

29th Joint Technical Liaison Meeting

Innsbruck, Austria



Agenda-13.1a

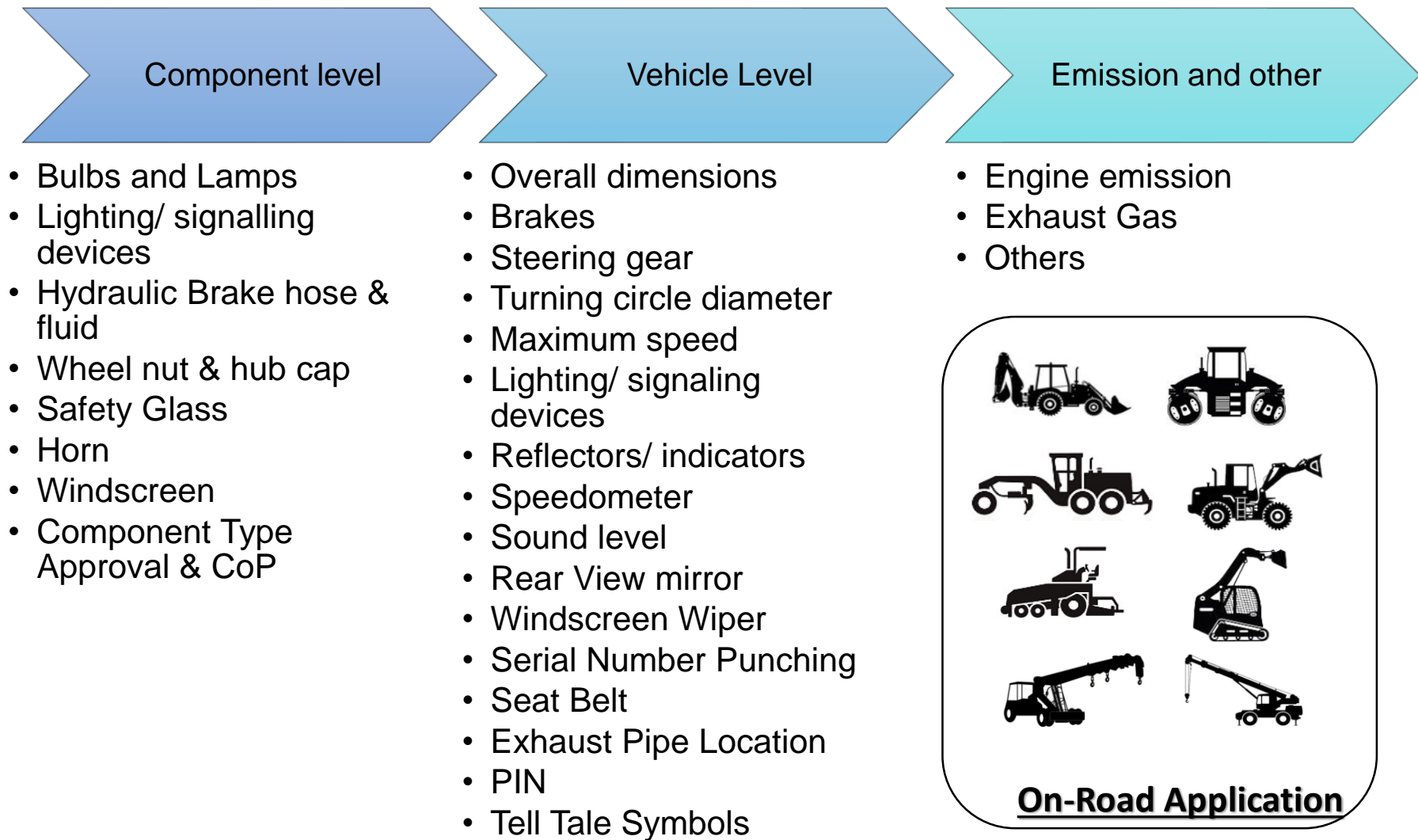
CMVR On-Road Regulation

Karthik Kaliappan
3rd -5th April 2019



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Current On-Road Regulation for CEV - CMVR

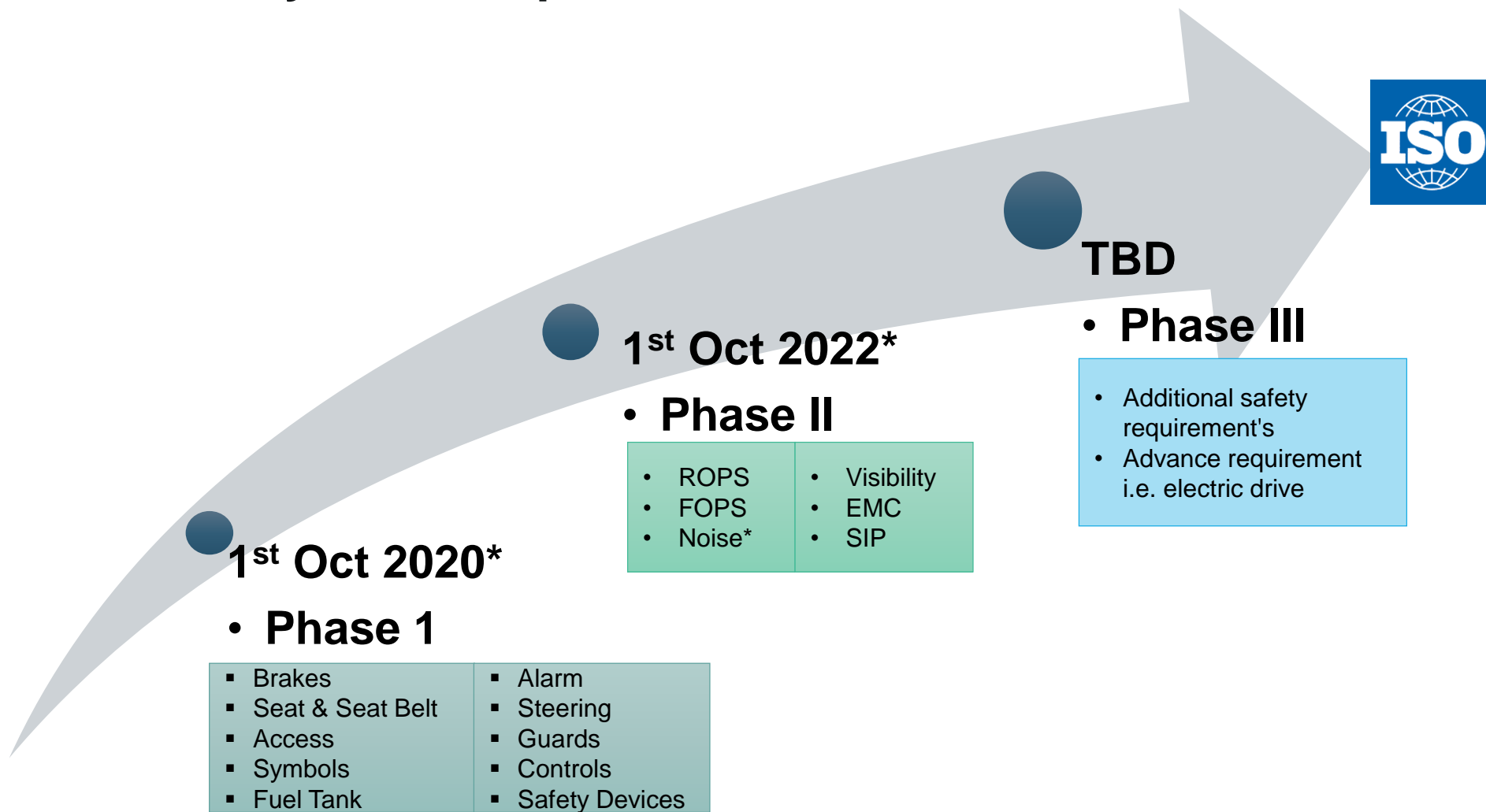


CEV- Construction Equipment Vehicle



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CMVR Safety Road Map- Status



*Under publication from MoRTH. Expected after general election



CMVR Safety Road Map- Noise Limits

Noise Limits- Operator ear level

Type of Machine	Emission sound pressure level limit at operator's position, dB(A)	
	Phase – I norms (As per ISO 6394)	Phase-II norms (As per ISO 6396)
All Earth Moving Machinery	90	85

Noise Limits -Pass by noise

Type of machine	Engine gross power P, kW	Emissive sound power level limit dB(A)	
		Phase –I norms (As per ISO 6393)	Phase –II norms (As per ISO 6395)
Compaction machines (vibrating rollers)	$P \leq 8$	110	107
	$8 \leq P \leq 70$	111	108
	$70 \leq P \leq 560$	$91 + 11 \log P$	$88 + 11 \log P$
Wheeled loader, wheeled dozer, Backhoe loader, Skid Steer Loader, Dumpers, Motor Grader , Pavers with Rubber track, fork Lift truck, compaction Rollers (non-vibrating Rollers), Dump Truck or any other construction equipment falling under the scope of CMVR	$P \leq 55$	110	107
	$55 < P \leq 560$	$91 + 11 \log P$	$88 + 11 \log P$
Wheeled hydraulic excavator	$P \leq 15$	102	99
	$15 < P \leq 560$	$89 + 11 \log P$	$86 + 11 \log P$
Mobile crane, self-loading concrete mixer	$P \leq 560$	$93 + 11 \log P$	$90 + 11 \log P$

Note: The permissible sound power level shall be rounded to the nearest whole number (less than 0.5 use lower number; greater than or equal to 0.5 use higher number). The engine gross power P shall be determined according to TAP 115/116.



CMVR Safety Road Map- Standards-Phase 1

ISO	IS/ISO	Description
ISO 6165:2012	IS/ISO 6165:2006	Earth-moving machinery -- Basic types -- Identification and terms and definitions
ISO 9248:1992	IS/ISO 9248:1992	Earth-moving machinery -- Units for dimensions, performance and capacities, and their measurement accuracies
ISO 6746-1:2003	IS 11114 (PT 2): 2006 / ISO 6746-1:2003	Earth-moving machinery -- Definitions of dimensions and codes -- Part 1: Base machine
ISO 6746-2:2003	IS 11114(PT 3): 2006 / ISO 6746-2:2003	Earth-moving machinery -- Definitions of dimensions and codes -- Part 2: Equipment and attachments
ISO 7457:1997	IS/ISO 7457:1997	Earth-moving machinery -- Determination of turning dimensions of wheeled machines
ISO 6393:2008	IS/ISO 6393:2008	Earth-moving machinery -- Determination of sound power level -- Stationary test conditions
ISO 6394:2008	IS/ISO 6394:2008	Earth-moving machinery -- Determination of emission sound pressure level at operator's position -- Stationary test conditions
ISO 6395:2008	IS/ISO 6395:2008	Earth-moving machinery -- Determination of sound power level -- Dynamic test conditions
ISO 6396:2008	IS/ISO 6396:2008	Earth-moving machinery -- Determination of emission sound pressure level at operator's position -- Dynamic test conditions
ISO 6683:2005	IS/ ISO 6683:2005*	Seat belt and seat belt anchorages for all construction equipment vehicles

*Standards under publication.



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CMVR Safety Road Map- Standards-Phase 1

ISO	IS/ISO	Description
ISO 2860:1992	IS 10689:1993 / ISO 2860:1992	Earth-moving machinery -- Minimum access dimensions
ISO 2867:2011	IS/ISO 2867:2011	Earth-moving machinery -- Access systems
ISO 3457:2003	IS/ISO 3457:2003	Earth-moving machinery -- Guards -- Definitions and requirements
ISO 6011:2003	IS/ISO 6011:2003	Visual display requirements for machine operation
ISO 6405-1:2017	IS/ISO 6405-1:2004	Operator controls and other displays for all construction equipment vehicles
ISO 6405-2:2017	IS/ISO 6405-2:2017	Earth-moving machinery -- Symbols for operator controls and other displays -- Part 2: Specific symbols for machines, equipment and accessories
ISO 9244:2008	IS/ISO 9244 :2008	Earth-moving machinery -- Machine safety labels -- General principles
ISO 9533:2010	IS/ISO 9533:2010	Earth-moving machinery -- Machine-mounted audible travel alarms and forward horns -- Test methods and performance criteria
ISO 10968:2004	IS/ISO 10968:2004	Earth-moving machinery -- Operator's controls
ISO 11112:1995	IS/ISO 11112:1995	Earth-moving machinery -- Operator's seat -- Dimensions and requirements
ISO 12508:1994	IS/ISO 12508:1994	Earth-moving machinery -- Operator station and maintenance areas -- Bluntness of edges



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CMVR Safety Road Map- Standards-Phase 1

ISO	IS/ISO	Description
ISO 21507:2010	IS/ISO 21507:2010*	Earth-moving machinery -- Performance requirements for non-metallic fuel tanks
ISO 10570:2004	IS/ISO 10570:2004	Earth-moving machinery -- Articulated frame lock -- Performance requirements
ISO 10533:1993 / Amd 1:2005	IS/ISO 10533:1993	Earth-moving machinery -- Lift-arm support devices
ISO 6750:2005	IS/ISO 6750:2005	Earth-moving machinery -- Operator's manual -- Content and format
ISO 5010:2007	IS 16480:2018(IDT)	Earth-moving machinery -- Rubber-tyred machines -- Steering requirements
ISO 3450:2011	IS 16479:2017(MOD)	Performance Requirements And Test Procedures Of Braking Systems For Wheeled High Speed Rubber Tracked Earth Moving Machines And All Types Of Construction Equipment Vehicle

*Standards under publication.



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CMVR Safety Road Map- Standards-Phase 2

ISO	IS/ISO	Description
ISO 3471:2008	IS/ISO 3471:2008	Earth-moving machinery -- Roll-over protective structures -- Laboratory tests and performance requirements
ISO 10265:2008	IS/ISO 10265: 2008	Earth-moving machinery -- Crawler machines -- Performance requirements and test procedures for braking systems
ISO 5353:1995	IS 11113:1999 / ISO 5353:1995	Earth-moving machinery, and tractors and machinery for agriculture and forestry -- Seat index point
ISO 3411:2007	IS/ISO 3411:2007	Earth-moving machinery -- Physical dimensions of operators and minimum operator space envelope
ISO 3449:2005	IS/ISO 3449:2005	Earth-moving machinery -- Falling-object protective structures -- Laboratory tests and performance requirements
ISO 5006:2006	IS/ISO 5006:2006	Earth-moving machinery -- Operator's field of view -- Test method and performance criteria
ISO 14401-1:2009	IS/ISO 14401-1:2009*	Earth-moving machinery -- Field of vision of surveillance and rear-view mirrors -- Part 1: Test methods
ISO 14401-2:2009	IS/ISO 14401-2:2009	Earth-moving machinery -- Field of vision of surveillance and rear-view mirrors -- Part 2: Performance criteria
ISO 6682:1986	IS 11252:1993 / ISO 6682:1986	Earth-moving machinery -- Zones of comfort and reach for controls

*Standards under publication.



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CMVR Safety Road Map- Standards-Phase 2

ISO	IS/ISO	Description
ISO 7096:2000	IS/ISO 7096:2000	Earth-moving machinery -- Laboratory evaluation of operator seat vibration
ISO 12117:1997	IS/ISO 12117:1997*	Earth-moving machinery -- Tip-over protection structure (TOPS) for compact excavators -- Laboratory tests and performance requirements
ISO 12117-2:2008	IS/ISO 12117-2:2008*	Earth-moving machinery -- Laboratory tests and performance requirements for protective structures of excavators -- Part 2: Roll-over protective structures (ROPS) for excavators of over 6t
ISO 13766:2006	IS/ISO 13766:2006*	Earth-moving machinery -- Electromagnetic compatibility

*Standards under publication.



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List of Abbreviations

- Automotive Industry Standards Committee (AISC)
- Automotive research and association of India (ARAI)
- Central Motor Vehicle Rules (CMVR)
- Minister of Road Transport & Highways (MoRTH)



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