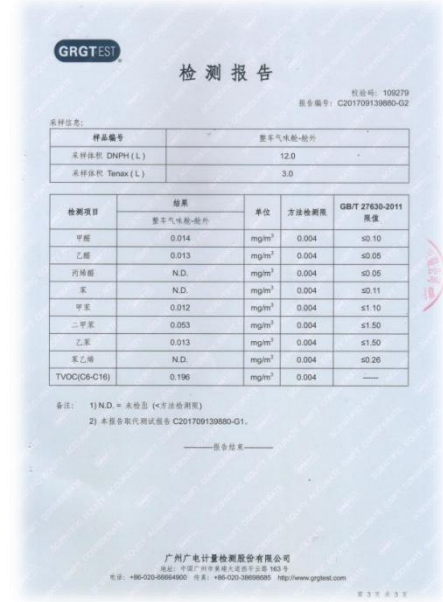


GRGTEST

检 测 报 告

VOC

检测项目	结果		单位	方法检测限
	整车取样仓-空载	整车取样仓-满载		
甲醛	N.D.	N.D.	mg/m³	0.004
乙醛	0.033	0.028	mg/m³	0.004
丙烯醛	N.D.	N.D.	mg/m³	0.004
苯	N.D.	N.D.	mg/m³	0.004
甲苯	N.D.	N.D.	mg/m³	0.004
二甲苯	N.D.	N.D.	mg/m³	0.004
乙苯	N.D.	N.D.	mg/m³	0.004
苯乙烯	N.D.	N.D.	mg/m³	0.004
TVOC(C6-C16)	-0.004	0.008	mg/m³	0.004



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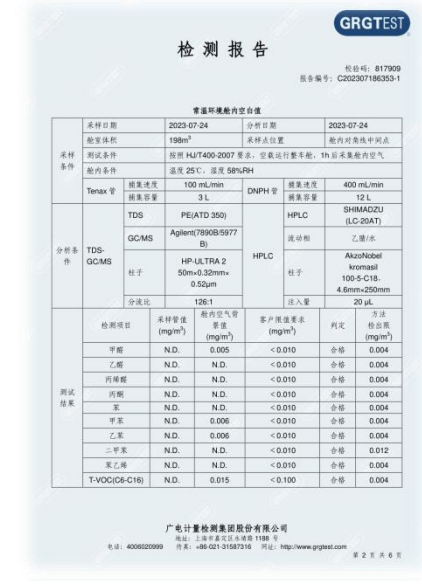
检 测 报 告

检测项目	结果	单位	方法检测限	GB/T 27630-2011 限值
	整车气味舱-舱外			
甲醛	0.014	mg/m³	0.004	≤0.10
乙醛	0.013	mg/m³	0.004	≤0.05
丙烯醛	N.D.	mg/m³	0.004	≤0.05
苯	N.D.	mg/m³	0.004	≤0.11
甲苯	0.012	mg/m³	0.004	≤1.10
二甲苯	0.053	mg/m³	0.004	≤1.50
乙苯	0.013	mg/m³	0.004	≤1.50
苯乙烯	N.D.	mg/m³	0.004	≤0.26
TVOC(C6-C16)	0.196	mg/m³	0.004	------



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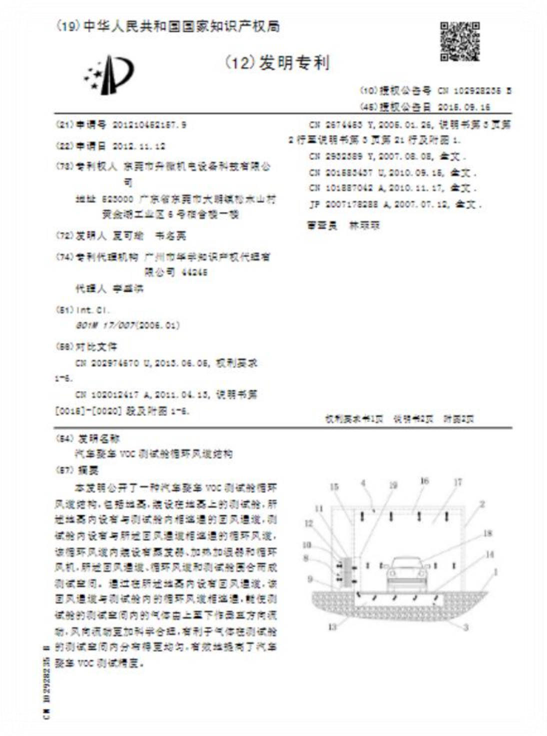
检 测 报 告

检测项目	采样管值 (mg/m³)	舱内空气背景值 (mg/m³)	客户限值要求 (mg/m³)	判定	方法检出限 (mg/m³)
甲醛	N.D.	0.005	< 0.010	合格	0.004
乙醛	N.D.	N.D.	< 0.010	合格	0.004
丙烯醛	N.D.	N.D.	< 0.010	合格	0.004
丙酮	N.D.	N.D.	< 0.010	合格	0.004
苯	N.D.	N.D.	< 0.010	合格	0.004
甲苯	N.D.	0.006	< 0.010	合格	0.004
乙苯	N.D.	0.006	< 0.010	合格	0.004
二甲苯	N.D.	N.D.	< 0.010	合格	0.012
苯乙烯	N.D.	N.D.	< 0.010	合格	0.004
T-VOC(C6-C16)	N.D.	0.015	< 0.100	合格	0.004

Product innovation patent



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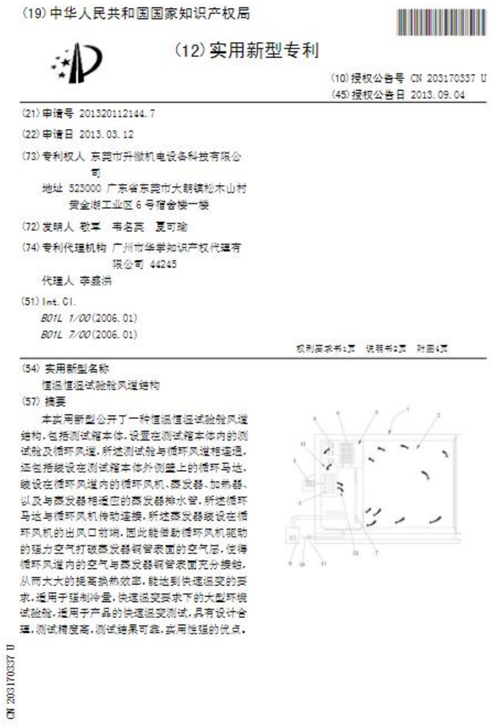
(12)发明专利



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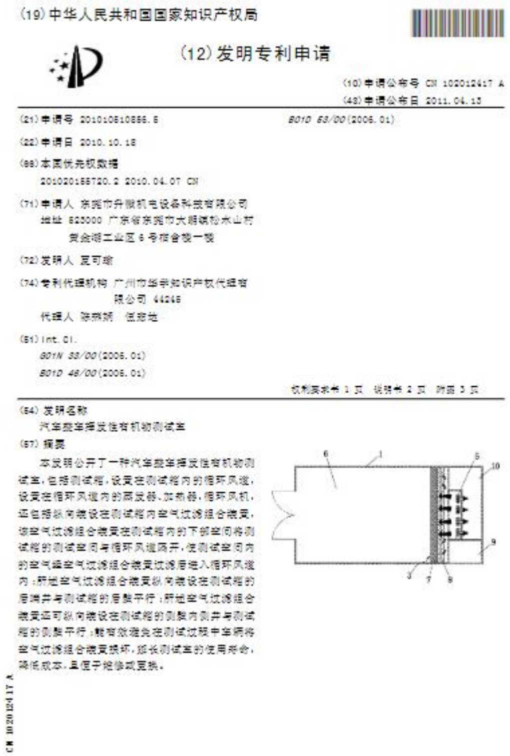
(12)实用新型专利



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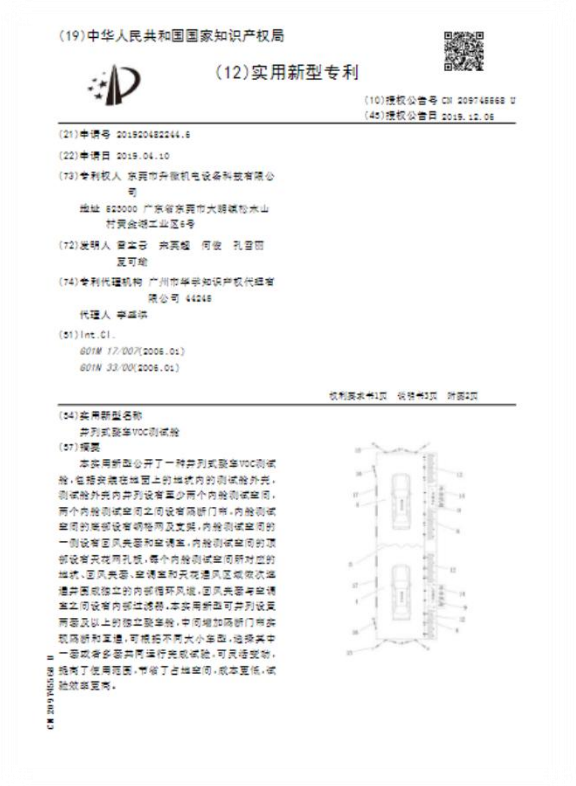
(12)发明专利申请

Air duct structure

The unique air duct structure makes the filter material have a long service life and excellent background.

Product innovation patent



(19)中华人民共和国国家知识产权局

(12)实用新型专利

(10)授权公告号 CN 209745568 U
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代理人 李盛洪

(51)Int.Cl.
G01M 17/007(2006.01)
G01N 33/00(2006.01)

权利要求书1页 说明书3页 附图2页

(54)实用新型名称
并列式整车VOC测试舱

(57)摘要
本实用新型公开了一种并列式整车VOC测试舱，包括安装在地面上的地坑内的测试舱外壳，测试舱外壳内并列设有至少两个内舱测试空间，两个内舱测试空间之间设有隔断门帘，内舱测试空间的底部设有钢格网及支架，内舱测试空间的一侧设有回风夹层和空调室，内舱测试空间的顶部设有天花网孔板，每个内舱测试空间所对应的地坑、回风夹层、空调室和天花送风区域依次连通并围成独立的内部循环风道，回风夹层与空调室之间设有内部过滤器，本实用新型可并列设置两套及以上的独立整车舱，中间增加隔断门帘实现隔断和互通，可根据不同大小车型，选择其中一套或者多套共同运行完成试验，可灵活变动，提高了使用范围，节省了占地空间，成本更低，试验效率更高。

CN 209745568 U

Parallel vehicle VOC test chamber

(19)中华人民共和国国家知识产权局

(12)发明专利申请

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(51)Int.Cl.
F24F 1/02(2006.01)
F24F 13/28(2006.01)

权利要求书 1 页 说明书 3 页 附图 4 页

(54)发明名称
用于汽车整车挥发性有机物测试室的外置式空气调节器

(57)摘要
本发明公开了一种用于汽车整车挥发性有机物测试室的外置式空气调节器，包括密闭式箱体，该密闭式箱体分隔为空气过滤室和空气温湿度调节室，空气过滤室内装设有空气过滤装置，空气温湿度调节室内装设有温湿度调节装置，所述空气过滤室与空气温湿度调节室相连通，所述空气过滤装置是包括装设在空气过滤室内的组合架，在组合架内装设有的若干个抽屉式过滤模块，该抽屉式过滤模块是由两端具有开口的壳体，装设在壳体内的活性碳过滤器、初效过滤器和高效过滤器构成。能大大减小测试室的体积，便于安装、维修及更换，能对测试室中的挥发有机物、甲醛、生物污染物及颗粒物进行过滤，并对空气的温度、湿度进行精确控制，更好地满足试验环境需要。

CN 102913997 A

Filter

Customer cases