1. OVERVIEW

This document contains basic performance of the WMATA Current rapid transit rail cars. This is a composite for all fleets – 1K, 2K/3K, 4K, 5K and 6K fleets the cars are designed to run in mixed consists and so the performance is generally the same. Performance curves are taken from the most recent cars – 2K/3K cars that have been recently rehabilitated and 6K cars both fitted with Alstom Propulsion equipment.

2. DIMENSIONS, WEIGHTS, AND MISCELLANEOUS DESIGN PARAMETERS

Length of car from a point midway between the A and B cars of a married pair to the front coupler face
Distance, center-to-center of trucks
Width of car at floor
Maximum width of carbody
Height, top of rail (TOR) to top of plymetal floor, measured at the bolsters (See Note 1)
Minimum radius of track curve (See Note 2)
Minimum length of tangent between reverse curves
Shape of vertical curves
Length of vertical curves
Rail gap
Maximum height of top of roof
Minimum vertical clearance inside car at center
Minimum vertical clearance inside car at low ceiling area
Coupler height above TOR (See Note 5)
Side door clear opening width (See Note 6)
Minimum height, side door openings, over plymetal floor
Minimum height, end door openings, over plymetal floor
Minimum width of end door opening, clear
Wheel diameter - new wheel
Maximum grade
Most restrictive crossover
Maximum number of cars in train (normal conditions)
Maximum superelevation
Gauge, tangent track and curves with radii of 1,425 feet and greater (See Note 7)
Wheel gauge (Nominal)
Truck wheelbase, minimum
Truck wheelbase, maximum
Normal load (AW1), 81 persons at 150 lbs. each
Full load (AW2), 175 persons at 150 lbs. each
Crush load (AW3), 232 persons at 150 lbs. each
Absolute maximum load (AW4), 252 persons at 150 lbs. each
3. PERFORMANCE STANDARDS

With third rail voltages as described in Section 7.2, the following performance standards shall be met by a six-car train, with new wheels and on level, tangent track:

1. With a passenger load of 24,000 lbs. (160 passengers) per car, the following standard shall be met:
   a. Initial accelerating rate 2.8 mphps +0.2, -0

2. With a passenger load of 12,150 lbs. (81 passengers) per car, the following standards shall be met:
   a. Initial accelerating rate 2.8 mphps +0.2,-0
   b. Time to reach 50 mph 23 seconds or less
   c. Time to reach 75 mph 75 seconds or less
   d. Distance traveled in 50 seconds from a standing start 3,400 feet or more
   e. Distance traveled in 70 seconds from a standing start 5,500 feet or more
   f. Acceleration capability at 75 mph 0.25 mphps or more
   g. Typical current per car 1,650 amps
4. PERFORMANCE
All performance simulations have been done using a 6-car train.

1.1 6-CAR 2k/3k/6k TRAIN – ACCELERATION VS SPEED @ 160 PASSENGER LOAD

Chart demonstrates:
Initial acceleration of 2.8mphs +0.2mphs/-0mphs
Chart demonstrates:
Maximum per-car line current draw not to exceed 1476A for propulsion system
Chart demonstrates:
23 seconds time to 50mph