



# Australian Model Railway Association Carriage Mass standard

Version 1.0  
July 2010

## Aim

The aim of this standard is to provide practical values of mass for model railway Carriages.

## Introduction

Experiments have shown if the mass to length ratio of model railway carriages in a train are the same, the maximum train length is considerably increased before derailment occurs. The mass of a carriage is dependant on the density of materials models can be made of. If the train mass is too large, the maximum train length that can be pulled up a scale grade will be shorter than prototype. If the minimum carriage mass is too small coupler operation becomes less reliable. Prototype passenger carriages generally weigh less than freight wagons of the same length therefore 2 different mass length ratios are specified.

## Definitions

Passenger carriage: Any vehicle that is typically used on a passenger train excluding freight carriages that are used on both passenger and freight trains.

Freight carriage: Goods carrying vehicles, brake vans and locomotive tenders.

Carriage length: The distance from the coupling faces at opposite ends of the carriage.

## Carriage Mass length ratio

**Recommended Tolerance:  $\pm 15\%$**

Scale	Passenger carriages Mass length ratio	Freight carriages Mass length ratio
1:220	0.16 g/mm	0.22 g/mm
1:160, 1:148	0.22 g/mm	0.30 g/mm
1:120, 1:100	0.30 g/mm	0.40 g/mm
1:87, 1:76	0.40 g/mm	0.55 g/mm
1:64	0.55 g/mm	0.75 g/mm
1:48, 1:45, 1:43.5	0.80 g/mm	1.10 g/mm
1:32	1.10 g/mm	1.50 g/mm
1:24, 1:19	1.50 g/mm	2.00 g/mm

Note: Freight carriages can use the lighter passenger carriage mass length ratio if they are not mixed with freight carriages that use the heavier mass length ratio.