### 5.5 高速性能

按照GB/T 4502—2016进行高速性能测试，充气压力 220 kPa，标准负荷 730 kg，完成标准规定步骤后，每行驶10 min，速度提高10 km·$h^{-1}$，试验累计行驶时间为2 h，试验结束时速度为210 km·$h^{-1}$，外胎正常，达到设计目标。

### 5.6 室外性能

本设计轮胎室外湿地抓着力指数为1.36，滚动噪声声压级为72 dB(A)，雪地抓着指数为1.14，通过欧洲经济委员会(ECE) R117法规认证。

## 6 结语

此款冬季轿车子午线轮胎在设计时严格参照ETRTO和ECE标准，采用独特的花纹和施工设计，符合现有生产工艺要求。成品轮胎的充气外缘尺寸、强度性能、脱圈阻力、耐久性能和高速性能符合相应的设计和国家标准要求。室外性能通过ECE R117法规认证。轮胎已经投放到欧盟市场，得到一致好评。

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# Design on 275/30R20 97H Winter Passenger Car Radial Tire

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**Abstract**：The design on 275/30R20 97H winter passenger car radial tire was described. In the structure design，the following parameters were taken：overall diameter 668.9 mm，cross-sectional width 296 mm，width of running surface 247 mm，arc height of running surface 11.5 mm，bead diameter at rim seat 512 mm，bead width at rim seat 267 mm，using asymmetric pattern，pattern depth 8.0 mm，block/total ratio 67%，and number of pattern pitch 72. Three-formula and four-piece structure was applied for tire tread，and the blend of natural rubber/modified solution polymerized styrene butadiene rubber was used for tread compound，which was filled with highly dispersible silica and high hardness pecan powder. In the construction design，2 layers of 2＋2×0.25HT steel cord was applied for belt，nylon cord was used for 0° crown ply，and 1 layer 1440dtex/2 DSP polyester cord was used for carcass. The tire was built by using two-stage building machine and cured by using AB-bladder vulcanizing press. It was confirmed by the finished tire test that，the inflated peripheral dimension，strength，bead unseating resistance，endurance and high speed performance met the requirements of relative design and national standards，and the outdoor performance passed the ECE R117 certification.

**Key words**：winter passenger car radial tire；structure design；construction design；ECE R117

## 一种仿生非充气轮胎

由山东理工大学申请的专利(公布号 CN 110682741A，公布日期 2020-01-14)“一种仿生非充气轮胎”，涉及的仿生非充气轮胎包括胎冠、仿生辐板支撑体和辐板内圈，按轮胎径向方向由外到内依次排布。胎冠包括胎面、冠带层和带束层，按轮胎径向方向由外到内依次排布；带束层包括1#和2#带束层，按轮胎径向方向由外到内依次排布；仿生辐板支撑体仿袋鼠下肢结构设计，包括仿袋鼠下肢主辐板和支撑副辐板，采用高模量的聚氨酯材料，具有高硬度、耐疲劳、抗切割和绿色环保性能。本发明仿生非充气轮胎显著提高了非充气轮胎的减震、排水和散热能力，整体质量明显减小。

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