

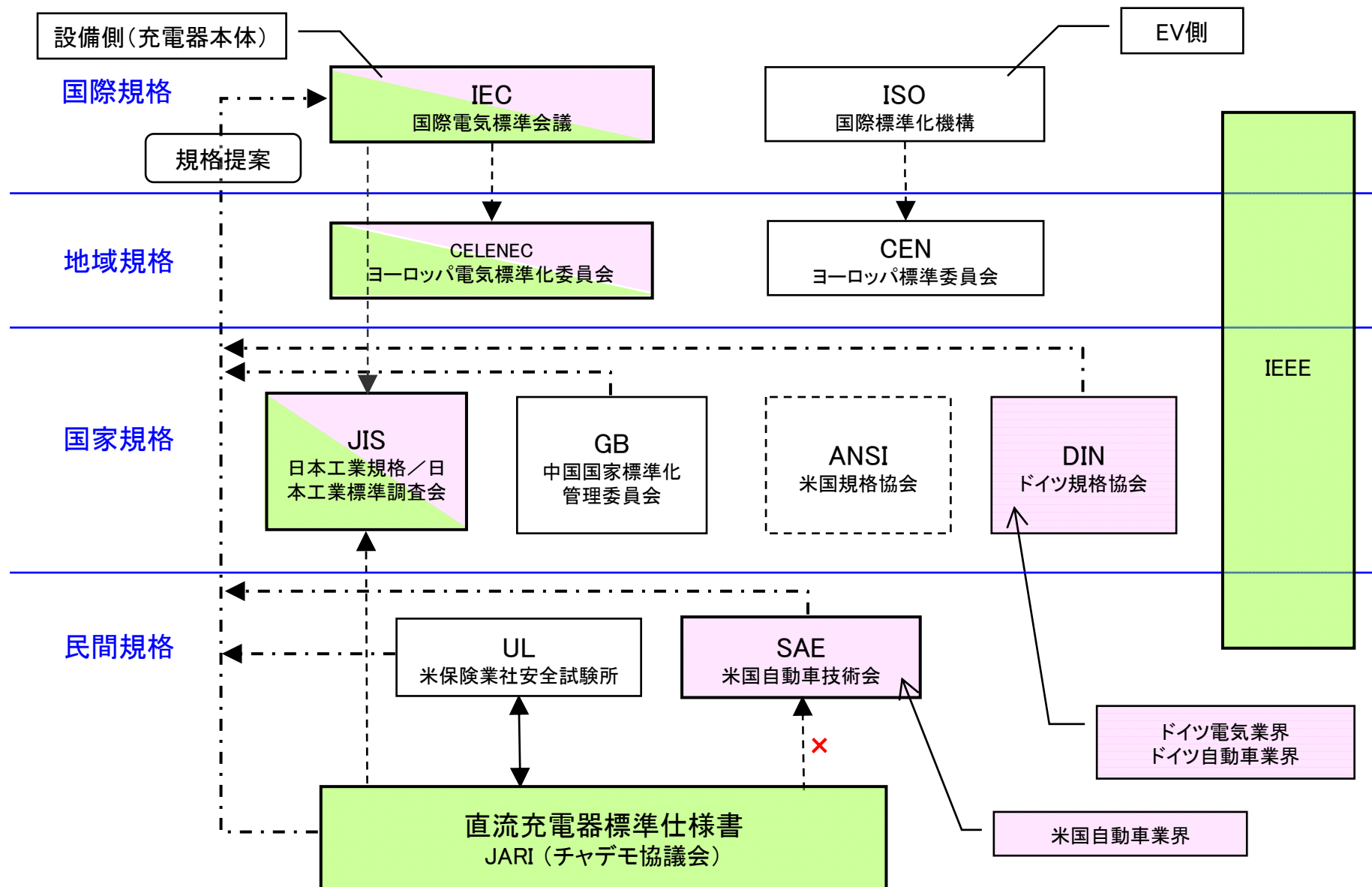


**DC 充電規格国際標準発行
パネルセッション**

**Publication of DC charging specifications
as international standard**

**IEC 標準の体系とCHAdeMO 方式の特長について
System of IEC standards and features of CHAdeMO**

主な標準規格と審議機関・団体

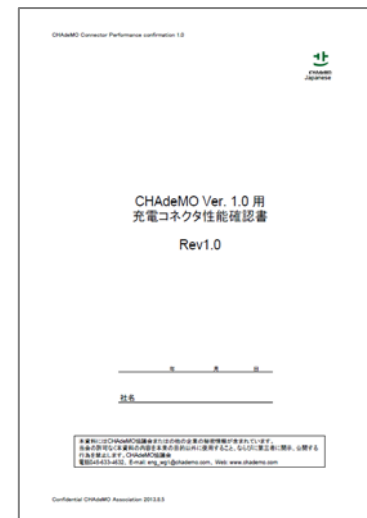
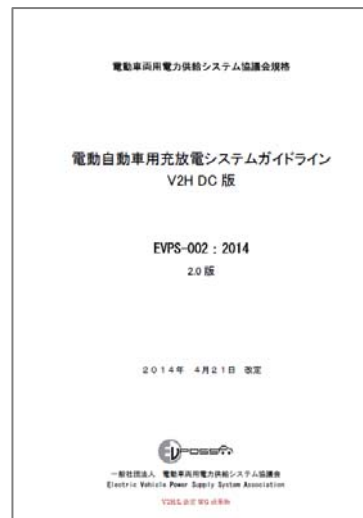


IECの規格の構成

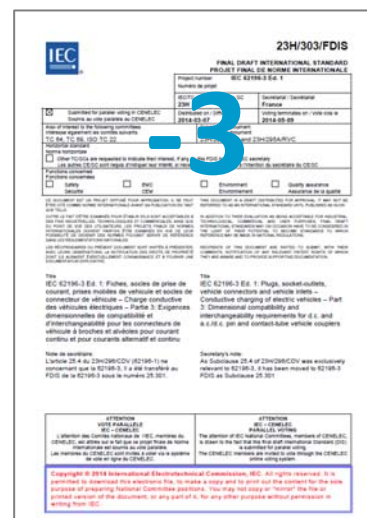
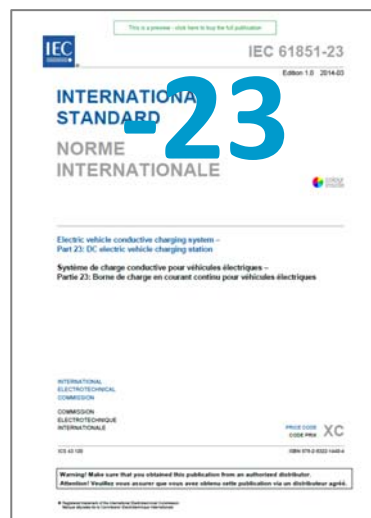
	規格名称	議長国 Chair
61851-1	EV用コンダクティブ充電システム 一般要求事項 Electric vehicle conductive charging system: General requirements	FR
61851-23	DC充電ステーション D.C. electric vehicle charging station	JP
61851-24	DC充電通信プロトコル Digital communication between charger and EV for D.C. charging	JP
62196-3	DC充電車両カプラ要件 Dimensional interchangeability requirements for d.c. and a.c./d.c. pin and contact-tube	US/JP
ISO/IEC15118	自動車から電力網への通信インタフェース Vehicle to grid communication interface -1 General information and use-case definition -2 Network and application protocol requirements -3 Physical and data link layer requirements	DE/FR

IEC規格とCHAdeMO仕様書の位置づけ

CHAdeMO仕様書



IEC規格書

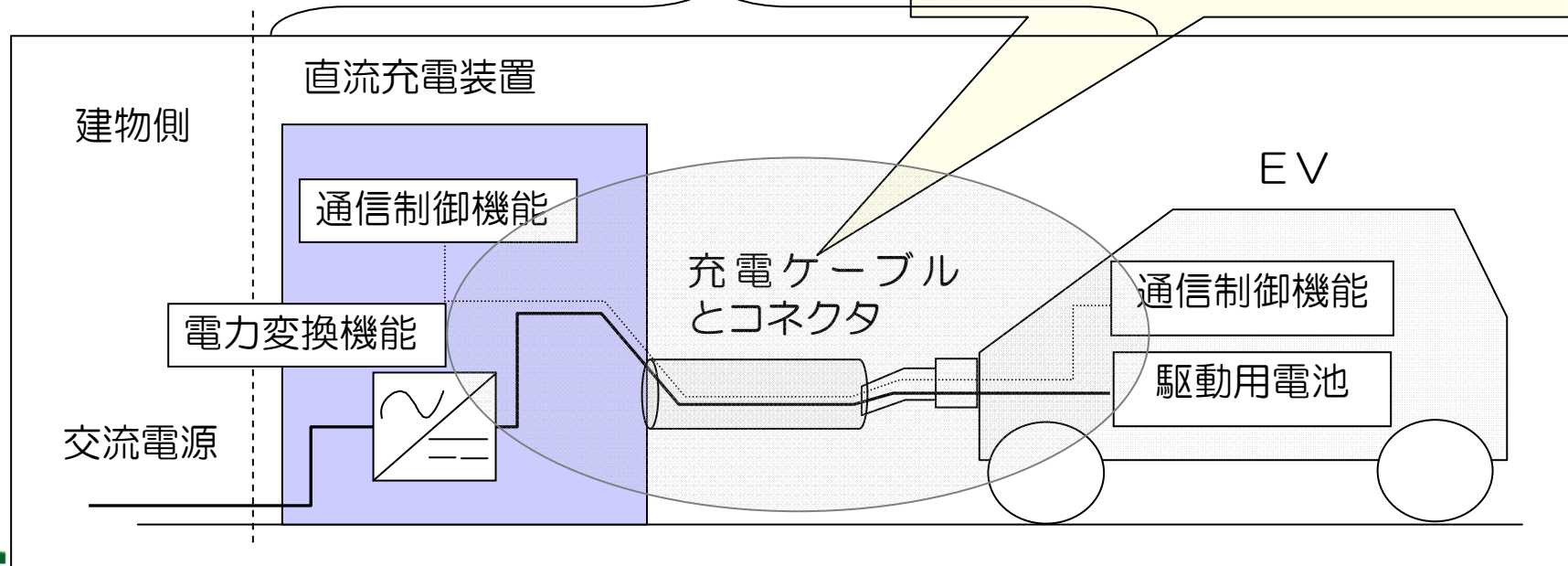
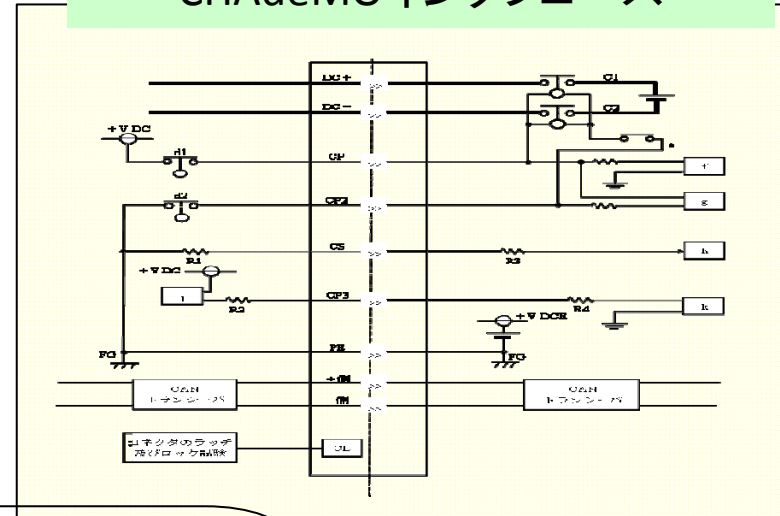


61851-23 DC充電ステーション

直流充電のマスター規格

- 電気安全に関する要件, 手段
- 充電に必要な機能
- 充電性能
- 具体的なシステム要件
(デジタル通信の規定は-24)

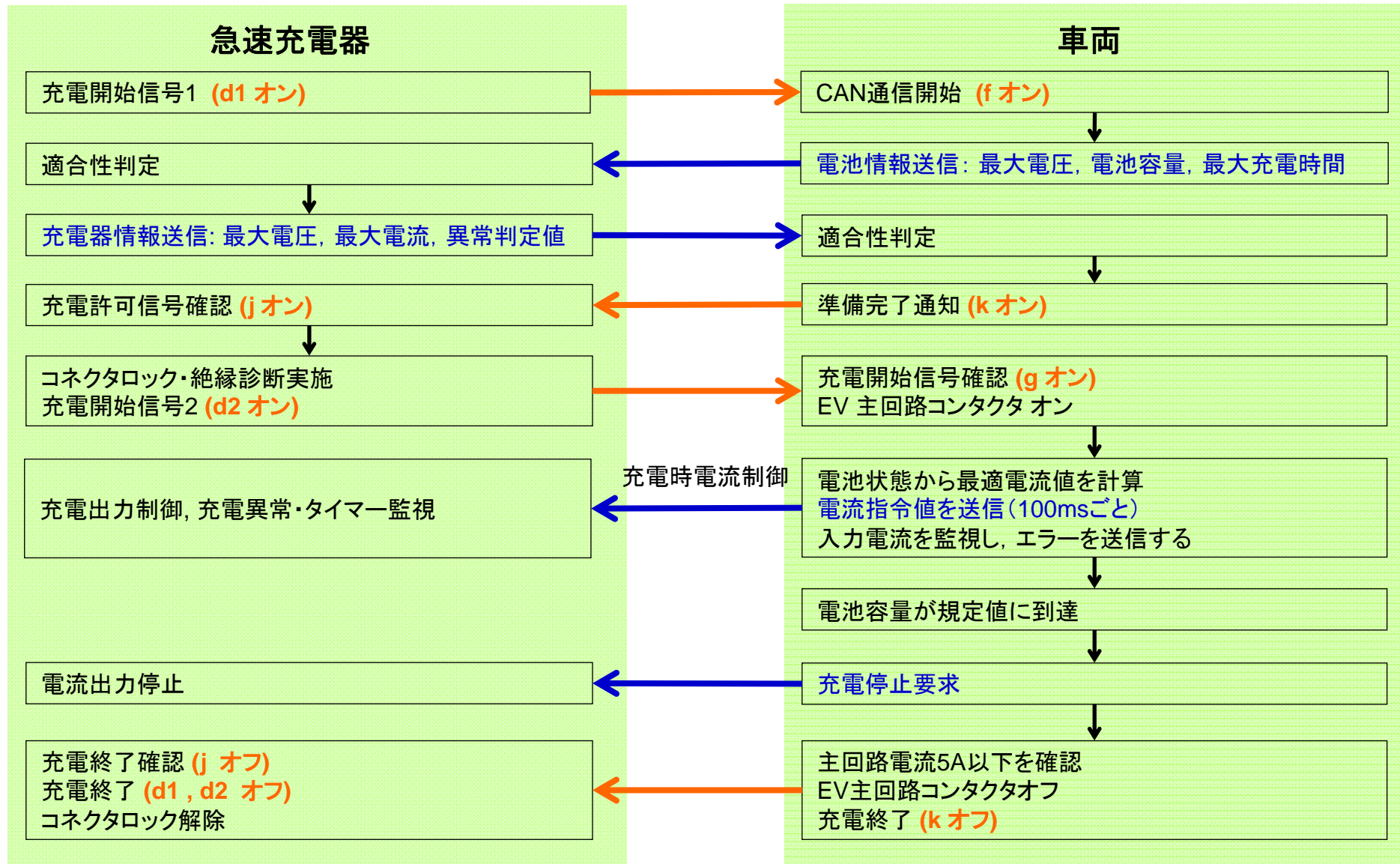
システムAとして記載された CHAdeMOインタフェース



61851-24 DC充電通信プロトコル

	System A CHAdeMO (Japan)	System B GB/T (PRC)	System C	
			COMBO1 (US)	COMBO2 (DE)
Connector				
Dimensional requirements				
Communication Protocol	CAN		PLC	

61851-24 DC通信プロトコル (システムA)



制御線信号, CAN通信

62196-3 DC充電車両カプラ

	Configuration AA CHAdeMO (Japan) (System A)	Configuration BB GB/T (PRC) (System B)	Configuration EE COMBO 1 (US) (System C)	Configuration FF COMBO 2 (DE)
Connector				
Dimensional requirements				
Communication Protocol	CAN		PLC	

CHAdeMOコネクタ：標準化と改良

2009

2010

2011

2012

2013

2014



« Mass Production Phase »

- Improved Durability
- Improved Visibility

« Overseas Deployment Phase »

- Safety Feature improved
- Durability improved
- Mis-operation prevention feature added

« Further Improvement through competition »

- Supplier increased
- Operability improved

« The maturity of technology »

- Performance confirmation

CHAdEMO EVs



Nissan LEAF



Mitsubishi Outlander PHEV



Mitsubishi i-MiEV



Mitsubishi MINICAB MiEV



MINICAB MiEV Truck



Tesla Model S with Adapter



Kia Soul EV



BMW i3



VW e-up!



Nissan eNV200



Peugeot iOn



Citroen C-ZERO



Citroen Berlingo



Peugeot Partner



BD Otomotiv eFiorino



MAZDA DEMIO EV



HONDA Fit EV



TOYOTA eQ



SUBARU Plug-in Stella



BD Otomotiv eKANGOO

CHAdeMO chargers

										
ABB (Switzerland)	EVTRONIC (France)	Efacec (Portugal)	EVTEC (Switzerland)	DBT (France)	Circontrol (Spain)	SGTE (France)	Delta Electronics (Taiwan)	SIGNET Systems (Korea)	JoongAng Control (Korea)	PNE SOLUTION (Korea)
										
GH Electrotermia (Spain)	MAGNUM CAP (Portugal)	Siemens (Germany)	Schneider (France)	Andromeda (Italy)	IES Synergy (France)	Aerovironment (America)	Aker Wade (America)	Petrotec (Portugal)	Nation-E (Switzerland)	Titium (Australia)
										
NIPPON STEEL & SUMIKIN TEXENG	Hasetec	Takaoka	Takasago	Kyuden Technosystems	RELIANCE ELECTRIC	Fuji Electric	SINFONIA TECHNOLOGY	YASKAWA Electric	Enegate	DENGEN
										
Nichicon	Nissan	GS Yuasa	JFE Engineering	Kikusui	NTT Facilities	HITACHI	NEC	San-Eisha	Nitto Kogyo	ECotality NA (America)

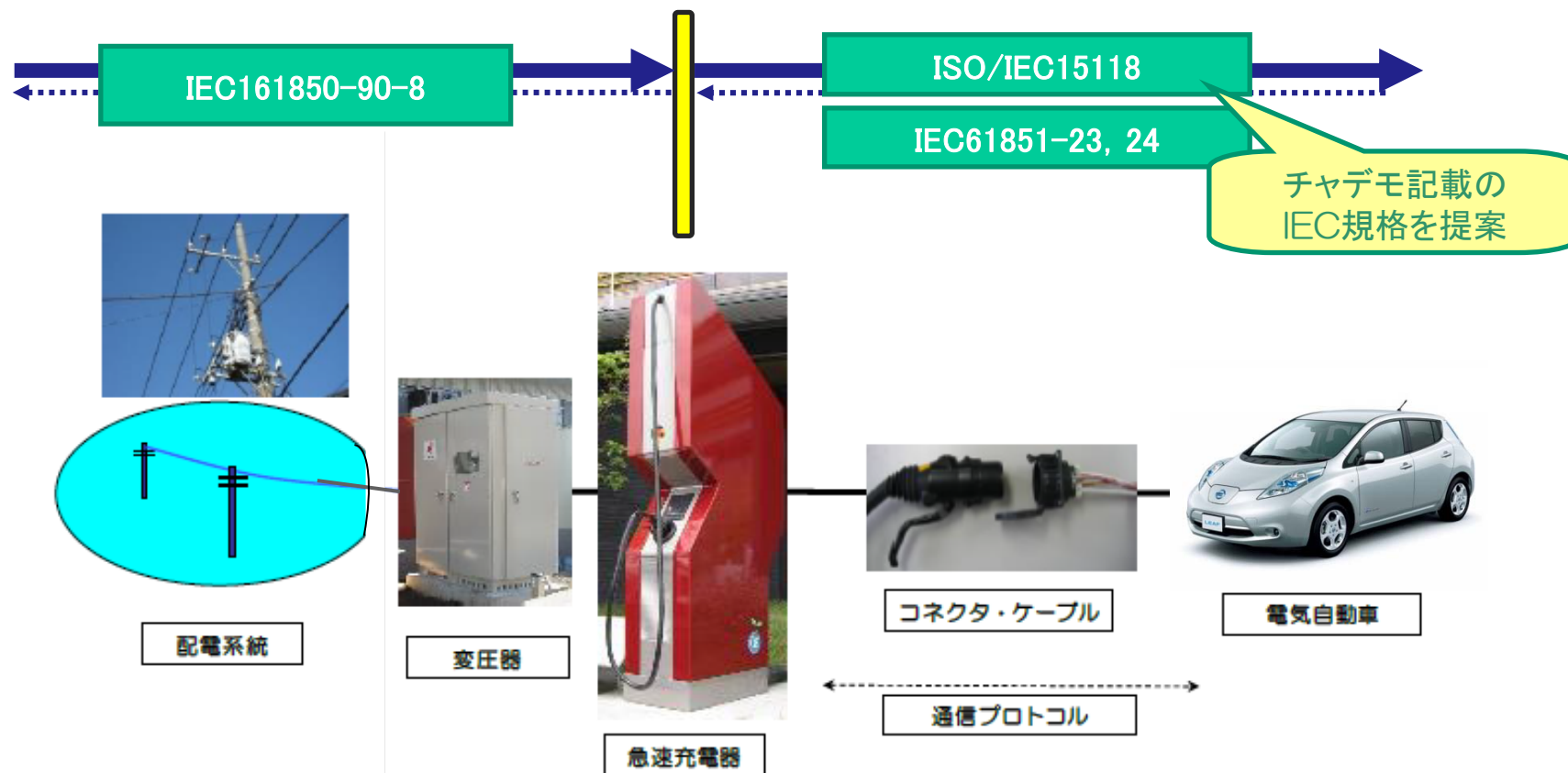
IEC 規格制定までの経緯と今後

	2010	2011	2012	2013	2014	2015
CHAdeMO	★ CHAdeMO協議会設立 Foundation of CHAdeMO Association ★ CHAdeMO 0.9		★ CHAdeMO 1.0	★ CHAdeMO 1.0.1	★ V2Hガイドライン2.0	
61851-1 (61851-21-2)			CD1 ★ Berlin	CD2	CD3	61851-21-2 EMC
61851-23	★ #1PT Belgium ★ #2 Osaka	CD1 ★ #3 Beijing	CD2 ★ #4 Munich ★ #5 Tokyo ★ #6Munich	CDV ★ #6 Toronto	FDIS ★ IS	MT
61851-24	★ NWIP提案	★ #1@Paris ★ #2 Beijing	CD ★ #3 Munich ★ #4 Tokyo ★ #5Munich	CDV ★ #6 Toronto	FDIS ★ IS	MT
62196-3	★ NWIP提案	draftCD	CD ★ #4@Palo Alt	CDV	FDIS ★ IS	
ISO/IEC15118			CDV CDV CDV	★ IS (15118-1)	★ IS (15118-2)	

スマグリ規格にチャデモを採用

送配電のスマグリ制御規格 ⇒ 充電規格を参照するがISO/IEC15118のみ

- DC充電を入れる決定が行われた時にチャデモも入るように交渉した



※今回の規格化は → (スマート充電)のみ, ← (V2X)は充電側の規格化の後実施