



Delhi Airport Metro Express Line

For 7 km via-duct Up-Line, the Peak Operating Speed is still capped at 100 kmph

Delhi Airport Metro Express Line (DAMEL), comprising of 22.91 km line consisting of (16 km tunnel + 7 km via-duct) between New Delhi Railway Station and Dwarka Sector 21, commenced its operation on February 23, 2011 for Delhi Metro Rail Corporation Ltd (DMRC). As per the Concession Agreement (CA), the scheduled peak speed of the Airport Metro Express Line (AMEL)

was 120 kmph. But it has never been able to achieve its designed operating speed even when the Commissioner of Metro Railway Safety (CMRS) issued its latest sanction. Our investigation reveals that DMRC has been allowed to increase peak speed to 120 kmph vide CMRS sanction dated September 6, 2023. However, the said sanction excludes the 7.038 km of via-duct portion (Up-line) from raising the speed above 100 kmph, which establishes that all is not well even today, with DMRC's Civil

Works. Here are the details.

December 2011 - Detection of rail clips failure:

In December 2011, DAMEPL detected failure of rail clips, which was more in the tunnel section than in the viaduct. DAMEPL informed Delhi Metro Railway Corporation (DMRC) as well as Research Designs & Standards Organisation (RDSO) of the Ministry of Railways and CMRS, and restricted the peak speed to 80 kmph for the tunnel and 95 kmph for the viaduct, to



May-June 2012 - Detection of defects in DMRC's Civil Works:

In May-June 2012, DAMEPL also discovered defects in DMRC's Civil Works (in the viaduct), which led to further speed restrictions to the extent of 25 kmph in the severely affected sections. DAMEPL had to suspend operations from July 8, 2012 till January 21, 2013 and, after the repairs by DMRC concluded, CMRS gave sanction on January 18, 2013 for resumption at a peak speed of 50 kmph, that too with a lot of riders. The peak speed could be raised by 10 kmph at a time, up to 80 kmph. For any further increase, DMRC was directed to apply to CMRS with evidence of improvements carried out.

Termination of the Concession Agreement by DAMEPL:

On account of DMRC's failure to cure the defects in DMRC's Civil Works in the contractual cure period of 90 days, DAMEPL terminated the CA vide Termination Notice dated October 8, 2012. DMRC disputed the termination and invoked

received CMRS sanction in July 2019, for increasing the peak speed to 90 kmph. After operating at 90 kmph peak speed for nearly 4 years, DMRC replaced the rail fastening system (Vossloh 300-1-U fasteners) with Fastening System 300-1-W by March 2023, after the latter system was approved by the Railway Board on October 1, 2019. DMRC received approval on February 27, 2023 from Railway Board for replacement of rail clips of make "SKL-15" with "SKL-15HF". The replacement of the Vossloh 300-1-U fasteners as well as the SKL-15 rail clips, carried out by DMRC within a period of 6 months, has been stated in DMRC's press release dated March 22, 2023, which admits that DMRC had undertaken "repair of civil structures" before it was permitted to increase the peak speed to 100 kmph. It is not known as to what kind of repairs of civil structures had been undertaken by DMRC, that too after 10 years of taking over the Project from DAMEPL.

DMRC's press release dated June 22, 2023 states that it had received CMRS sanction for the peak speed of 110 kmph. Notably, the CMRS sanction dated June 16, 2023 excludes the elevated section of UP line (7.038 km) between Aerocity to Shivaji Stadium metro station from the increase in speed above 100 kmph.

DMRC was allowed increase of peak speed to 120 kmph vide CMRS sanction dated September 6, 2023, however, the said sanction again excludes the 7.038 km of viaduct portion (UP line) from raising the speed above 100 kmph, which establishes that all is not well even today, with DMRC's Civil Works.

The changes in peak speed are exhibited in a table titled "Peak speed of the Line from 2011 till date" at pg 23. The running of trains at a reduced speed for the past 10 years conveys that DMRC itself has not been sure that the defects in DMRC's Civil Works had actually been cured. Scanned copies of the followings are also part of the story from page 18 onwards.

minimise the clip failures.

DAMEPL ordered investigation by an independent agency (Hong Kong Polytechnic University), which however could not submit its final report by July 1, 2013, on which date DAMEPL handed over the Project to DMRC, post termination of the CA.

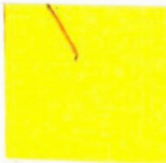
DAMEPL invoked arbitration against DMRC on November 28, 2012 on the specific issue of DMRC forcing a proprietary track-form (RHEDA-2000) on the Project. The 3-member arbitral tribunal (all retired top level Indian Railways engineers) delivered its unanimous award on April 6, 2023 fully allowing DAMEPL's claim for the related extra costs incurred.

arbitration on October 23, 2012 which concluded on May 11, 2017 stating that DAMEPL's Termination Notice was valid. This arbitral tribunal held that DMRC had partly attended to some defects while it had failed to even complete the diagnosis of certain defects in the cure period. This tribunal observed that the CMRS who granted conditional sanction for resumption of services, at a reduced peak speed of 50 kmph, was not quite convinced with the efficacy of the repairs by DMRC.

Changes carried out by DMRC before Mar 2023:

After operating at a peak speed of 80 kmph for 6 years, DMRC

शैलेश कुमार पथक
Shailesh Kumar Pathak



मुख्य आयुक्त रेल सुरक्षा
Chief Commissioner of Railway Safety
नागर विमानन मंत्रालय
Ministry of Civil Aviation
रेल सुरक्षा आयोग
(Commission of Railway Safety)
भारत सरकार
Government of India
दिनांक: 19.07.19

संख्या: आर-12014/16/2019-20/Raising of Speed/उ.परि./236

The Managing Director
Delhi Metro Rail Corporation,
Metro Bhawan, Fire Brigade lane,
Barakhamba Road, **New Delhi-110001**

Sub: Raising of speed of Airport Metro Express Line (AMEL) from New Delhi to Dwarka Sector-21

- Ref: 1. Your Application No. DMRC/20/III-282/2019 dated 02.04.2019.
2. This office letter of even No. dated 01.05.2019.
3. Your letter No. DMRC/20/III-282/2019 dated 22.05.2019.
4. This office letter of even No. dated 03.06.2019.

Vide ref (i), DMRC approached the Commission seeking sanction for raising of speed of Airport Metro Express Line (AMEL) from New Delhi to Dwarka Sector-21 from 80 kmph to 90 kmph. The subject proposal has been examined in this office & vide ref.(ii), DMRC was directed to submit the certificates of sub-systems deployed on AMEL for their safe operation at 90 kmph. Vide ref (iii), DMRC submitted all requisite documents. Based on these documents, DMRC was asked to discuss the subject proposal along with failures of last 8 months vide ref.(iv).

Based on the documents submitted & discussion with DMRC officials (Dir/Proj, Dir/RS and Dir/Elect) on date, sanction is hereby accorded for raising of speed of Airport Metro Express Line (AMEL) from New Delhi to Dwarka Sector-21 from 80 kmph to 90 kmph subject to following stipulations:-

1. Observance of all temporary and permanent speed restrictions in force and / or those as may be imposed from time to time on various accounts.
 2. Compliance of all the conditions stipulated in DMRC Joint Safety Certificate no. SG-1/2019 and concomitant Bridge, Track, Signaling, Viaduct, Rolling stock & OHE certificates.
 3. Competent authority of DMRC shall furnish Safety Certificate in respect of train operation in ATP/ATO mode complying with essential conditions, if any stipulated for safety by the signaling and Train Control Supplier.
 4. There is no infringement to any of the dimensions to the DMRC Schedule of Dimensions for Standard Gauge for Delhi Airport Metro Express Line.
- Here are requested to comply the above stipulations
- 19/7
19/7/19
- ED/CI/02M, CM/SET/02M
ED/RS/02M, CM/SET/02M
CM/SET/02M
ED/CI/02M, CM/SET/02M
ED/RS/02M, CM/SET/02M, CM/BIW/TR
RMO, ED/RS
Copy to OED/02M, DP, DRS, DDM and DE for info.
CM/IT to update on intranet

(Shailesh Kumar Pathak)
Chief Commissioner of Railway Safety

पूर्वोत्तर रेलवे, मं. रे., प्र. कार्यालय परिसर 18, अशोक मार्ग, लखनऊ-226001

टेली. फोन : 0522-2233108 फैक्स : 0522-2233095

N. E. Railway, DRM Office Campus, 16-Ashok Marg, Lucknow-226001



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धौला कुआँ मेट्रो स्टेशन,
नई दिल्ली-110021

भारत सरकार
नागर विमानन मंत्रालय
(रेल संरक्षा आयोग)

GOVERNMENT OF INDIA
MINISTRY OF CIVIL AVIATION
(COMMISSION OF RAILWAY SAFETY)



Commissioner of Metro Railway Safety,
Dhaura Kuan Metro Station,
New Delhi-110021



No. Q/13/12/DMRC/CMRS/2019/831

Date: 17.03.2023

SANCTION

Sub: Sanction for raising operational speed of Airport Metro Express Line (AMEL) from New Delhi to Dwarka Sector-21.

- 1.0 Sanction for raising of speed of Airport Metro Express Line (AMEL) of DMRC to 90 Kmph was accorded by CMRS vide **letter no. 12014/16/2019-20/Raising of Speed/3.परि./236 dated 19.07.2019**. Further to this, approval for modification/ replacement of Tension Clamps components SKL15 with SKL15 HF with insulator of approved fastening system 300-1U of Delhi Airport Metro Express Line (DAMEL) has been granted by Railway Board vide letter no. **2006/Proj./DM/1/1 Vol.III dated 27.02.2023**.
- 2.0 Approval of test trials of AMEL from New Delhi to Dwarka Sector-21 with the modified Tension Clamps was conveyed by this office vide letter no. **Q/13/12/DMRC/CMRS/2019/816 dated 02.03.2023**, with certain conditions. Now DMRC vide letter no. **DMRC/20/IV-410/2022 dated 16.03.2023** has submitted the tabulated details of various parameters as mentioned in trial scheme for speed raising of Airport Express Line.
- 3.0 On the request of MD/DMRC, I have witnessed the test trials of AMEL of DMRC on the intervening night of 15th and 16th March 2023. ED/Track, Sr.GM/O&M and other senior officials of DMRC accompanied me during the trials. Having satisfied myself that the provisions of Section 15(1) of the Metro Railways (Operations & Maintenance) Act, 2002 have been substantially complied with, I, under the powers delegated to me vide Rule 22(1) of the "Opening of Metro Railways for Public Carriage of Passengers Rules, 2013" hereby sanction the raising of maximum operational speed of Airport Metro Express Line of DMRC from New Delhi to Dwarka Sector-21, subject to the following conditions: -
 - 3.1 The speed shall be raised in stages.
 - 3.2 In first stage, the speed should be raised maximum up to 100 Kmph and the various parameters as mentioned in the trial scheme shall be measured for 30 days. After the completion of 30 days, the report of various measured parameters shall be submitted to the CMRS Office.
 - 3.3 High acceleration peak values were consistently recorded on UP line viaduct section at speeds higher than 100kmph and hence continuous measurement shall be done with accelerometer and strain gauges instrument setup at these locations. Since the issue of high acceleration peak values is limited to UP line viaduct, the

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track and civil structure on UP line viaduct should be thoroughly checked and attended to reduce the peak values of acceleration to the desired level.

- 3.4 In second stage, on successful performance in first stage & attention of UP track viaduct, and with the approval of CMRS, the speed should be raised maximum up to 110 Kmph and the various parameters as mentioned in the trial scheme shall be measured for 30 days. After the completion of 30 days, the report of various measured parameters shall be submitted to the CMRS Office.
- 3.5 In third stage, on successful performance in second stage and with the approval of CMRS, the speed should be raised maximum up to 120 Kmph and the various parameters as mentioned in the trial scheme shall be measured for 30 days. After the completion of 30 days, the report of various measured parameters shall be submitted to the CMRS Office. The final sanction of speed raising to 120 kmph will be conveyed after successful performance in the third stage.
- 3.6 Compliance of all stipulations and conditions laid down in system approvals and speed certificates and compliance of conditions, safe operating requirements, safety related application conditions, and other requirements.
- 3.7 Maximum permissible speed on curves shall be less than or equal to maximum permissible speed of curve calculated based on available cant, cant deficiency, length of transition curve satisfying design criteria with respect to permitted rate change of cant/ cant deficiency and maximum cant gradient and other relevant factors governing speed on curves.
- 3.8 Further, the maximum permissible speed shall be further restricted as per permanent and temporary speed restrictions in force or those that may be imposed from time to time due to OHE, Track, Bridges/Viaduct, Curves, Rolling stock, Signalling, etc.
- 3.9 Date of implementation of above sanction shall be advised to the commission.
- 3.10 This sanction is valid for a period of 3 months from the date of its issue. Fresh sanction shall be obtained from the commission if the above sanction is not implemented within above period.

Any dilution in the conditions mentioned above shall automatically invalidate the sanction.


(जनक कुमार गर्ग)
12/3/23
मेट्रो रेल संरक्षा आयुक्त
नई दिल्ली

Copy to:

1. The Chief Commissioner of Railway Safety, Ashok Marg, Lucknow
2. The Secretary, Ministry of Housing & Urban Affairs, Nirman Bhawan, New Delhi
3. The Managing Director, DMRC, Metro Bhawan, New Delhi.



INCREASING TO 100 KMPH, A MAJOR CHALLENGE FOR DELHI METRO ENGINEERS

PRESS RELEASE

New Delhi, dt. 22.03.2023

INCREASING TO 100 KMPH, A MAJOR CHALLENGE FOR DELHI METRO ENGINEERS

Increasing the operational speed of the Airport Express Link to 100 KMPH was a major engineering challenge for Delhi Metro's engineers. Meticulous planning, round-the-clock supervision, and determination to not let the work impact passenger operations were the key highlights of this mammoth effort.

This will rank as one of the most challenging technological advancements in the history of Metro train Operations in the country. A detailed mechanism for the replacement of certain rail components, maintenance, and repair of civil structures, and re-profiling of certain Rolling stock components were put in place and the target was achieved only within six months, much ahead of the expected deadlines.

It is a historic technological advancement in Metro train operations as the raising of operational speed included a lot of track-related maintenance activities ensuring minimum inconvenience to passengers. The major activity included the replacement of more than 2.6 Lakh existing tension clamps located on the rails across the entire AEL network with high-frequency tension clamps to make them more compatible with the revised speed strength.

It was an extremely challenging task for the maintenance team to replace all these clamps for the entire corridor within the allotted maintenance block hours. More than 100 technical staff were deployed each night for the replacement of these clamps to ensure timely completion. After the completion of tension clamp replacement work, each fastening was checked thoroughly. The entire work on the UP and DOWN lines (46 KM total) of the AEL was completed within just six months due to the tireless efforts of the engineering team from different concerned wings of DMRC.

Since the Airport Express Line hosts thousands of national and international passengers every day, efforts were taken to ensure that the maintenance activities are carried out causing the least possible interference to Metro Operations on the line. At some smaller sections on the line, single-line movement had to be planned in the non-peak revenue hours. The passengers were suitably guided through announcements, social media posts, and press statements about the alternative routes during these affected hours.

The operational speed of the Metro trains on the Airport Express Line (AEL) have now been increased from 90 KMPH to 100 KMPH from today onwards i.e. 22nd March 2023 after receiving the mandatory approval from the Commissioner of Metro Rail Safety (CMRS). The speed of trains will further be increased to 120 KMPH in a graded manner subsequently.

The total travel time between New Delhi Airport Line to Dwarka Sec-21 Metro stations after the current increase in the operational speed of metro trains on the AEL will be around 21 minutes. Further, the travel time on the AEL will be reduced to 19 minutes only, after the maximum speed limit of 120 KMPH is implemented in future.

The 23 KM-long Airport Express Line is the fastest Metro connection in India providing seamless connectivity from the New Delhi Railway Station to Dwarka Sector 21 through IGI Airport T-3 and Aerocity. The average daily passenger journeys performed on the Airport Express Line is around 65000.

Anuj Dayal
 Principal Executive Director
 Corporate Communications



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धौला कुआँ मेट्रो स्टेशन,
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भारत सरकार
नागर विमानन मंत्रालय
(रेल संरक्षा आयोग)

GOVERNMENT OF INDIA
MINISTRY OF CIVIL AVIATION
(COMMISSION OF RAILWAY SAFETY)



Commissioner of Metro Railway Safety,
Dhaura Kuan Metro Station,
New Delhi-110021



No. Q/13/12/DMRC/CMRS/2019/ 75

Date 16.06.2023

SANCTION

Raising of Sectional Speed of Airport Metro Express Line (AMEL) between New Delhi to Dwarka Sector-21 Stations from 100kmph to 110kmph.

- 1.0 Sanction for raising of speed of Airport Metro Express Line (AMEL) of DMRC to 90 Kmph was accorded by CMRS vide letter no. 12014/16/2019-20/Raising of speed/3.परि./236 dated 19.07.2019. Further to this, approval for modification/replacement of Tension Clamps components SKL15 with SKL15 HF with insulator of approved fastening system 300-1U of Delhi Airport Metro Express Line (DAMEL) has been granted by Railway Board vide letter no. 2006/Proj./DM/1/1 Vol.III dated 27.02.2023.
- 2.0 Approval of test/trials of AMEL from New Delhi to Dwarka Sector-21 with the modified Tension clamps was conveyed by this office vide letter no. Q/13/12/DMRC/CMRS/2019/816 dated 02.03.2023. Further sanction for raising of speed of Airport Metro Express Line (AMEL) of DMRC was accorded by this office vide letter no. Q/13/12/DMRC/CMRS/2019/831 Dated 17.03.2023 with conditions to raise speed in stages. A maximum speed of 100 kmph was permitted and measurement of various parameters as per test scheme was required in the first stage.
- 3.0 DMRC vide letter no DMRC/20/IV-410/2022 dated 28.04.2023 submitted the detailed measurement of various parameters along with Technical Report from M/s ARTS GmbH dated 19th April 2023 and observations regarding these details were conveyed to DMRC.
- 4.0 Now, DMRC vide letter no. DMRC/20/IV-410/2022 dated 14.06.2023 has submitted the required details along with Technical Report of M/s ARTS GmbH, and requested sanction of raising of speed from 100 kmph to 110 kmph.
- 5.0 Having satisfied myself that the provisions of Section 15(1) of the Metro Railways (Operations & Maintenance) Act, 2002 have been substantially complied with, I under the powers delegated to me vide Rule 22(1) of the "Opening of Metro Railways for Public Carriage of Passengers Rules, 2013" hereby sanction the raising of maximum operational speed of Airport Metro Express Line of DMRC from New Delhi to Dwarka Sector-21, subject to the following conditions:
 - i. The maximum speed shall be raised to 110 Kmph excluding elevated section of UP line from chainage 13532.24m to chainage 6494.05m (7.038km) lying between Aerocity to Shivaji Stadium metro station. The maximum permissible speed shall be further restricted as per permanent and temporary speed restrictions in force or those that may be imposed from time to time due to OHE, Track, Bridges/Viaduct, Curves, Rolling Stock, Signalling etc. The various


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Scan-3: CMRS Sanction for 110 kmph

parameters as mentioned in the trial scheme shall be measured for at least 30 days. After the completion of 30 days, the report of various measured parameters shall be submitted to CMRS office.

- ii. DMRC shall ensure that the trains shall be operated by only those Train Operators who have cleared the high-speed Psychometric test.
- iii. Further all the terms, requirements, and conditions mentioned in the previous sanction will continue to be in effect and must be complied with.
- iv. Date of implementation of above sanction shall be advised to the commission.
- v. This sanction is valid for a period of 3 months from the date of issue. Fresh sanction shall be obtained from the commission if the above sanction is not implemented within above period.

Any dilution in the conditions mentioned above shall automatically invalidate the sanction.


 (जनक कुमार गर्ग)
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Sl	Date	Peak Speed (kmph)	Remarks
1	23.02.2011	105	Peak speed permitted at the start of commercial operations
2	Dec 2011 ~	80 in tunnel section; 95 in viaduct section	Speed reduced upon detection of failure of rail clips.
3	May-Jun'12	25 over severely affected portions	Speed drastically reduced and later services suspended w.e.f. 08.07.2012
4	22.01.2013	50	Services resumed
5	30.01.2013	60	After 1 week, speed increased to 60 kmph
6	12.02.2013	70	After another 2 weeks, speed increased to 70 kmph which continued till 30.06.2013, after which Project handed over to DMRC.
7	02.08.2013	80	After taking over the Project on 01.07.2013, DMRC increased the peak operating speed to 80 kmph from 02.08.2013. This peak speed continued for 6 years.
8	July 2019	90	Peak operating speed was increased to 90 kmph after a period of 6 years.
9	22.03.2023	100	DMRC's press release dated 22.03.2023 says, "A detailed mechanism for the replacement of certain rail components, maintenance, and repair of civil structures, and re-profiling of certain Rolling stock components were put in place and the target was achieved only within six months, much ahead of the expected deadlines." The peak operating speed was increased to 100 kmph after a period of almost 4 years after July 2019.
10	22.06.2023	110	DMRC's press release dated 22.06.2023. The CMRS sanction dated 16.06.2023 says in para 5.0(i) that "The maximum speed shall be raised to 110 Kmph excluding elevated section of UP line from chainage 13532.24 m to chainage 6494.05 m (7.038 km) lying between Aerocity to Shivaji Stadium metro station."
11	17.09.2023	120	DMRC's press release dated 16.09.2023. The exclusion of 7.038 km of viaduct UP line continues in the CMRS sanction dated 06.09.2023.



दिल्ली मेट्रो रेल कॉर्पोरेशन लिमिटेड
DELHI METRO RAIL CORPORATION LTD.
(भारत सरकार एवं दिल्ली सरकार का संयुक्त उपक्रम)
(A JOINT VENTURE OF GOVT. OF INDIA AND GOVT. OF NCT DELHI)



DELHI METRO INCREASES OPERATIONAL SPEED TO 110 KMPH ON AIRPORT EXPRESS LINE, BRINGS AIRPORT FURTHER CLOSE TO CITY CENTRE (RAJIV CHOWK)

PRESS RELEASE

New Delhi, DATED: 22.06.2023

DELHI METRO INCREASES OPERATIONAL SPEED TO 110 KMPH ON AIRPORT EXPRESS LINE, BRINGS AIRPORT FURTHER CLOSE TO CITY CENTRE (RAJIV CHOWK)

The operational speed of the Metro trains on the 23 KM-long Airport Express Line (AEL) connecting New Delhi to Dwarka Sec-21 via IGI Airport has now been increased from 100 KMPH to 110 KMPH from today onwards i.e. 22nd June 2023 after receiving the mandatory approval from the Commissioner of Metro Rail Safety (CMRS).

With this enhancement, DMRC has set a new benchmark in the Indian Metro sector by achieving a remarkable speed of 110 kmph and continues to hold the distinction of being one of the fastest Metro systems in India.

With the increase in the operational speed to 110 KMPH, passengers can now reach from New Delhi to Airport (T-3) in just around 16 minutes. This speed enhancement has also brought the Airport much closer to the city centre Rajiv Chowk which is accessible within 15 minutes now. The total travel time from New Delhi to Dwarka Sec-21 Metro station after the current increase will be around 20 minutes. Further, the total travel time on the entire AEL will be reduced to 19 minutes only, after the maximum speed limit of 120 KMPH is ultimately implemented in coming days.

This achievement not only highlights DMRC's commitment to innovation and efficiency but also brings excellent news for passengers traveling to the airport. The combination of high-speed travel and hassle-free connectivity to the airport offers commuters a convenient and economical option.

Moreover, passengers traveling to the airport arrival often face the challenge of finding parking spaces and incurring expensive parking charges. By opting for the Metro, passengers can not only enjoy a comfortable, seamless and economical journey but also avoid the inconveniences associated with parking at the airport.

In addition, DMRC has also recently taken measures for passenger convenience in terms of fast and cashless ticketing options through QR codes and WhatsApp based ticketing which eliminates need for travellers especially those arriving from abroad to go to ticket counters/stand in queue.

Delhi Metro has increased the operational speed of metro trains from 90 KMPH to 100 KMPH on the Airport Express Line on 22nd March, 2023. The speed of trains will further be increased from 110 KMPH to 120 KMPH after getting the necessary clearance subsequently.

Anuj Dayal
Principal Executive Director
Corporate Communication
Delhi Metro Rail Corporation

< Back



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(रेल संरक्षा आयोग)

GOVERNMENT OF INDIA
MINISTRY OF CIVIL AVIATION
(COMMISSION OF RAILWAY SAFETY)



Commissioner of Metro Railway Safety,
Dhauila Kuan Metro Station,
New Delhi-110021



No. Q/13/12/DMRC/CMRS/2019/147

Date 06.09.2023

SANCTION

Raising of sectional Speed of Airport Metro Express Line (AMEL) between New Delhi to Dwarka Sector-21 stations from 110 kmph to 120 kmph.

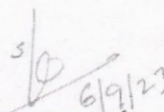
- 1.0 Sanction for raising of speed of Airport Metro Express Line (AMEL) of DMRC to 90 Kmph was accorded by CMRS vide letter no. 12014/16/2019-20/Raising of speed/3.परि./236 dated 19.07.2019. Further to this, approval for modification/ replacement of Tension Clamps components SKL15 with SKL15 HF with insulator of approved fastening system 300-1U of Delhi Airport Metro Express Line (DAMEL) has been granted by Railway Board vide letter no. 2006/Proj./DM/1/1 Vol.III dated 27.02.2023
- 2.0 Approval to conduct test trials of AMEL from New Delhi to Dwarka Sector-21 with the modified Tension clamps was conveyed by this office vide letter no. Q/13/12/DMRC/CMRS/2019/816 dated 02.03.2023. Further sanction for raising of speed of Airport Metro Express Line (AMEL) of DMRC was accorded by this office vide letter no. Q/13/12/DMRC/CMRS/2019/831 Dated 17.03.2023 with condition to raise speed in stages, In first stage maximum upto 100 kmph and with regular monitoring.
- 3.0 Sanction for raising of sectional speed of Airport Metro Express line (AMEL) between New Delhi to Dwarka Sector-21 stations from 100 kmph to 110 kmph excluding elevated section in UP line from chainage 13532.24m to chainage 6494.05m (7.038 km) lying between Aerocity to Shivaji Stadium metro station was accorded by this office vide letter no. Q/13/12/DMRC/CMRS/2019/75 dated 16.06.2023.
- 4.0 DMRC vide letter no DMRC/20/IV-410/2022 dated 13.07.2023 has submitted the M/s ARTS Gmbh report dated 12.07.2023 and requested to accord sanction for further raising of sectional speed of Airport Metro Express line (AMEL) between New Delhi to Dwarka Sector-21 stations (Both line) except in location of UP line from chainage 6494.05m to chainage 13532.24m (7.038 km) from 110 kmph to 120 kmph.
- 5.0 On the request of MD/DMRC, I have witnessed the test trials of AMEL of DMRC on the intervening night of 17th & 18th July 2023. ED/ Track, Sr. GM/O&M and other senior officials of DMRC accompanied me during the trials. Further an Inspection report was issued to DMRC vide tis office letter no. Q/13/12/DMRC/CMRS/2019/126 dated 08.08.2023.
- 6.0 Now, DMRC vide letter no. DMRC/20/IV-426/2023 dated 04.09.2023 has submitted M/s ARTS GmbH Technical report dated 22.08.2023 and M/s ARTS GmbH clarification letter dated 29.08.2023 for slight increase in acceleration values with increase in speed, along with other necessary documents.

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7.0 Having satisfied myself that the provisions of Section 15(1) of the Metro Railways (Operations & Maintenance) Act, 2002 have been substantially complied with, I under the powers delegated to me vide Rule 22(1) of the "Opening of Metro Railways for Public Carriage of Passengers Rules, 2013" and based on the documents/ certificates submitted by DMRC, approval is hereby accorded for the raising of maximum operational speed of Airport metro Express line of DMRC from New Delhi to Dwarka Sector-21, subjected to the following conditions:

- i. The maximum speed shall be raised to 120 kmph excluding elevated section of UP line from chainage 13532.24m to chainage 6494.05m (7.038 km) lying between Aerocity to Shivaji Stadium metro station. The maximum permissible speed shall further restrict as per permanent and temporary speed restrictions in force or those that may be imposed from time to time due to OHE, Track, Bridges/Viaduct, Curves, Rolling Stock, Signalling etc.
- ii. Further, monitoring and measurement of various parameters as mentioned in the trial scheme shall be continued at 120 kmph for atleast 30 days. After the completion of 30 days, the report of various measured parameters shall be submitted to this office.
- iii. DMRC shall approach separately for raising the sectional speed between elevated section of UP line from chainage 13532.24m to chainage 6494.05m (7.038 km) lying between Aerocity to Shivaji Stadium metro station till that time the sectional speed in the mentioned section shall be 100 kmph further restricted to permanent and temporary speed restrictions in the section.
- iv. Measurement of Noise and Vibration at 120 kmph shall be conducted & report shall be submitted to this office within 15 days from the date of issue of this sanction.
- v. Compliance of the conditions/stipulations mentioned in the Technical report of M/s ARTS shall be ensured.
- vi. DMRC shall ensure that the trains shall be operated by only those Train Operators who have cleared the high-speed Psychometric test.
- vii. Further all other conditions/stipulations mentioned in the previous sanctions will continue to be in effect and must be complied with.
- viii. Date of implementation of above sanction shall be advised to the commission.
- ix. This sanction is valid for a period of 3 months from the date of issue. Fresh sanction shall be obtained from the commission if the above sanction is not implemented within above period.

Any dilution in the condition mentioned above shall automatically invalidate the sanction.


(जनक कुमार गर्ग)
मेट्रो रेल संरक्षा आयुक्त
नई दिल्ली



दिल्ली मेट्रो रेल कॉर्पोरेशन लिमिटेड
DELHI METRO RAIL CORPORATION LTD.
(भारत सरकार एवं दिल्ली सरकार का संयुक्त उपक्रम)
(A JOINT VENTURE OF GOVT. OF INDIA AND GOVT. OF NCT DELHI)



DMRC ACHIEVES MAJOR ENGINEERING LANDMARK; ALL SET TO OPERATE AIRPORT EXPRESS LINE AT A SPEED OF 120 KMPH FROM TOMORROW

PRESS RELEASE

New Delhi, 16.09.2023

DMRC ACHIEVES MAJOR ENGINEERING LANDMARK; ALL SET TO OPERATE AIRPORT EXPRESS LINE AT A SPEED OF 120 KMPH FROM TOMORROW

From tomorrow, the 17th of September 2023 onwards, the Delhi Metro Rail Corporation (DMRC) is going to operate the Airport Express Line at a massive speed of 120 kilometres per hour (KMPH). This historic increase in speed of India's fastest Metro corridor gradually from 90 KMPH to 120 KMPH has been made possible by meticulous planning and time-bound implementation by DMRC's engineers in consultation with a number of other government agencies and domain experts.

To facilitate the movement of the trains at such a high speed, over 2.6 lakh tension clamps were replaced on the entire corridor. The bulk of the work was carried out in the night time from 11 PM till 7 AM to ensure minimal hindrance to the smooth operation of services. Over 100 workers were deployed at a time for this work.

Before taking up this mammoth exercise, the efficacy of these clamps was checked on a kilometre-long trial track. Various measurements including vibration & stresses on rails were carried out using advanced instruments on this trial track before implementing the same on the main corridor. The estimated timeline for the completion of this task was 18 months. However, DMRC took the challenge and successfully ensured the completion of the work within just six months.

A highly advanced system consisting of 3D accelerometers and strain sensors was deployed for continuous measurement of vibrations and strains on the tracks at different speed levels. Oscillation monitoring was performed at speeds from 90 KMPH to 120 KMPH to ascertain smooth movement at higher speed levels. Tremendous efforts were put in by DMRC officials to analyse the measurement data at various speeds to understand the behaviour and response of the system.

The signalling infrastructure also required verification of all software and safety certifications of the main system and the subsystems at such high speed. The interface testing with rolling stock and passenger information systems was also checked in detail. The working of the Passenger Screen Doors (PSDs) in coordination with the movement of the train was also done. Extensive testing of all signalling equipment was conducted in a graded manner involving track, rolling stock, traction for over two months.

During the non-revenue hours, the Over Head Equipment (OHE) system was also made suitable for the movement of trains at 120 KMPH. Eventually, after all these efforts, Delhi Metro increased the operational speed of Metro trains on the Airport Express Line from 90 KMPH to 100 KMPH on 22nd March 2023. The speed of the trains was further increased to 110 KMPH on 22nd June 2023. As mentioned above, the speed shall be further increased to 120 KMPH from tomorrow. The safety certification for the same has already been received earlier this month.

The total journey from New Delhi to Yashobhoomi Dwarka Sector-25 will take about 21 minutes. Earlier the travel time between New Delhi and Dwarka Sector – 21 was approximately 22 minutes and now it has reduced to around 19 minutes between these two stations, leading to a saving of 3 minutes. The approximate travel time between New Delhi and Terminal – 3 Airport will be about 15 minutes and 30 seconds. Earlier, it was a little more than 18 minutes.

Anuj Dayal
Principal Executive Director
Corporate Communications
DMRC