SNCF signed a contract with Bombardier, on behalf of the French Regions, for the supply of up to 860 Regio 2N** trains, to replace the Z2N, V2N cars, VO-VR2N, RRR-RIO and Corail trains for regional and intercity services. The new vehicles are able to run at speeds between 160 and 200 km/h under 1,500 V or 25 kV voltage.

This new train generation belongs to an innovative product family of articulated EMUs. The wide gangways and alternating single and double-deck cars combine an exceptional capacity with a very high level of passenger comfort, accessibility and visibility. A wide range of interior layouts meet the needs of regional, high capacity commuter and intercity services.
**Capacity**

The innovative architecture of the Regio 2N EMUs has been designed to offer a maximum number of seats, while accommodating standing passengers. Thanks to the 2.99 m wide cars, a 2+3 commuter seating arrangement offers an increased seating capacity, both on the upper and lower deck, while maintaining a high level of comfort.

**Accessibility and transparency**

The Regio 2N EMUs offer superior accessibility with 1.6 m wide doors, 6 m² vestibules and step-free entrances for platform heights between 550 and 920 mm. The width of the gangways and the aisles, the glazed mezzanine and staircases all create visibility throughout the train for ease of movement and a feeling of increased safety.
Accessibility and transparency on the upper and lower deck, while maintaining a high level of comfort.

Long

Short

Short

Medium

Long

Extra Long

Speed (km/h)

160 160 160 160 200

Acceleration 0-50 km/h (m/s²)

2.4 2.4 2.4 or 3.2 2.4 or 3.2 2.55

Seated capacity (incl. tip-ups)

1,600 1,600 1,600 1,600 1,600

Axle load CN / Ce (t)

Traction power (MW)

19 / 20 19 / 20 19 / 20 19 / 20 19 / 20

Reference gauge

Uic 505-1 Uic 505-1 Uic 505-1 Uic 505-1 Uic 505-1

Type structure and variety of possible layouts

Regional

Lower deck

Upper deck

Number of toilets (incl. 1 for disabled)

3 3 4 5 7

Width single deck vehicles (mm)

Length between couplers (m)

3,050 3,050 3,050 3,050 3,050

Width double-deck vehicles (mm)

2.4 2.4 2.4 or 3.2 2.4 or 3.2 2.55

Technical characteristics

3,050 3,050 3,050 3,050 3,050

Entrance height (mm)

600*** 600*** 600*** 600*** 600***

Number of cars

450 450 490 490 490

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Accessibility and transparency

The Regio 2n EMUs offer superior accessibility with 1.6 m wide doors, 6 m² vestibules and step-free entrances for the train for ease of movement and a feeling of increased safety. The platform heights between 550 and 920 mm.

### Technical characteristics

<table>
<thead>
<tr>
<th></th>
<th>Short</th>
<th>Medium</th>
<th>Long</th>
<th>Extra long</th>
<th>V200 Intercity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple unit operation (MU)</td>
<td>MU3</td>
<td>MU3</td>
<td>MU3</td>
<td>MU3</td>
<td>MU3</td>
</tr>
<tr>
<td>Reference gauge</td>
<td>UIC 505-1</td>
<td>UIC 505-1</td>
<td>UIC 505-1</td>
<td>UIC 505-1</td>
<td>UIC 505-1</td>
</tr>
<tr>
<td>Length between couplers (m)</td>
<td>80.9 - 82.7 - 84.5***</td>
<td>93.2 and 95***</td>
<td>108.2 and 109.9***</td>
<td>133.6 and 135.4***</td>
<td>109.9</td>
</tr>
<tr>
<td>Height (mm)</td>
<td>4,320</td>
<td>4,320</td>
<td>4,320</td>
<td>4,320</td>
<td>4,320</td>
</tr>
<tr>
<td>Width single deck vehicles (mm)</td>
<td>3,050</td>
<td>3,050</td>
<td>3,050</td>
<td>3,050</td>
<td>3,050</td>
</tr>
<tr>
<td>Width double-deck vehicles (mm)</td>
<td>2,990</td>
<td>2,990</td>
<td>2,990</td>
<td>2,990</td>
<td>2,990</td>
</tr>
<tr>
<td>Traction power (MW)</td>
<td>2.4</td>
<td>2.4</td>
<td>2.4 or 3.2</td>
<td>2.4 or 3.2</td>
<td>2.55</td>
</tr>
<tr>
<td>Speed (km/h)</td>
<td>160</td>
<td>160</td>
<td>160</td>
<td>160</td>
<td>200</td>
</tr>
<tr>
<td>Acceleration 0-50 km/h (m/s²)</td>
<td>0.78</td>
<td>0.67</td>
<td>0.59 or 0.79</td>
<td>0.48 or 0.58</td>
<td>0.54</td>
</tr>
<tr>
<td>Entrance height (mm)</td>
<td>600***</td>
<td>600***</td>
<td>600***</td>
<td>600***</td>
<td>600***</td>
</tr>
<tr>
<td>Number of doors per side</td>
<td>6</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Door width (mm)</td>
<td>1,600</td>
<td>1,600</td>
<td>1,600</td>
<td>1,600</td>
<td>1,600</td>
</tr>
<tr>
<td>Seated capacity (incl. tip-ups)</td>
<td>350 to 380***</td>
<td>425 to 440***</td>
<td>505 to 520***</td>
<td>640 to 660***</td>
<td>475 / -</td>
</tr>
<tr>
<td>2+2 / 2+3 upper and lower deck</td>
<td>400 to 440***</td>
<td>490 to 510***</td>
<td>585 to 605***</td>
<td>750 to 770***</td>
<td>- / -</td>
</tr>
<tr>
<td>Total capacity (fixed seats + standees)</td>
<td>660 to 710***</td>
<td>780 to 805***</td>
<td>935 to 960***</td>
<td>1,190 to 1,210***</td>
<td>- / -</td>
</tr>
<tr>
<td>2+2 / 2+3 upper and lower deck</td>
<td>700 to 755***</td>
<td>830 to 860***</td>
<td>1,000 to 1,030***</td>
<td>1,270 to 1,300***</td>
<td>- / -</td>
</tr>
<tr>
<td>Number of toilets (incl. 1 for disabled)</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Axle load CN / CE (t)</td>
<td>19 / 20</td>
<td>19 / 20</td>
<td>19 / 20</td>
<td>19 / 20</td>
<td>19 / 20</td>
</tr>
</tbody>
</table>

*** 800 or 970 mm also available
**** Depending on the length of the double-deck intermediate cars (13,695 mm or 15,445 mm)
The new architecture that was especially designed for Regio 2N is based on a continuous living space, rhythmed by differentiated areas, allowing everyone to find the serenity, conviviality and services they expect during their journey.

**Comfort**
The large carbody width allows passengers to enjoy wide seats fitted with generous armrests, while retaining a wide aisle. The advanced air inflow system in combination with floor heating, guarantees a comfortable temperature throughout the train. The low noise and vibration levels are ideally suited to intercity services, and remind the quietness of a loco-hauled train.

**Welcoming wheelchair users**
A single deck car at one of the ends of the train accommodates wheelchair users. This car is fitted with an automated gap-filler, two spaces for wheelchairs with adjacent seats for accompanying people, one transfer seat and a latest generation, fully accessible toilet.

**Evolution**
The interior layout of the Regio 2N EMU is designed to enable a capacity increase during its lifetime: conversion of a regional layout with 4 seats in a row to a high capacity commuter layout with 5 seats in a row. Moreover, it is possible, after delivery, to increase the seated capacity from 120 to 160 seats, by adding 2 intermediate cars. The increase in length is then 23.7 or 25.5 m, depending whether motorization is added or not.
REGIO 2N
Regional double-deck EMU

Respecting the environment
The Regio 2N EMUs focus Bombardier’s ECO4* technologies to meet the main concerns of operators, which are energy efficiency and respect of the environment. Thanks to the use of lightened materials and the increase of capacity, the mass per passenger is reduced by approximately 15%, while the use of new aerodynamic solutions reduces energy consumption by almost 3% compared to conventional double-deck trains. The use of high efficiency gear boxes and permanent magnet motors reduces energy consumption by approximately 6%.

The train is made of 95% recyclable materials.

Reliability, availability and maintenance cost
Bombardier has chosen robust and proven technologies to ensure the best reliability and availability for this new train generation within the shortest possible period of time. The number of equipment needed to operate the train has been optimized in order to increase its reliability and reduce its maintenance costs. Nevertheless, many redundancies are foreseen to guarantee commercial service in any circumstances.

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