SIAM

Society of Indian Automobile Manufacturers

Building the Nation, Responsibly

Country Report on Regulatory Framework, New Safety, Automated Driving & EV Regulations India

Prashant Kumar Banerjee

Executive Director

SIAM

Contents



1. 6 Airbag, 3pt seat belt and rear seatbelt reminder

2. Bharat NCAP – Status update



3. New Subjects : Update of Passive & Active safety regulations



4. Update on CSMS, SUMS & other ADAS regulations

5. Electric Vehicles Update (5.1/5.2/5.3)

1. 6 Airbag, 3pt seat belt and rear seatbelt reminder

SIAM
Society of Indian Automobile Manufacturers
Building the Nation, Responsibly

1. Mandatory 6 airbags for all M1



Oct 2022 → Postponed → Oct 2023

MoRTH issued **draft GSR** 16(E) dt. 14 Jan 2022

MoRTH issued **draft S.O**. 751 dt. 30th Sep 2022

- Compliance requirement : AIS-99

SIAM submission to MoRTH :
1st Oct, 2024 [NM]
1st Oct, 2026 [AM]

2. Mandatory 3pt seat belts for all M1 (front facing seats)



Oct 2022 → Postponed → Apr 2023

MoRTH issued **draft G.S.R**. 106(E) dt. 11 Feb 2022

MoRTH issued **draft G.S.R. 752(E)** dt. 30 Sep 2022

- Compliance requirement : IS 15140:2018

SIAM submission to MoRTH :
1st Oct, 2024 [NM]
1st Oct, 2026 [AM]

3. Mandatory Rear seat belt reminder for all M1 (front facing seats



Apr 2023

MoRTH issued **draft G.S.R. 752(E)** dt. 30 Sep 2022

- Compliance requirement : AIS 145 (Same as current Driver/Co-driver requirement).
- SIAM request for keeping ECE R16 as alternate process.

SIAM submission to MoRTH :
Apr-24

SIAM is engaging with MoRTH to seek more implementation leadtime for these technologies

2. BNCAP (Bharat New Car Assessment Programme)

SIAM
Society of Indian Automobile Manufacturers
Building the Nation, Responsibly

4. BNCAP (Bharat New Car Assessment Programme)

❑ **Background :**

2013 — MoRTH envisioned a New Car assessment program for India.

Oct'2014 — Final Report of the committee: Proposed BNVSAP in Two Phases (Ph. 1 & Ph. 2)

2016 — BNVSAP Dormant Phase. Focus on Mandatory Regulation Implementation
- Offset, Side Impact
- Pedestrian Safety
- AIS 145 (SBR, Speed Alert etc.) etc.

Oct'2020 — BNCAP retriggered in 66th AISC.

July'2021 — ARAI called meeting with SIAM.

Aug'2021 — Target for final report submission

Nov'2021

Current Status

- Working committees have been created to revamp BNCAP and prepare test protocols.
- BNCAP will cover Adult Occupant Protection (AOP), Child Occupant Protection (COP), Pedestrian Protection & Safety Assist Technologies.
- SIAM and test agencies (ARAI & ICAT) are working jointly on technical protocols.
- **SIAM image is to have BNCAP in Two Phases : Phase 1 (~2022) and Phase 2 (~2025).**

SIAM JAMA Meeting 2021

Current Status

June 2022

1. MoRTH published draft notification G.S.R. 472(E) for BNCAP.
2. Publication of Draft AIS 197 [BNCAP rating and test protocol].

Draft GSR 472(E) dtd 24th June 2022 on BNCAP :

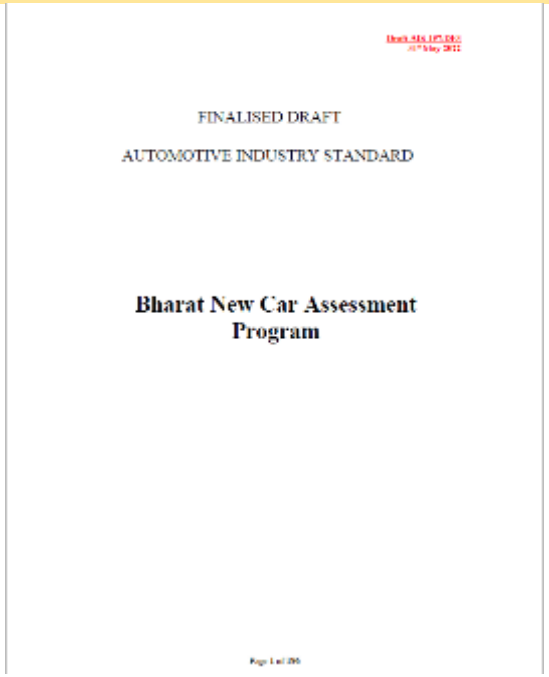
- **Implementation date: 1st Apr 2023** | Implementation on Voluntary Basis | As per AIS 197.
- BNCAP administration by BNCAP Authority to be notified by Central Govt.

Overview of Draft AIS 197

❑ Covers administrative aspects related to :
- Vehicle selection, Testing, Retesting and Reassessment, Publication of Results
- Validity and Applicability of Star Rating

❑ Test protocols for
- Adult Occupant Protection **(AOP)**
- Child Occupant Protocol **(COP)** &
- Safety Assist Technology **(SAT).**

Bharat NCAP
Bharat New Car Assessment Program



FINALISED DRAFT

AUTOMOTIVE INDUSTRY STANDARD

Bharat New Car Assessment Program

3.1 Upcoming regulations

SIAM
Society of Indian Automobile Manufacturers
Building the Nation, Responsibly

A. Under discussion in AISC [Passive Safety Stds.]:

Sr. No.	Subject	UN Reg	Important discussions	Remarks
1	AIS 100 Rev 1 (Pedestrian protection)	UN R127-01 GTR-9	▪ FlexPLI to be made mandatory test device. Test agencies will stop use of TRL leg form for new type approvals. ▪ **AISC Panel proposal on timeline : 2 years for New model [i.e. 1st Oct 2024]**	Applicable only to New Models
2	AIS 101 Rev 1 (Rear crash)	UN R34-02 UN R153-00	▪ AIS 101 Revision 1 is based on UN R34-02 + EV assessment criteria as per UN R153. Test speed 35-38 kmph. ▪ Scope covers only ICE (liquid fuels) and EV models. ▪ **AISC panel proposal on timeline : April 2025 (All models)**	Proposal of Revision 2 to cover gaseous fuel (CNG/LPG) leakage criteria is under discussion.
3	AIS 182 [ISOFIX (if fitted)]	UN R145-00	▪ AIS 182 is based on UN R145 and ISOFIX if fitted basis. ▪ **AISC panel proposal on timelines : 6 months from notification/ Oct 2023 (NM) and 1.5 months/Oct 2024 (EM) whichever is later.**	Not Mandatory. Type approval required “if fitted”
4	New AIS 201 (Full frontal collision)	UN R137-03	▪ Draft regulation is based on UN R137-03. ▪ Scope includes M1 and N1 category. ▪ Panel to debate on scope, particularly on N1. ▪ Chest injury criteria of 42mm also needs to be reviewed.	Under discussion

3.1 Upcoming regulations

SIAM
Society of Indian Automobile Manufacturers
Building the Nation, Responsibly

A. Under discussion in AISC [Passive Safety Stds.]:

Sr. No.	Subject	UN Reg	Important discussions	Remarks
5	**Scope enhancement of crash standards [Alignment with latest UN Regulations]**			
a	AIS-96 Rev 1 (Behavior of Steering Mechanism in a Head-on Collision)	UN R12-04	▪ AIS-96 Revision under discussion based on latest UN R12-04 series. ▪ EV post-crash assessment criteria updated based on GTR20 Ph 1.	
b	AIS-98 Rev 1 (Offset crash)	UN R94-04	▪ Alignment with UN R94-04 series. ▪ Scope enhanced as follows : ○ M1 till 2.5 T ➔ **M1 till 3.5 T.** ○ **New inclusion of N1 till 2.5ton.** ▪ **Chest injury criteria** amended from **50mm ➔ 42mm.** ▪ Auto activated door lock criteria and door opening criteria updated. ▪ EV post-crash assessment criteria updated based on GTR20 Ph 1.	▪ Heavier SUV and EV having GVW above 2.5T will get covered in new scope. ▪ SIAM proposed to exclude N1 from scope.
c	AIS-99 Rev 1 (Side crash)	UN R95-05	▪ Scope enhancement proposal based on R95-05 series. ○ M1 ➔ M1 till 3.5 ton ○ N1 also apply (no change from present). ○ **R point height exemption deleted.** ▪ Auto activated door lock criteria and door opening criteria updated. ▪ EV post-crash assessment criteria updated based on GTR20 Ph 1.	▪ Heavier SUV and EV having GVW above 2.5T which are currently exempted will get covered.

3.2 Upcoming regulations

SIAM
Society of Indian Automobile Manufacturers
Building the Nation, Responsibly

B. Under discussion in AISC [Active Safety Stds.]:

S. No	Regulation	UN Reg	Scope	Remarks
1	AIS 162 [AEBS for other than M1, N1]	UN R131	M2, M3, N2, N3	AISC Panel proposal for timeline : ▪ If fitted basis : Oct-23 onwards ▪ Mandatory basis : ▪ 30 months after final notification (NM) ▪ 36 months after final notification (EM)
2	AIS 184 [Driver Drowsiness and Attention Warning]	Regulation (EU) 2019/2144	M, N2,N3	Proposed on If fitted basis
3	AIS 185 [AEBS for M1 and N1]	UN R152	M1, N1	Proposed on If fitted basis
4	AIS 186 [Blind Spot Information system (BSIS) for detection of Bicycles]	UN R151	M2, M3, N2, N3	Proposed on if fitted basis
5	AIS 187 [Moving Off Information System (MOIS) for the Detection of Pedestrians and Cyclists]	UN R159	M2, M3, N2, N3	Proposed on if fitted basis
6	AIS 188 [Lane departure warning system]	UN R130	M2, M3, N2, N3	Proposed on if fitted basis
7	AIS 189 [Cybersecurity], AIS 190 [Software update]	UN R155 UN R156	M,N,L7	Scope under discussion
8	AIS 191 [Automated Lane Keep System]	UN R157	M,N	Proposed on if fitted basis
9	AIS 192 [Event Data Recorder]	UN R160	M1, N1	
10	AIS 193 [Automatically commanded steering function]	UN R79	M,N	Proposed on if fitted basis

4.1 Cybersecurity & Software Updates [CSMS | SUMS]

SIAM
Society of Indian Automobile Manufacturers
Building the Nation, Responsibly

Current India Status :

- In India AIS (Automotive Industry Standards) are under preparation for CSMS and SUMS & led by M/s Bosch.
  - **AIS 189** deals with **CSMS**. It is derived from **UN R155-00**.
  - **AIS 190** deals with **SUMS**. It is derived from **UN R156-00**
- Currently, Both regulation are at **Draft 2 (D2) stage** of preparation and majority of content is final inline with UN R base versions.
- 2 days virtual workshop involving stakeholders [Test agency/ OEM/Suppliers] conducted to discuss requirements & implementation challenges was conducted in Sep'2022.

Open Points in Regulation :

- **Applicability wrt Level of Automation**
- **Implementation Timeline** as Panel proposal to Govt.

SIAM Request to JAMA

As Japan has implemented the CSMS and SUMS beforehand & also members have experience in EU market, SIAM seeks JAMA's views on Implemenation approach in India and compliance nitty-gritty based on JP/EU experience.

4.2 Driver Drowsiness & Attention Warning (DDAW)

SIAM
Society of Indian Automobile Manufacturers
Building the Nation, Responsibly

Current India Status :

- ❑ AIS 184 deals with DDAW & aligned with Base version of EU [directive 2021/1341].
- ❑ Currently D3 draft of AIS 184 is under circulation.
  - **M1 :** System actuation conditions to be kept same as EU i.e. 70kmph.
  - **N1 :** proposed to be exempted (deviation from EU)
  - Other categories : system actuation speeds changed to 60kmph to address SLD.

Open point in regulation :

- ❑ Type approval methodology to be established with test agency.



4.3. Event Data Recorder (EDR)

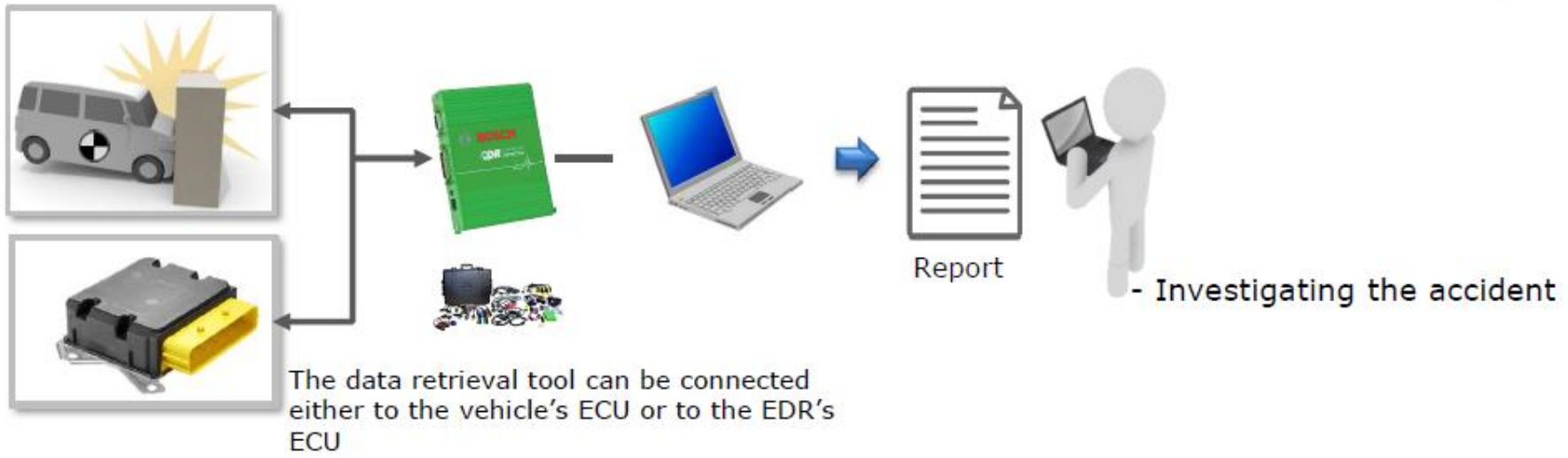
SIAM
Society of Indian Automobile Manufacturers
Building the Nation, Responsibly

Background :

- In India AIS 192 is under preparation for Event Data Recorder. It is aligned with UN R160-00.
- Currently, it is in **Draft 2 (D2) stage** of preparation.

Open Points :

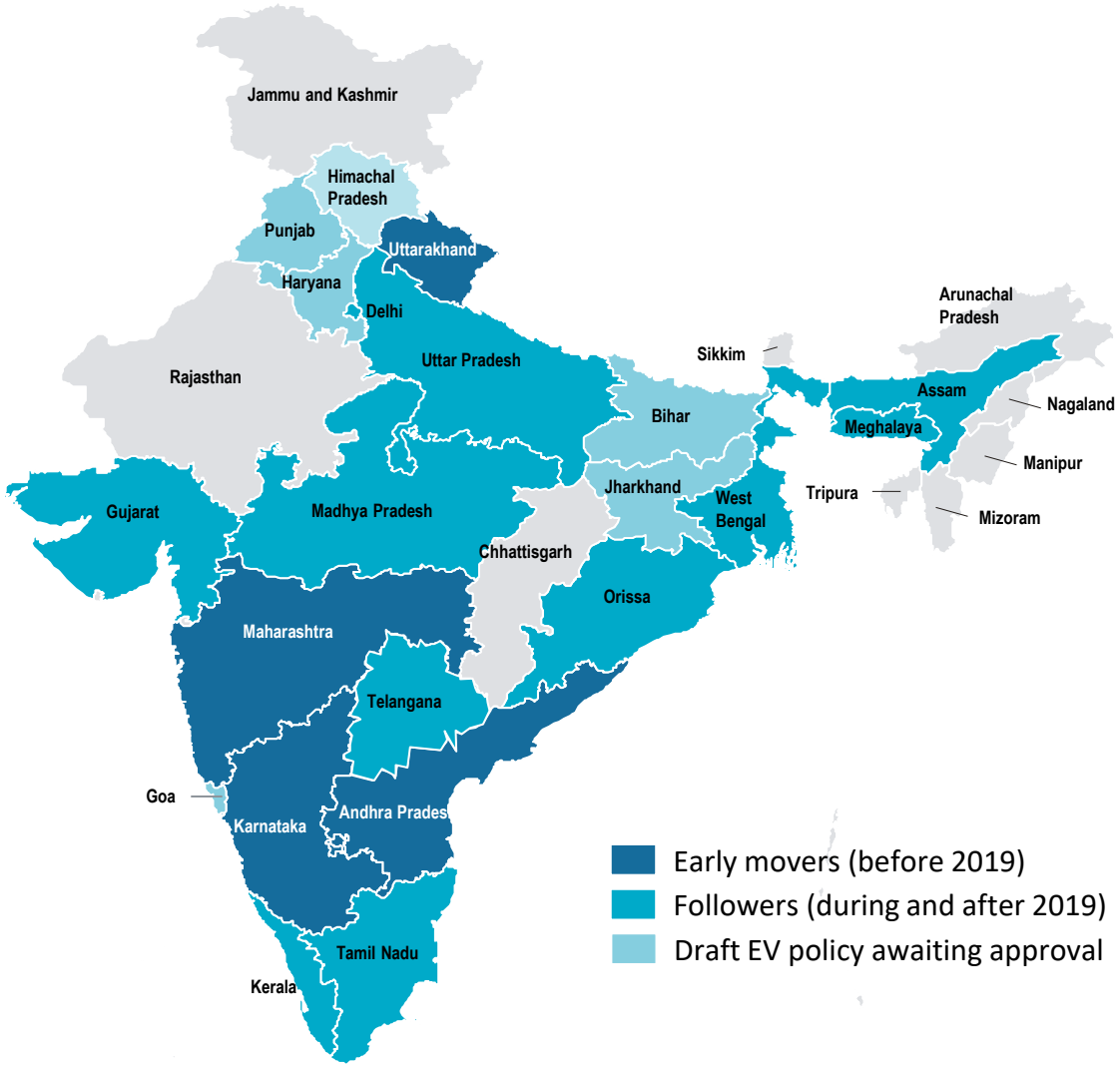
- Can EDR be considered on “if Fitted” basis ?
- Implementation Timeline



5.1 State specific EV policies will drive EV adoption

SIAM
Society of Indian Automobile Manufacturers
Building the Nation, Responsibly

Policy Release Status



Category	State	Demand subsidy	Road tax exemption
A: EV policy implemented with demand subsidy	Haryana	✓	✓
	Gujarat	✓	X
	Meghalaya	✓	✓
	Assam	✓	✓
	Orisa	✓	✓
B: EV policy implemented with no demand subsidy	Goa	Ended	✓
	Delhi	Ended	✓
	Maharashtra	Ended	✓
	Andhra Pradesh	X	✓
	Karnataka	X	✓
	Kerala	X	Partial
	Madhya Pradesh	X	X
	Tamil Nadu	X	✓
	Telangana	X	✓
	Uttar Pradesh	X	Partial
	Uttarakhand	X	✓
	West Bengal	X	Partial
C: Draft EV policy	Bihar	✓	✓
	Jharkhand	X	X
	Punjab	X	X

5.2 New Test parameters to enhance Safety of Electric vehicles

SIAM
Society of Indian Automobile Manufacturers
Building the Nation, Responsibly

Ministry of Heavy Industries issued OM F.No. 01(02)/ 2022 (20555) on 2nd Nov. 2022: mandating new test parameters for EVs to claim incentives under PLI & FAME II scheme from 1st Apr. 2023

Concerns:

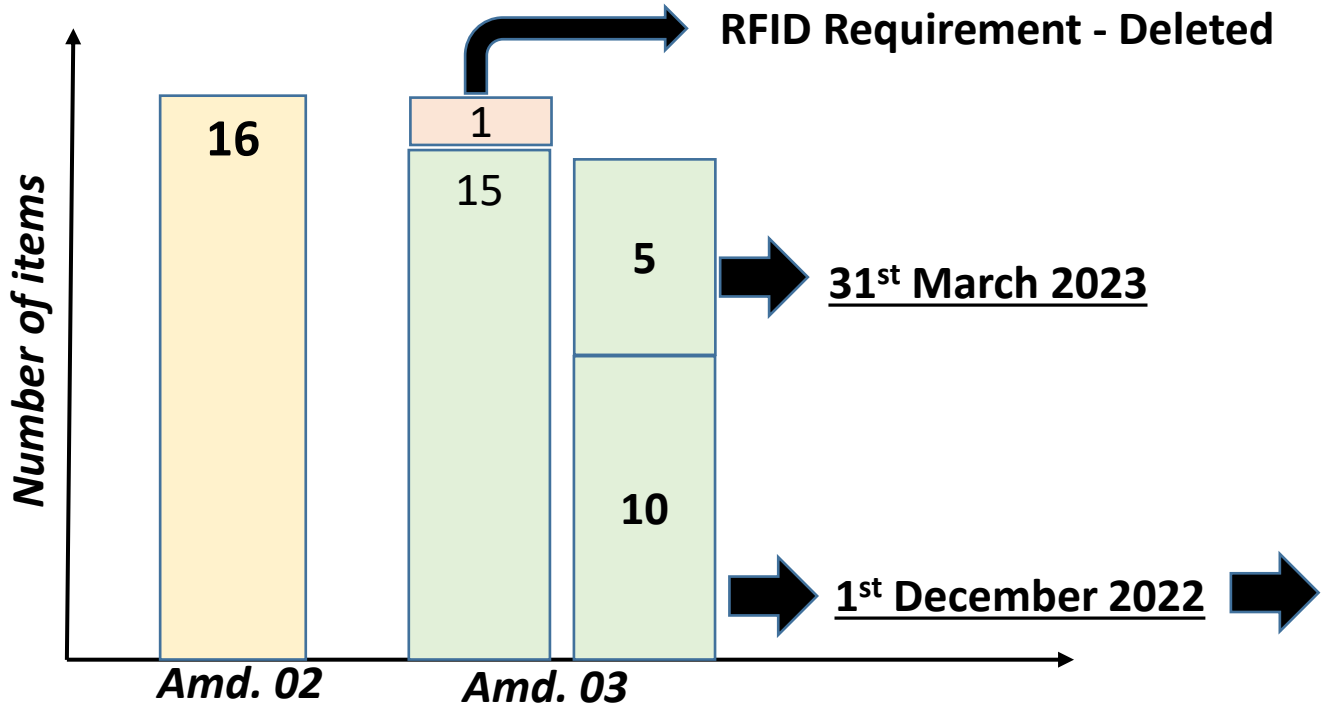
A. Potential challenge to the Industry to implement MoHI Guidelines:
   - Prescribed requirements for Cell & Battery pack are referred from UL Standards UL 1642, UL 2271 & UL 2580 are in principle very restrictive standards in accessibility point of view and members are facing challenge to understand the requirements in detail

B. In addition Ministry of Road Transport issued S.O 4567 to mandate Electric Vehicles Safety standards REESS (Rechargeable Energy Storage System): AIS 038 Rev_2 (M&N categories) and AIS 156 (for L categories) in phased manner w.e.f 1st Dec. 2022 and 31st Mar. 2023.
   - The requirements prescribed in these standards are severe in nature & globally recognized. Industry, despite of limited timeline availability, are in the progress of development to meet the compliance starting from 1st Dec. 2022.

- In the above said context, **we would like to request 15 days of time for the Industry to revert with detailed submission on technical difficulties and support required from the Ministry on this subject**.

5.2.A Battery Safety Standards - AIS 038

	2022			2023			
	October	November	December	Jan	Feb	Mar	April
AIS 038 Revision 02 up to Amendment 01 + **10 items of Amendment 3**	1st ▼ Postponed →		1st ▼				
5 items of Amd.03						31st ▼	



Battery Safety Standards - AIS 038

1st Dec, 22

31st Mar, 23

SIAM
Society of Indian Automobile Manufacturers
Building the Nation, Responsibly

1 Manufacturing date

The manufacturing date of battery cells should be clearly written on the cells with clear month and year of manufacture. Manufacture date in the form of code is not acceptable.

2 Certification

Cells used to make REESS, shall be certified as per IS 16893-Part 2 and Part-3 by NABL accredited lab.

3 Cycle of charge

Cells used to make REESS, shall undergo minimum 5 cycles of charge-discharge at C/3 current date.

4 Vents and Joints

REESS should have pressure release vent provided. Joints, in the coolant lines which pass inside the battery, to be strictly avoided.

5 Circuits

REESS shall have Active parallel connection of cells and strings to eliminate circulating currents. Active paralleling should be mandatory in the packs.

6 Spacing

Sufficient cell-to-cell spacing distance should be maintained for effective heat transfer. The inter cell gap should be decided based on the type of – cell geometry used, cylindrical, prismatic or pouch capacity of cells.

7 Fuse/ Circuit breaker

REESS shall have additional safety fuse or circuit breaker in addition to the features in BMS.

8 Water protection

REESS with 100% SoC shall be tested for water ingress protection IP X7 as per IEC 60529. There shall be no fire explosion during IP X7 testing.

Battery Safety Standards - AIS 038

1st Dec, 22

31st Mar, 23

Removed

SIAM
Society of Indian Automobile Manufacturers
Building the Nation, Responsibly

9 Micro processor

BMS shall be microprocessor / microcontroller-based circuit.

10 EMC

BMS shall comply EMC requirements as per AIS 004 Part 3 or AIS 004 Part 3 Rev 1 as applicable.

11 BMS Safety features

BMS shall be verified for following safety features during REESS testing :
1.Over-voltage protection,
2.Over-charge protection,
3.Over-discharge protection,
4.Over-temperature protection, 5.Over current protection, 6.Short circuit protection.

12 Onboard/ portable Charger

Charger shall have :
1. Charge voltage cut-off to avoid over charging
2. Time based charge cut-off function
3. Soft-start function
4. Pre-charge function
5. Input supply variation protection, output voltage and current regulation.

13 Traceability Document

Each REESS manufacturer should have a traceability document in which the details of cells, BMS, charger used along with serial/batch number, charge discharge data values etc should be maintained with the REESS manufacturer.

14 Protection of cells

Adequate protection of cells in case of regenerative braking must be considered in REESS design.

15 Data logging feature

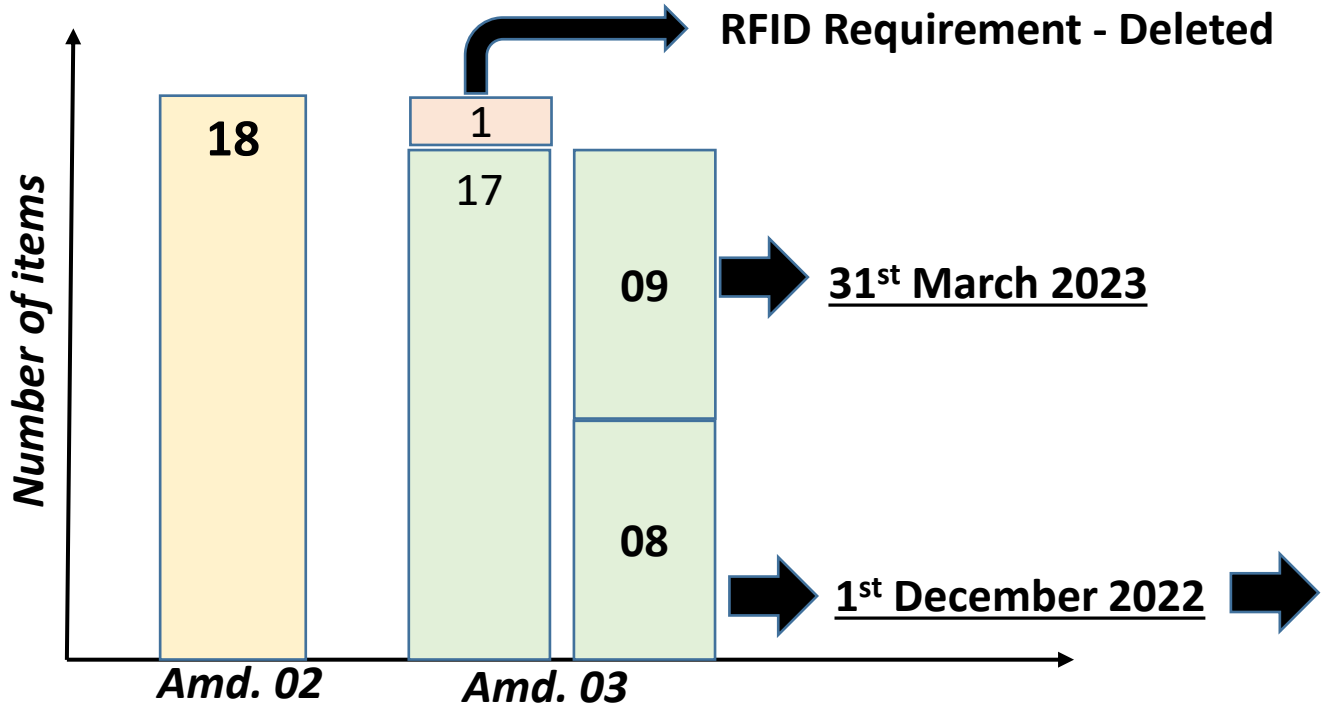
Data logging feature is required in BMS which has also been mentioned in IS17387 standard should be adhered.

16 RFID tag

Each battery pack must be associated with RFID tags and the BMS should be capable of RF reading and writing. Important battery parameters related to history, transactions and SoH should be written on the RFID tag for – swapping, tracking, debugging in case of damages.

5.2.B Battery Safety Standards - AIS 156

	2022			2023			
	October	November	December	Jan	Feb	Mar	April
AIS 156 Revision 02 up to Amendment 01 + **08 items of Amendment 3**	1st ▼ **Postponed** →		1st ▼				
09 items of Amd.03						31st ▼	



Battery Safety Standards – AIS 156

1st Dec, 22

31st Mar, 23

SIAM
Society of Indian Automobile Manufacturers
Building the Nation, Responsibly

1 Manufacturing date

The manufacturing date of battery cells should be clearly written on the cells with clear month and year of manufacture. Manufacture date in the form of code is not acceptable.

2 Certification

Cells used to make REESS, shall be certified as per IS 16893-Part 2 and Part-3 by NABL accredited lab.

3 Cycle of charge

Cells used to make REESS, shall undergo minimum 5 cycles of charge-discharge at C/3 current date.

4 Vents and Joints

REESS should have pressure release vent provided. Joints, in the coolant lines which pass inside the battery, to be strictly avoided.

5 Circuits

REESS shall have Active parallel connection of cells and strings to eliminate circulating currents. Active paralleling should be mandatory in the packs.

Spacing 6

Sufficient cell-to-cell spacing distance should be maintained for effective heat transfer. The inter cell gap should be decided based on the type of – cell geometry used, cylindrical, prismatic or pouch capacity of cells.

7 Fuse/ Circuit breaker

REESS shall have additional safety fuse or circuit breaker in addition to the features in BMS.

8 Water protection

REESS with 100% SoC shall be tested for water ingress protection IP X7 as per IEC 60529. There shall be no fire explosion during IP X7 testing.

9 Micro processor

BMS shall be microprocessor / microcontroller-based circuit.

10 EMC

BMS shall comply EMC requirements as per AIS 004 Part 3 or AIS 004 Part 3 Rev 1 as applicable at ESA Level.

Battery Safety Standards – AIS 156

1st Dec, 22

31st Mar, 23

Removed

SIAM
Society of Indian Automobile Manufacturers
Building the Nation, Responsibly

11 BMS Safety features

BMS shall be verified for following safety features during REESS testing :
1.Over-voltage protection,
2.Over-charge protection,
3.Over-discharge protection,
4.Over-temperature protection, 5.Over current protection, 6.Short circuit protection.

12 Onboard/ portable Charger

Charger shall have :
1. Charge voltage cut-off to avoid over charging
2. Time based charge cut-off function
3. Soft-start function
4. Pre-charge function
5. Input supply variation protection, output voltage and current regulation.

13 Traceability Document

Each REESS manufacturer should have a traceability document in which the details of cells, BMS, charger used along with serial/batch number, charge discharge data values etc should be maintained with the REESS manufacturer.

14 Protection of cells

Adequate protection of cells in case of regenerative braking must be considered in REESS design.

15 Data logging feature

Data logging feature is required in BMS which has also been mentioned in IS17387 standard should be adhered.

16 RFID tag

Each battery pack must be associated with RFID tags and the BMS should be capable of RF reading and writing. Important battery parameters related to history, transactions and SoH should be written on the RFID tag for – swapping, tracking, debugging in case of damages.

17 Thermal Propagation

No thermal propagation due to thermal runaway.

18 Atleast 4 Temperature Sensors

To measure the cell temperature, if temp crosses 60° C, an Audio - Video alarm as an alert and cutoff power supply to motor

5.3 Joint Efforts for Reducing Vehicle Fire

SIAM
Society of Indian Automobile Manufacturers
Building the Nation, Responsibly

Government

- ❑ Infrastructure
- ❑ Enforcement

- ✓ **Road Infrastructure**
- ✓ **Roadworthiness Test (I&M)**
- ✓ **ELV (End Life of Vehicle)**
- ✓ **Accident Investigation Board**

Manufacturer

- ❑ Design
- ❑ Compliance

- ✓ **Latest Safety Technology**
- ✓ **No Design Flaws**
- ✓ **Vehicle Recall Educate End Users**



- ❑ Timely Maintenance
- ❑ Discipline

End User

- ✓ **Awareness & Education**
- ✓ **Owners Manual →Self Study**
- ✓ **Say no to NGA**
- ✓ **Follow rules and regulations**

Let's head together towards "**NO FIRE ACCIDENTS**" in Vehicles……

New Regulations / Standards under finalization based on UN Regulations

Sr. No.	Standard Topic	Reference Regulation
1.	Requirements for Approval of Quiet Road Transport Vehicles (QRTV) with regard to their reduced audibility	UN R 138
2.	Moving Off Information System	UN R 159
3.	Blind Spot Information System	UN R 151
4.	Cyber Security	UN R 155
5.	Software Update Management Systems	UN R 156
6.	Advanced Emergency Braking System (for M2, M3, N2 and N3 category vehicles)	UN R 131
7.	Construction of vehicles carrying dangerous goods	UNR 105
8.	ISOFIX Anchorage systems	UN R 145
9.	Approval of Tank Vehicles with regard to Rollover Stability	UN R 111
10.	Driver Drowsiness and Attention Warning System	EU Regulation 2021/1341

Thank You for your attention !