11 November, 2026

To: Shri Mahmood Ahmed
Additional Secretary (MVL, Transport & Road Safety)
Ministry of Road Transport and Highways, Government of India
Transport Bhawan, Parliament Street, New Delhi – 110001
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Subject: Comments of the Manufacturers of Emission Controls Association (MECA) on Draft Notification G.S.R. 880(E) dated 12 October 2026 – Bharat Stage VII Emission Standards for Category M1 Vehicles, with respect to Evaporative Emissions

Respected Sir,

The Manufacturers of Emission Controls Association (MECA) appreciates the opportunity to submit comments on draft notification G.S.R. 880(E), dated 12 October 2026, which proposes to insert Bharat Stage VII (BS-VII) emission standards for Category M1 vehicles into Rule 115 of the Central Motor Vehicles Rules, 1989. Our members design, manufacture and supply the emission control technologies that enable vehicle manufacturers to meet emission standards in India and around the world, including the evaporative and refueling emission control systems that are the focus of these comments.

We commend the Ministry for advancing BS-VII, including evaporative emission requirements, with an implementation timeline of 1 April 2029. The supplier community stands ready to support vehicle manufacturers in meeting and exceeding these proposed evaporative emission standards through proven emissions control technologies that are already deployed globally. We view BS-VII as an important opportunity to address India's own air-quality, environmental, and consumer needs.

With respect to evaporative emissions, it is our position that BS-VII can and should go further. India has an opportunity to build upon Euro 7, rather than adopt it without adaptation. The purpose of regulation is not harmonisation itself, but effective emissions control under actual operating conditions. The draft represents a direct transposition of the European Euro 7 requirements, including a 1.5 g/test limit demonstrated through the AIS-215 procedure, where Draft D0 remains aligned with the Euro 7 48-hour diurnal test cycle of 20–35°C. In our view, India's climatic conditions, vehicle operating environment, and air-quality challenges warrant a more India-representative approach and adoption of more stringent emission limits in line with those already adopted across the world.

India's climate differs materially from Europe, particularly with respect to temperature exposure. Since evaporative emissions are highly temperature dependent, test procedures developed for European conditions may not adequately represent emissions performance in India. BS-VII should therefore incorporate temperature conditions representative of the Indian operating environment so that compliance requirements drive real-world reductions in hydrocarbon emissions, ozone and particulate matter forming pollutants, and fuel losses.

BS-VII presents an opportunity to deliver additional reductions in volatile organic compounds (VOC), including benzene, and ozone-forming emissions through a more robust evaporative emissions program, while leveraging technologies that are already commercially available, cost-effective, and deployable within the proposed implementation timeline.

MECA respectfully recommend that the Ministry:

1. **Adopt India-representative, higher-temperature diurnal test conditions.** Require a 48-hour diurnal evaporative emissions test for all vehicles operating on gasoline or gasoline-blended fuels, using at minimum a 25–40°C temperature profile. MoRTH and ARAI should evaluate whether a higher maximum temperature, including a 30–45°C profile, is warranted based on representative Indian climatic and vehicle fuel-tank temperature data. This can be implemented through a targeted revision of AIS-215, preserving the harmonised test structure and existing testing infrastructure while ensuring that certification conditions are representative of real-world vehicle operation in India.
2. **Adopt lower evaporative emission limit values.** MECA recommends a BS-VII limit of 1.0 g/test, calculated as the hot-soak result plus Day 1 and Day 2 diurnal emissions and the applicable permeability factor. In collaboration with the Emission Control Manufacturers Association (ECMA), MECA conducted a test program at ARAI which shows this is achievable: a vehicle with U.S. Tier 3 evaporative controls stayed below 1.0 g/test under the Indian procedure even at the 30–45°C profile. This would allow India to adopt a standard suited to its own climatic and air-quality conditions while aligning with the level of control already demonstrated in other major vehicle markets.
3. **Plan for on-board refueling vapour recovery (ORVR) in a later BS-VII phase.** Consider ORVR requirements (0.05 g/L), as implemented in the United States, Brazil and China, to complement station-based vapour recovery systems and deliver consistent control of refueling emissions at an efficiency of 98%.
4. **Support the decision with a cost-benefit assessment.** Consult the automotive supplier industry to assess compliance costs alongside fuel conservation, consumer savings and public health benefits.
5. **Continue collaborative technical review.** Reconvene the relevant AISC/ARAI evaporative emissions panel to formally review the ECMA–MECA test evidence before AIS-215 and the BS-VII notification are finalised.

1. Euro 7 was designed for European conditions, not Indian conditions

When Europe established its evaporative emissions temperature profile, it selected conditions intended to represent a typical summer day in the region being regulated. The European Commission's Joint Research Centre has explicitly observed that the existing 20-35°C profile is representative of summer temperatures in Southern Europe, illustrating that warmer climatic regions and summer periods were an important consideration in procedure development[1,2]. We respectfully request that India apply the same regulatory principle in developing a profile suitable for India. Additionally, UN GTR 19 specifically states varying ambient temperatures on a global scale puts limitations on the level of harmonisation that can be achieved due to the

[1] Review of the European Test Procedure for Evaporative Emissions: Main Issues and Proposed Solutions, JRC Final Report, 2012. https://publications.jrc.ec.europa.eu/repository/bitstream/JRC77061/final_evap_report_online_version.pdf
[2] Joint EUCAR/JRC/CONCAWE Study on: Effects of Gasoline Vapour Pressure and Ethanol Content on Evaporative Emissions from Modern Cars, 2007.
https://publications.jrc.ec.europa.eu/repository/bitstream/JRC36839/6839%20-%20EVAP_Final_Report_final_isbn.pdf

need to represent real driving conditions[3]. Rather than simply transposing a European temperature profile, BS-VII should reflect Indian climatic conditions, where summer ambient temperatures frequently reach 40°C and can exceed 45°C in many regions.

Large European cities exceed 35°C on generally less than 5% of days, whereas many Indian cities exceed 35°C on more than 100 days per year, and cities such as Ahmedabad record 53–60 days per year at or above 40°C. Fuel tank temperatures in parked vehicles can exceed ambient air temperatures, due to solar heating of the vehicle and road surfaces. Because fuel vapour generation rises steeply with temperature, a certification test anchored at a European 35°C peak temperature will systematically underestimate evaporative emissions from vehicles operating in India. Adopting a higher-temperature diurnal profile for BS-VII would better represent real-world vapor generation, maximize air-quality and public-health benefits, and ensure evaporative-emissions controls are robust under the conditions in which Indian vehicles actually operate.

New test data generated through a collaborative ECMA–MECA program, with testing at ARAI, demonstrate this directly. A 2024 BS-VI passenger car tested under the AIS-175 Type IV procedure emitted **1.36 g/test** at the 20–35°C certification profile, emissions well below the BS-VI 2.0 g/test limit and even below the proposed BS-VII 1.5 g/test limit. With no change to the vehicle, fuel, laboratory equipment, test sequence, or measurement procedures, measured emissions increased to **8.35 g/test** at 25–40°C (more than 5 times the proposed BS-VII limit) and **53.1 g/test** at 30–45°C (about 35 times the proposed BS-VII limit). These results provide a clear demonstration of the risk that certification at a 35°C maximum temperature can substantially understate evaporative emissions under hotter conditions experienced in India. Additional vehicle testing would help quantify the magnitude of this effect across the Indian fleet, but the underlying temperature sensitivity of fuel-vapour generation is well established.

The Automotive Industry Standards Committee (AISC) has itself recognised that the objective of BS-VII is not simply to replicate European requirements, but to adapt internationally harmonised regulations so that they remain technically representative of Indian conditions. We respectfully urge the Ministry to apply that principle in the final BS-VII notification and final AIS-215.

2. The proposed BS-VII requirements would remain less stringent than evaporative-emissions programs in other major vehicle markets

The proposed reduction of the evaporative limit from 2.0 g/test to 1.5 g/test mirrors the European transition from Euro 6d to Euro 7. Experience in Europe indicates that this change has not required any material changes to evaporative control system designs from Euro 6d. Notably, the European Commission's original Euro 7 proposal included a **0.5 g/day** evaporative-emissions limit (aligned with Brazil), demonstrating the regulator's view that substantially lower emissions were technically achievable. Following negotiations with industry and Member States during the legislative process, the final requirement was weakened to 1.5 g/test as legislative negotiations weighed the Euro 7 proposal against the EU 2035 combustion engine ban under the CO2 performance standards. This policy context is unique to Europe and should not necessarily constrain India's ambition under BS-VII, where internal combustion engine vehicles using higher ethanol fuels is expected well beyond 2035. Meanwhile, other major vehicle markets have long implemented substantially more stringent evaporative and refueling emission requirements using proven, cost-effective technologies, as summarised in Table 1 below.

Although the applicable test procedures and compliance calculations differ across jurisdictions, the United States, Brazil, and China have adopted substantially more stringent evaporative-emissions control programs, including lower numerical limits and mandatory control of refueling emissions. These programs demonstrate

[3] UNECE Addendum 19: Global technical regulation No. 19, See point 13 in Introduction. 1714688

that more effective evaporative and refueling emission control is technically feasible and commercially established.

If adopted as drafted, BS-VII would leave India, together with Europe, with evaporative emission standards that are weaker than those of Brazil, China, and the United States, despite India experiencing far hotter conditions than Europe and more significant air pollution across urban cities. Vehicle manufacturers in India already produce vehicles meeting these stricter standards for export to these other vehicle markets, demonstrating that the technology is mature, commercially available and affordable.

Table 1: Comparison of global evaporative emission regulations.

Market / Standard	Evaporative limit (hot soak + diurnal)	Diurnal test duration	On-board refuelling (ORVR) control
India BS-VII (draft G.S.R. 880(E))	1.5 g/test	2-day	Not required
EU Euro 7	1.5 g/test	2-day	Not required
United States Tier 3	0.30 g/day	3-day	0.05 g/L
Brazil PROCONVE L7	0.50 g/day	2-day	0.05 g/L
China 6b	0.70 g/day	2-day	0.05 g/L

Note: Limits shown are for light-duty passenger vehicles; test procedures differ between jurisdictions. U.S., Brazil and China limits are hot soak plus the highest single diurnal day (U.S.: 3-day test; Brazil and China: 2-day test). India BS-VII and EU Euro 7 limits are hot soak plus the sum of both diurnal days. The values are not directly comparable; on a cumulative basis, the U.S., Brazil and China limits would be roughly twice the values shown.

3. Stricter control is technically proven, cost-effective, and widely implemented outside of Europe and India.

The use of E20 or higher ethanol blends does not provide a technical basis for relaxing the proposed evaporative-emissions limit higher than the proposed 1.5 grams per test. Vapour pressure enhancement from ethanol blending generally peaks around E10 and declines at higher ethanol concentrations, with E20 exhibiting approximately 25% lower vapour generation than E10. Furthermore, Brazil's PROCONVE L7 program applies a 0.5 g/day evaporative-emissions limit to vehicles operating on high-ethanol gasoline blends. Although the Brazilian compliance calculation differs from the proposed BS-VII calculation, the program demonstrates that more stringent evaporative-emissions control is feasible with fuels containing more than 20% ethanol.

In the same ECMA–MECA test program, a U.S. Tier 3 vehicle equipped with a larger evaporative control system as its standard configuration remained **below 1.0 g/test even at the 30–45°C profile with ethanol fuel matched to the vapour pressure of E20**, a reduction of more than 97% compared with the BS-VI vehicle under identical conditions. Supplier analysis, supported by European Commission original Euro 7 proposal cost estimates[4], indicates that improved evaporative control can be achieved at an incremental cost of less than ₹1,400 per light-duty vehicle, while conserving more than 4.2 litres of fuel per vehicle per year and delivering lifetime fuel savings exceeding ₹4,200 per vehicle — more than offsetting the hardware cost for the consumer[5].

[4] Euro 7 Impact Assessment Study, See Table 5-29, hardware costs for larger ORVR-sized canister estimated at 10€ per unit. Euro 7 impact assessment study - Publications Office of the EU

[5] ECMA-MECA Technical Policy Brief: Higher Temperatures, Higher Evaporative Emissions, 2026. Higher Temperatures, Higher Evaporative Emissions: The Case for India-Relevant Test Conditions

Controlling evaporative emissions also directly supports the Government of India's air quality and public health objectives. Gasoline vapours contain benzene, a known human carcinogen, and volatile organic compounds that are precursors to ground-level ozone and secondary PM2.5. The Central Pollution Control Board has already recognised refueling emissions as a significant source of benzene and VOCs, forming the basis for vapour recovery requirements at fuel stations. Vehicle evaporative emissions under high-temperature conditions are a source of the same pollutants and warrant equally robust control.

Conclusion

BS-VII is an opportunity for India to set standards that reflect its own climate and air quality challenges. Adopting Euro 7 evaporative requirements unchanged would retain a temperature profile developed for European climatic conditions and emission limit that does not represent Indian conditions, and would leave India with a weaker standard that lags behind the regulations already adopted in Brazil, China, and the United States. By adopting a higher-temperature diurnal test and lower limit values, India can achieve real-world reductions in benzene and VOC emissions, conserve fuel for consumers, and do so with proven technologies already in production worldwide.

MECA respectfully requests that the Ministry consider these recommendations in finalising G.S.R. 880(E) and AIS-215. Our members would welcome the opportunity to share detailed test data and to continue technical engagement with the Ministry, AISC and ARAI.

Yours sincerely,

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Attachment 1: Higher Temperatures, Higher Evaporative Emissions: Why India's Climate Warrants India-Relevant Evaporative-Emissions Test Conditions (ECMA–MECA, September 2026)