

LEV and Battery Standardisation

LEV Friedrichshafen (D)

27.08.2014

Eduard Stolz, opi2020:

Standardisation

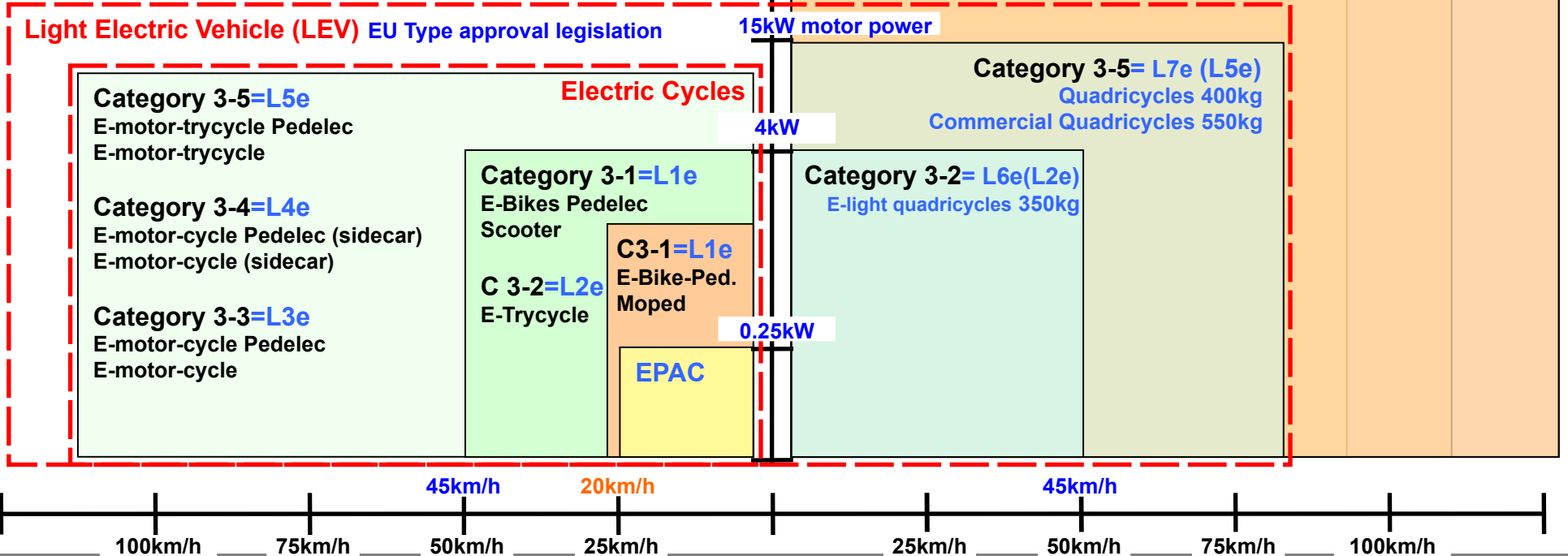
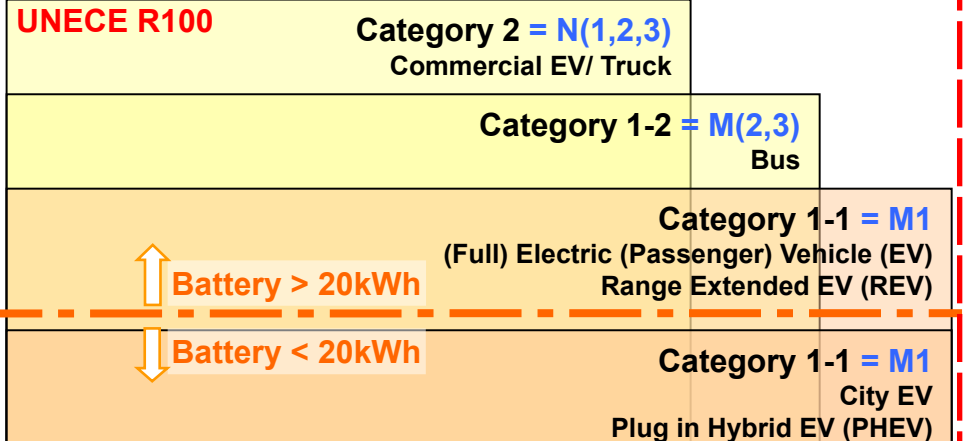
Mechanic	Electric	Telecom	
ISO International Organisation for Standardisation	IEC International Electrotechnical Commission	ITU International Telecommunication Union	international
CEN European Committee for Standardisation	CENELEC European Committee for Electrotechnical Standardisation	ETSI European Telecommunications Standards Institute	European
SNV Schweizerische Normen Vereinigung	CES Comité Electrotechnique Suisse <hr/> Electrosuisse	CS4 Comité Secteur <hr/> asut	national

Vehicle Categories

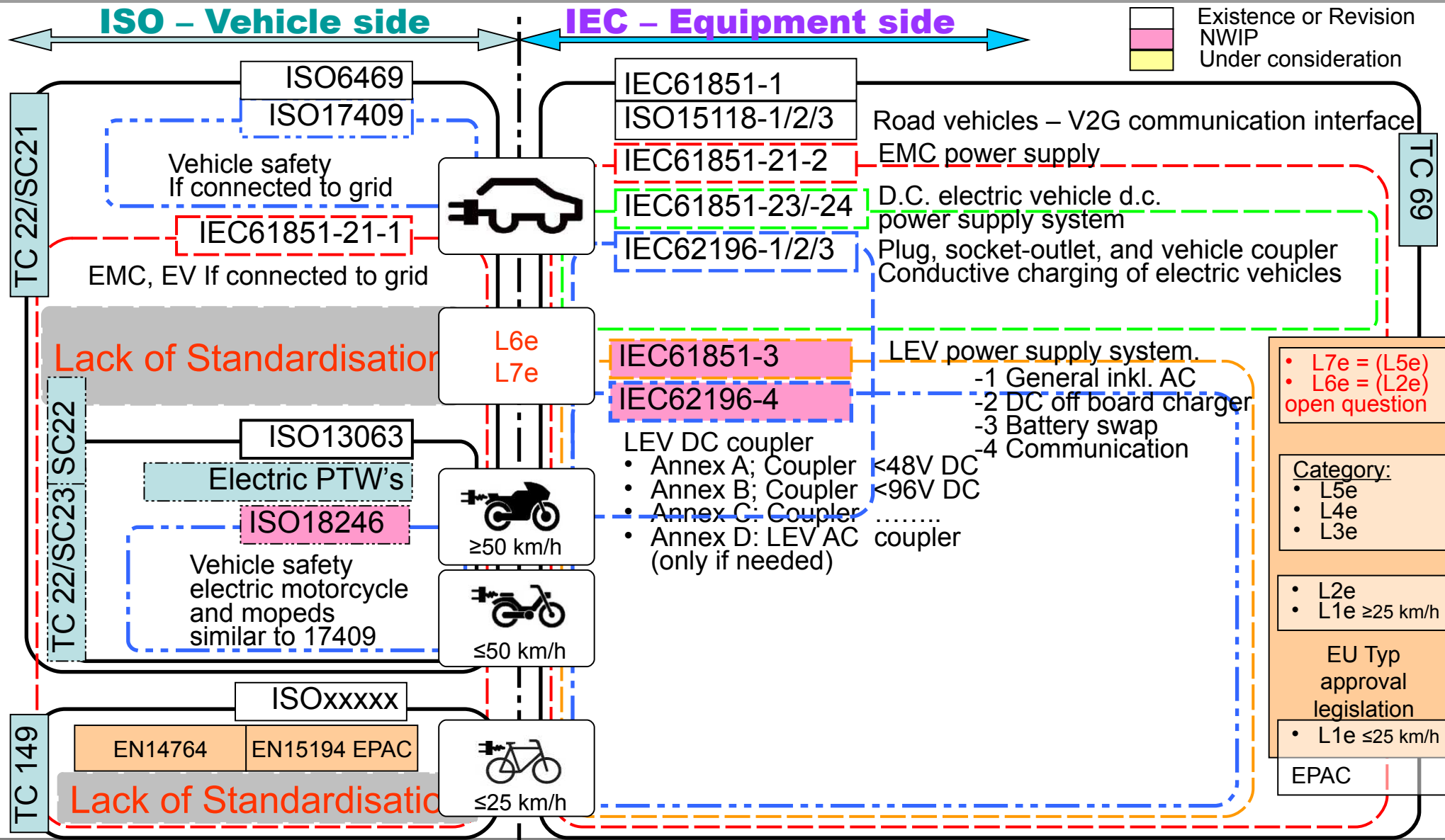
Category black = UNECE Trans WP. .29/1045
 Category blue = EU Type approval legislation 2002/24/EC
 If a category refers direct to a value this value is regulated by legislation
 L6e & L7e Weight without battery, technical requirements of (xx)
 45km/h EU needs to be changed to 50km/h UNECE
 20km/h GE needs to be changed to 25km/h
 LEV can have also the addition "R" rang extended or "H" hybrid

↑ On-board charger > 3kW
 ↓ On-board charger < 3kW

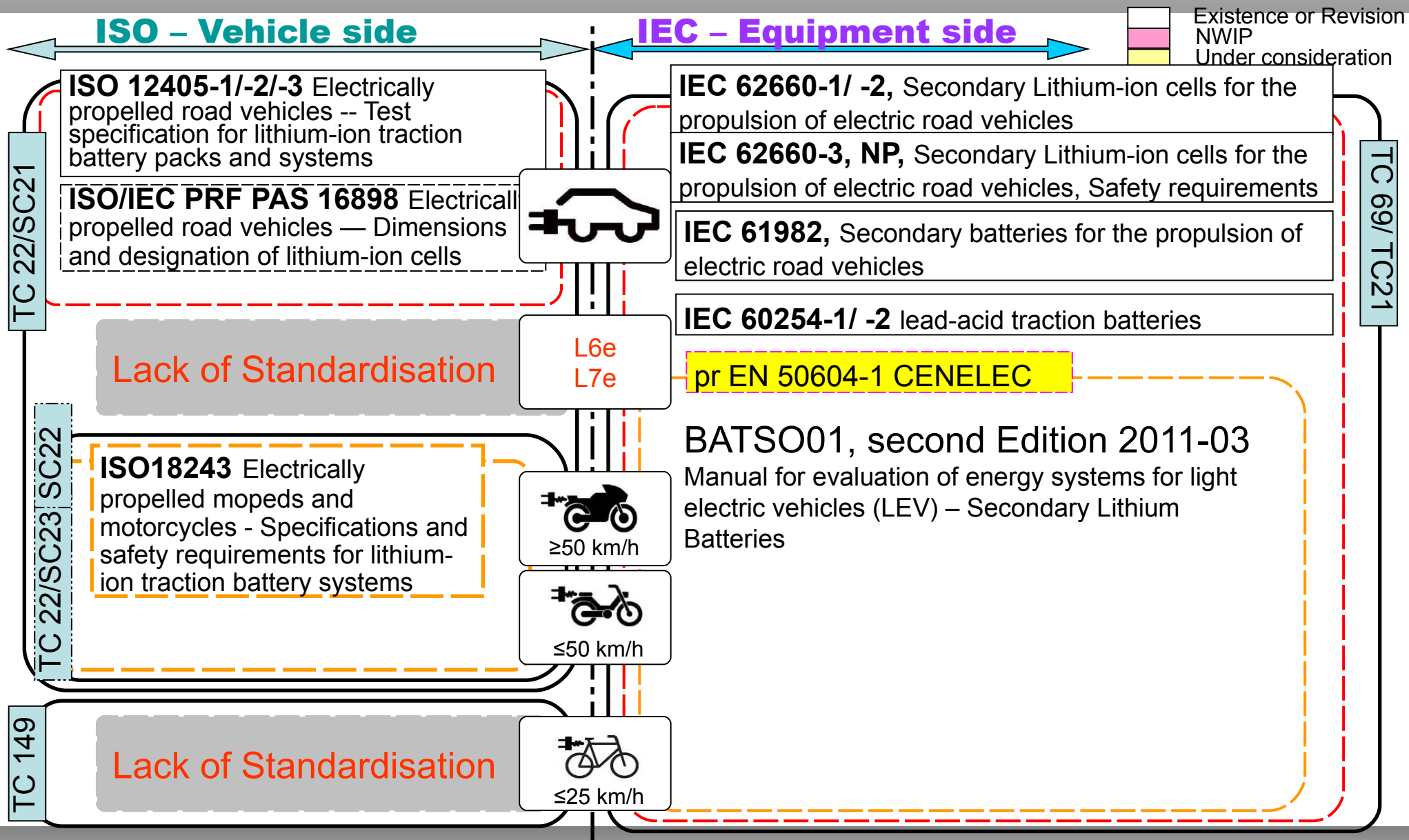
only general information
 is not absolute
 Reverse energy flow



An overview of the standardization



An overview of the standardization



INTERNATIONAL ELECTROTECHNICAL COMMISSION :

TECHNICAL COMMITTEE NO TC69: ELECTRIC VEHICLES AND ELECTRIC INDUSTRIAL TRUCKS

IEC 61851 Electric Vehicles conductive power supply system –

- Part 3.1: General Requirements for Light Electric Vehicles (LEV) AC and DC conductive power supply

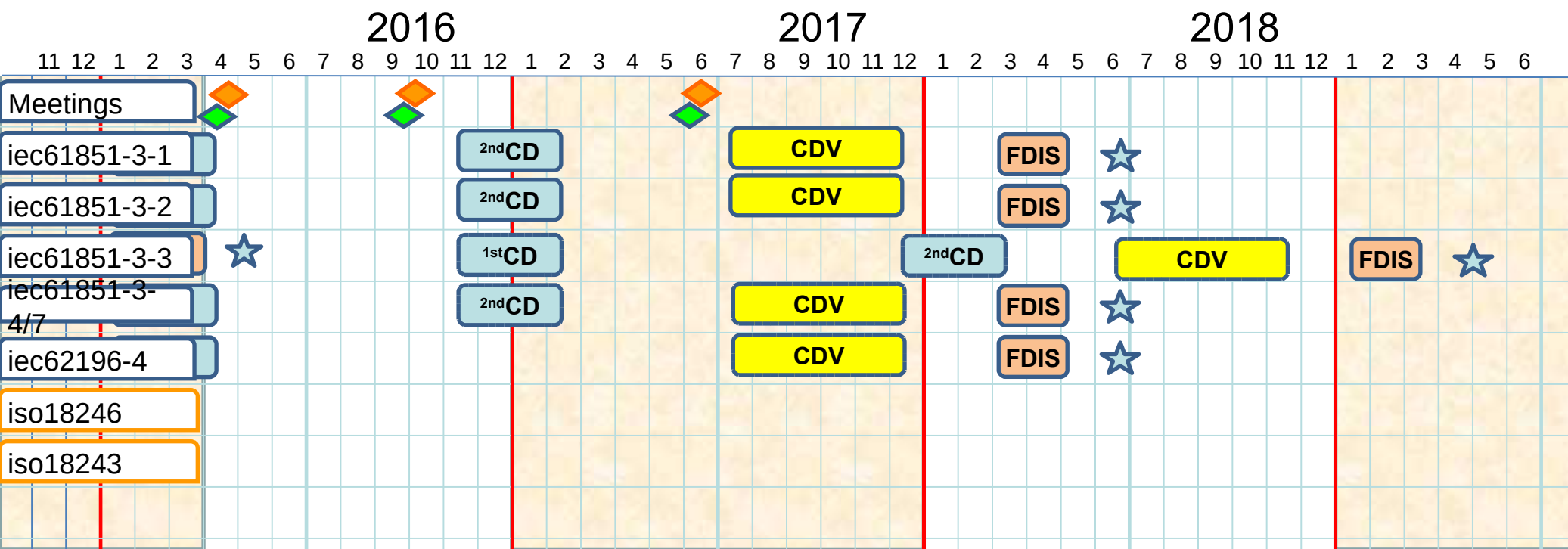
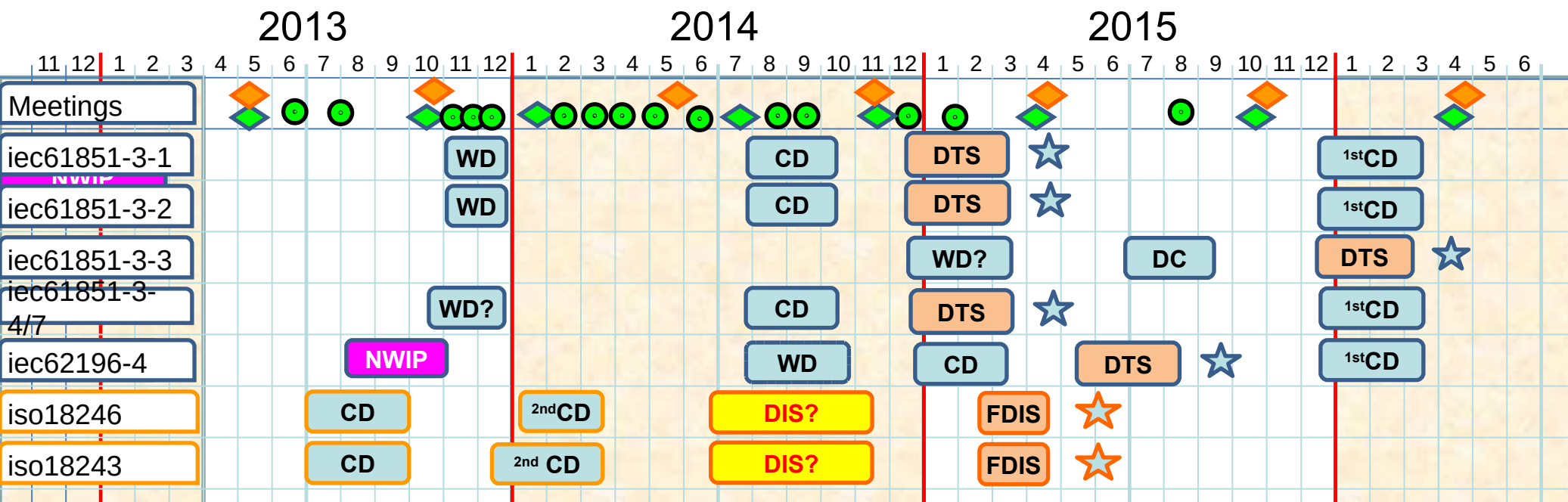
Requirements for Light Electric Vehicles (LEV)

- Part 3.2: DC off-board conductive power supply systems,
- Part 3.3: battery swap systems
- Part 3.4: communication – General definitions and EMSC
- Part 3.5: communication – Pre-defined communication parameters
- Part 3.6: communication – Voltage converter unit
- Part 3.7: communication – Battery system

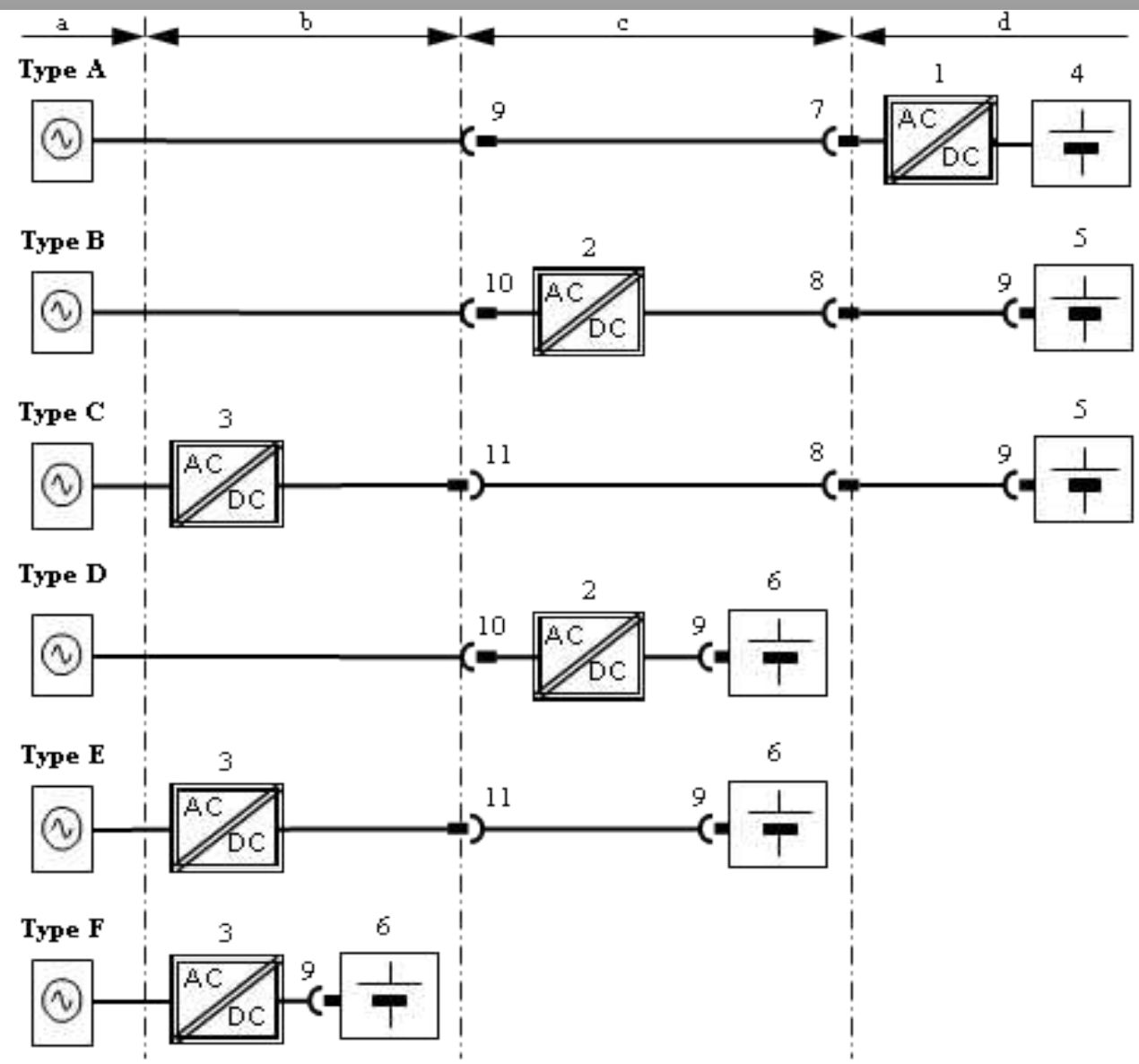
TECHNICAL COMMITTEE NO. 23h: Plugs, socket-outlets, and vehicle couplers –

IEC 62196 Conductive charging electric vehicles –

- Part 4: Dimensional compatibility and interchangeability requirements for dedicated a.c., d.c. and a.c./d.c. conductive vehicle couplers of light electric vehicles (LEV)



EV supply system configuration:



EV supply system:

5.6 Protection against electric shock

The EV supply equipment shall be classified according to the protection against electric shock:

class 0 equipment, not applicable in IEC61851-3 series

class 0I equipment, not applicable in IEC61851-3 series

class I equipment, not applicable in IEC61851-3 series, see IEC 61851-1

class II equipment

class III equipment

EV supply system requirements:

6.3 EV supply system requirements

General requirements for all systems:

galvanic separation between AC system voltage higher 30 V AC and DC parts;

double or reinforced insulation of construction;

IP degree according 8.3xx;

EV supply systems with a system voltage higher 60 V DC or 30 V AC 5 A shall use vehicle-couplers with locking device or function according to IEC 62196-4 (under consideration);

SELV systems shall be in accordance with Clause 414.4 in IEC 60364-4-41:2005.

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EV supply system IP ratings:

8.2.3 IP ratings

8.2.3.1 IP degrees for the enclosures

Minimum IP degrees for the enclosures excluding the accessories shall be for:

Indoor use: IP 21 (only fixed installation)

Outdoor use IP44

The environments of use shall be indicated in the manual.

More Information:

Thanks for your attention

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