

## EV Charging Patent Portfolio License Cross-Reference Chart

(The following chart shows illustrative essential claims for each patent.  
Other claims may also be essential and/or other portions of the Standard may be covered.)

| Ctry. | Patent    | Description   | CI | Standards / Sections   |
|-------|-----------|---|----|--|
| AT    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device           | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| AT    | 2,678,185 | Method for Establishing an IP-based Communications Connection Between an Electric Vehicle and a Charge Control Unit | 1  | ISO 15118-1:2019, Secs. 1, 3.1.12, 3.1.30, 3.1.31, 3.1.33, 3.1.57, 3.1.68, 7.2.1, 7.4.1, Tables 3 and 8<br>ISO 15118-2:2014, Secs. 1, 3.1, 3.2, 3.11, 7.4, 7.6, 7.6.3.3, 7.7.1.1, 7.8.2, 7.10.1.1, 7.10.1.4, 7.10.1.5, 7.10.1.7, Figs. 1 and 16, Table 8 |
| BE    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device           | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| BE    | 2,678,185 | Method for Establishing an IP-based Communications Connection Between an Electric Vehicle and a Charge Control Unit | 1  | ISO 15118-1:2019, Secs. 1, 3.1.12, 3.1.30, 3.1.31, 3.1.33, 3.1.57, 3.1.68, 7.2.1, 7.4.1, Tables 3 and 8<br>ISO 15118-2:2014, Secs. 1, 3.1, 3.2, 3.11, 7.4, 7.6, 7.6.3.3, 7.7.1.1, 7.8.2, 7.10.1.1, 7.10.1.4, 7.10.1.5, 7.10.1.7, Figs. 1 and 16, Table 8 |
| BG    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device           | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| CH    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device           | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| CH    | 2,514,056 | Method for Testing Electrical Components in Main Supply   | 1  | ISO 15118-2:2014, Secs. 1, 3.21, 7.3.1, 7.3.4, 7.5, 7.7.3.1, 7.7.3.2, 7.7.3.3, 7.7.3.4   |
| CH    | 2,678,185 | Method for Establishing an IP-based Communications Connection Between an Electric Vehicle and a Charge Control Unit | 1  | ISO 15118-1:2019, Secs. 1, 3.1.12, 3.1.30, 3.1.31, 3.1.33, 3.1.57, 3.1.68, 7.2.1, 7.4.1, Tables 3 and 8<br>ISO 15118-2:2014, Secs. 1, 3.1, 3.2, 3.11, 7.4, 7.6, 7.6.3.3, 7.7.1.1, 7.8.2, 7.10.1.1, 7.10.1.4, 7.10.1.5, 7.10.1.7, Figs. 1 and 16, Table 8 |
| CN    | 102761156 | Charging System and Method for Monitoring an Electric Vehicle   | 1  | GB/T 18487.1:2015, Secs. 2, 3.4.1, 5.2.1.1, A.1.1<br>IEC 61851-23: 2014, Sec. 6.4.1, pg. 11-12, Secs. 6.4.3.102, 6.4.3.114, Table CC.5, Fig. CC.6<br>ISO 15118-1: 2013, Sec 5.5.2  |
| CN    | 102810858 | Electric Vehicles for the Power Grid Running Profile  | 1  | GB/T 18487.1:2015, Secs. 2, 3.1, B.1, Fig. B.1<br>IEC 61851-23:2014, Sec. 2<br>ISO 15118-1:2013, Secs. 6.1, 3.17, 3.48, 5.4, 7.5.2, 7.6.2, 7.8.2, Fig. 1, Tables 1, 8, 13<br>ISO 15118-2:2014, Secs. 2, 3.35, 8.4.5.4.2, 8.5.2.10, E.2.1                 |
| CN    | 103023093 | A Charging Device, a System and a Method for Controlling the Charging Device  | 1  | GB/T 18487.1:2015, Forward, App. B, Fig. B.2,<br>IEC 61851-1: 2017. Secs. 1, 3.3, 3.4, Tables A.5, A.6<br>ISO 15118-1: 2013, Secs. 1, 3, 3.25, 3.9, 5.4, 7.6.2, Table 13<br>ISO 15118-2:2014, Sec. 8.4.3.8.1   |
| CN    | 103648828 | Method and Device for Operating a Vehicle, Computer Program and Computer Program Product                            | 1  | IEC 61851-1:2017, Figs. 1, 2, 3<br>IEC 61851-24:2014, Tables A.1, A.7<br>SAE J1772:2017, Figs. 7, 8, 12, 13  |
| CN    | 103930297 | Smart Phone Control and Notification for an EV Charging Station   | 1  | IEC 61851-23:2014, Table D.1, Fig. AA.1<br>SAE J1772:2017, p.29-30, Figs. 7-8:Control Electronics, p. 63/116 "PEV Scheduled Charge", "phone app"   |
| CN    | 103959590 | Sequential Charging of Multiple EVs   | 1  | IEC 61851-1:2017, Secs. 6.3.1.6, 13.1, D.8.2.4, Figs. C.2-C.5, Table D.18<br>SAE J1772:2017, Sec. 5.3, Figs. 5, 7, 8, 10, 12, 13, Table 9  |

## EV Charging Patent Portfolio License Cross-Reference Chart

| Ctry. | Patent            | Description   | CI    | Standards / Sections   |
|-------|-------------------|---|-------|--|
| CN    | 104002691         | Power Conduit, Charging Device, and Method for Charging A Power Storage Device  | 1     | GB/T 18487.1:2015, Secs. 2, 3.4.1, 3.4.9-3.4.11, 5.2.2.3, 9.6, App. B, Tables A.7, B.2 (Sequence T19-T21)<br>GB/T 20234.1:2015, Sec. 6.3.3, Fig. 1<br>IEC 61851-23:2014, Sec. 2<br>ISO 15118-1:2013, Sec. 3.14<br>ISO 15118-2:2014, Sec. 8.6, Fig. 96  |
| CN    | 104203636         | Safety Device for a High-Voltage System and Method for Safeguarding a High-Voltage System   | 1     | IEC 61851-1:2017, Sec. 8<br>IEC 61851-23:2014, Figs. AA.2, BB.1<br>SAE J1772:2017, Figs. 5, 7, 8, 10, 12, 13, 22, 23   |
| CN    | 105922883         | Smart Phone Control and Notification for an EV Charging Station   | 1     | IEC 61851-23:2014, Table D.1, Fig. AA.1<br>SAE J1772:2017, p.29-30, Figs. 7-8:Control Electronics, p. 63/116 "PEV Scheduled Charge", "phone app"   |
| CN    | 102574476B        | Charging Device, System and Method for Controlling a Charging Device  | 1, 17 | IEC 61851-1:2017, Secs. 3.1, 3.1.1, 3.1.4, 3.1.5, 3.1.10, 3.1.11, 3.1.12, 3.3, 3.3.1, 3.3.2, 3.3.3, 3.4, 3.4.1, 3.5, 3.5.2, 6.3.1.6, 6.3.2.3, Figs. 1, 2, Annexes A.1, A.2, A.2.1, A.2.2, A.2.3, A.2.4, A.3, Figs. A.1, A.2, A.3, A.4, Tables A.2, A.3, A.6, A.7<br>IEC 62196-1:2014 Secs. 3.9, 3.10, 3.11 |
| CY    | 2,199,143         | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1     | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2   |
| CZ    | 2,199,143         | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1     | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2   |
| CZ    | 2,678,185         | Method for Establishing an IP-based Communications Connection Between an Electric Vehicle and a Charge Control Unit                   | 1     | ISO 15118-1:2019, Secs. 1, 3.1.12, 3.1.30, 3.1.31, 3.1.33, 3.1.57, 3.1.68, 7.2.1, 7.4.1, Tables 3 and 8<br>ISO 15118-2:2014, Secs. 1, 3.1, 3.2, 3.11, 7.4, 7.6, 7.6.3.3, 7.7.1.1, 7.8.2, 7.10.1.1, 7.10.1.4, 7.10.1.5, 7.10.1.7, Figs. 1 and 16, Table 8   |
| DE    | 50 2010 008 152.6 | Method/System for Communication Between a Vehicle and a Charging Station for Locking and Unlocking Mechanical Charging Cable Coupling | 1     | IEC 61851-1:2017, Secs. 1, 3, 3.1.1, 3.1.4, 3.1.5, 3.1.10, 3.1.11, 3.1.12, 3.3.1, 3.3.2, 3.3.3, 3.4.1, 3.5.2, 6.3.2.3, A.1, A.2.1, A.2.4, A.3, Fig. A.3, Table A.6   |
| DE    | 50 2010 012 131.5 | Method for Testing Electrical Components in Main Supply   | 1     | ISO 15118-2:2014, Secs. 1, 3.21, 7.3.1, 7.3.4, 7.5, 7.7.3.1, 7.7.3.2, 7.7.3.3, 7.7.3.4   |
| DE    | 50 2012 001 693.2 | Method for Establishing an IP-based Communications Connection Between an Electric Vehicle and a Charge Control Unit                   | 1     | ISO 15118-1:2019, Secs. 1, 3.1.12, 3.1.30, 3.1.31, 3.1.33, 3.1.57, 3.1.68, 7.2.1, 7.4.1, Tables 3 and 8<br>ISO 15118-2:2014, Secs. 1, 3.1, 3.2, 3.11, 7.4, 7.6, 7.6.3.3, 7.7.1.1, 7.8.2, 7.10.1.1, 7.10.1.4, 7.10.1.5, 7.10.1.7, Figs. 1 and 16, Table 8   |
| DE    | 60 2009 055 930.3 | Systems and Methods for Charging an Electric Vehicle Using Broadband Over Powerlines  | 1     | IEC 61851-1:2017, Secs. 3.1.1, 3.1.12<br>IEC 61851-23:2014, Secs. 2, 6.4.3.104, Table CC.3<br>ISO 15118-1:2013, Secs. 3.11, 3.20, 3.21, 5.3, Fig. 3, Tables 8, 13, 14, 18<br>ISO 15118-2:2014, Secs. 7.7.3.3, 7.9.2.4  |
| DE    | 60 2009 063 932.2 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1     | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2   |
| DK    | 2,199,143         | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1     | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2   |

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| Ctry. | Patent    | Description   | CI | Standards / Sections   |
|-------|-----------|---|----|--|
| EE    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| ES    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| ES    | 2,514,056 | Method for Testing Electrical Components in Main Supply   | 1  | ISO 15118-2:2014, Secs. 1, 3.21, 7.3.1, 7.3.4, 7.5, 7.7.3.1, 7.7.3.2, 7.7.3.3, 7.7.3.4   |
| ES    | 2,678,185 | Method for Establishing an IP-based Communications Connection Between an Electric Vehicle and a Charge Control Unit                   | 1  | ISO 15118-1:2019, Secs. 1, 3.1.12, 3.1.30, 3.1.31, 3.1.33, 3.1.57, 3.1.68, 7.2.1, 7.4.1, Tables 3 and 8<br>ISO 15118-2:2014, Secs. 1, 3.1, 3.2, 3.11, 7.4, 7.6, 7.6.3.3, 7.7.1.1, 7.8.2, 7.10.1.1, 7.10.1.4, 7.10.1.5, 7.10.1.7, Figs. 1 and 16, Table 8 |
| FI    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| FR    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| FR    | 2,379,363 | Systems and Methods for Charging an Electric Vehicle Using Broadband Over Powerlines  | 1  | IEC 61851-1:2017, Secs. 3.1.1, 3.1.12<br>IEC 61851-23:2014, Secs. 2, 6.4.3.104, Table CC.3<br>ISO 15118-1:2013, Secs. 3.11, 3.20, 3.21, 5.3, Fig. 3, Tables 8, 13, 14, 18<br>ISO 15118-2:2014, Secs. 7.7.3.3, 7.9.2.4                                    |
| FR    | 2,514,056 | Method for Testing Electrical Components in Main Supply   | 1  | ISO 15118-2:2014, Secs. 1, 3.21, 7.3.1, 7.3.4, 7.5, 7.7.3.1, 7.7.3.2, 7.7.3.3, 7.7.3.4   |
| FR    | 2,454,117 | Method/System for Communication Between a Vehicle and a Charging Station for Locking and Unlocking Mechanical Charging Cable Coupling | 1  | IEC 61851-1:2017, Secs. 1, 3, 3.1.1, 3.1.4, 3.1.5, 3.1.10, 3.1.11, 3.1.12, 3.3.1, 3.3.2, 3.3.3, 3.4.1, 3.5.2, 6.3.2.3, A.1, A.2.1, A.2.4, A.3, Fig. A.3, Table A.6<br>IEC 62196-1:2014, Secs. 3.9, 3.10, 3.11  |
| FR    | 2,678,185 | Method for Establishing an IP-based Communications Connection Between an Electric Vehicle and a Charge Control Unit                   | 1  | ISO 15118-1:2019, Secs. 1, 3.1.12, 3.1.30, 3.1.31, 3.1.33, 3.1.57, 3.1.68, 7.2.1, 7.4.1, Tables 3 and 8<br>ISO 15118-2:2014, Secs. 1, 3.1, 3.2, 3.11, 7.4, 7.6, 7.6.3.3, 7.7.1.1, 7.8.2, 7.10.1.1, 7.10.1.4, 7.10.1.5, 7.10.1.7, Figs. 1 and 16, Table 8 |
| GB    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| GB    | 2,379,363 | Systems and Methods for Charging an Electric Vehicle Using Broadband Over Powerlines  | 1  | IEC 61851-1:2017, Secs. 3.1.1, 3.1.12<br>IEC 61851-23:2014, Secs. 2, 6.4.3.104, Table CC.3<br>ISO 15118-1:2013, Secs. 3.11, 3.20, 3.21, 5.3, Fig. 3, Tables 8, 13, 14, 18<br>ISO 15118-2:2014, Secs. 7.7.3.3, 7.9.2.4                                    |
| GB    | 2,514,056 | Method for Testing Electrical Components in Main Supply   | 1  | ISO 15118-2:2014, Secs. 1, 3.21, 7.3.1, 7.3.4, 7.5, 7.7.3.1, 7.7.3.2, 7.7.3.3, 7.7.3.4   |
| GB    | 2,678,185 | Method for Establishing an IP-based Communications Connection Between an Electric Vehicle and a Charge Control Unit                   | 1  | ISO 15118-1:2019, Secs. 1, 3.1.12, 3.1.30, 3.1.31, 3.1.33, 3.1.57, 3.1.68, 7.2.1, 7.4.1, Tables 3 and 8<br>ISO 15118-2:2014, Secs. 1, 3.1, 3.2, 3.11, 7.4, 7.6, 7.6.3.3, 7.7.1.1, 7.8.2, 7.10.1.1, 7.10.1.4, 7.10.1.5, 7.10.1.7, Figs. 1 and 16, Table 8 |
| GR    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |

## EV Charging Patent Portfolio License Cross-Reference Chart

| Ctry. | Patent    | Description   | CI       | Standards / Sections   |
|-------|-----------|---|----------|--|
| HR    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1        | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| HU    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1        | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| IE    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1        | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| IS    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1        | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| IT    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1        | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| IT    | 2,454,117 | Method/System for Communication Between a Vehicle and a Charging Station for Locking and Unlocking Mechanical Charging Cable Coupling | 1        | IEC 61851-1:2017, Secs. 1, 3, 3.1.1, 3.1.4, 3.1.5, 3.1.10, 3.1.11, 3.1.12, 3.3.1, 3.3.2, 3.3.3, 3.4.1, 3.5.2, 6.3.2.3, A.1, A.2.1, A.2.4, A.3, Fig. A.3, Table A.6<br>IEC 62196-1:2014, Secs. 3.9, 3.10, 3.11  |
| IT    | 2,514,056 | Method for Testing Electrical Components in Main Supply   | 1        | ISO 15118-2:2014, Secs. 1, 3.21, 7.3.1, 7.3.4, 7.5, 7.7.3.1, 7.7.3.2, 7.7.3.3, 7.7.3.4   |
| IT    | 2,678,185 | Method for Establishing an IP-based Communications Connection Between an Electric Vehicle and a Charge Control Unit                   | 1        | ISO 15118-1:2019, Secs. 1, 3.1.12, 3.1.30, 3.1.31, 3.1.33, 3.1.57, 3.1.68, 7.2.1, 7.4.1, Tables 3 and 8<br>ISO 15118-2:2014, Secs. 1, 3.1, 3.2, 3.11, 7.4, 7.6, 7.6.3.3, 7.7.1.1, 7.8.2, 7.10.1.1, 7.10.1.4, 7.10.1.5, 7.10.1.7, Figs. 1 and 16, Table 8 |
| JP    | 5,624,556 | Systems and Methods for Charging an Electric Vehicle Using Broadband Over Powerlines  | 1        | IEC 61851-1:2017, Sec. 3.1.1<br>IEC 61851-23:2014, Secs. 2, 6.4.3.104, Table CC.3<br>ISO 15118-1:2013, Secs. 3.11, 3.21, 5.3, Fig. 3, Tables 8, 13, 14, 18<br>ISO 15118-2:2014, Secs. 3.20, 7.7.3.3, 8.6.3.2   |
| JP    | 5,851,730 | Charging Management System  | 1        | ISO 15118-1:2013, Secs. 3.16, 3.19, 3.26, 3.47, 6.1, 7.1, Fig. 2, 7.6.3, Table 14, Fig. A5   |
| JP    | 5,901,906 | Electric Vehicles and Chargers  | 1        | ISO 15118-1:2013, Sec. 7.5.1, Fig. 1, Annex C  |
| JP    | 6,047,284 | Power Demand Calculation System   | 1,7,8    | ISO 15118-1:2013, Secs. 3.2, 3.17, 6.1, 7.1, 7.6.2; Figs. 1, 2; Tables 1, 13   |
| JP    | 6,140,430 | Vehicle Data Collection System  | 1,7,8    | ISO 15118-1:2013, Secs. 3.2, 3.17, 3.21, 3.35, 3.36, 3.53, 6.1, 7.1; Figs. 1, 2  |
| JP    | 6,464,531 | Charging Infrastructure Management System   | 1        | ISO 15118-1:2013, Secs. 3.25, 3.26, 3.57, 7.1, Fig. 2, Tables 3, 5, 18, 24, 25, Annex C<br>IEC 61851-1:2017, Sec. 3.1.4, Fig. 3  |
| JP    | 6,539,903 | EV Charge Management System   | 1,4,9,10 | ISO 15118-1:2013, Secs. 3.11, 3.17, 3.21, 3.33, 6.1, 7.1, 7.5.3, 7.5.5, 7.6.2; Figs. 1, 2; Tables 9, 11, 13<br>IEC 61851-23:2014, Annex DD, Fig. D.1   |
| JP    | 6,738,380 | Charging Infrastructure   | 1,2,3    | ISO 15118-1:2013, Secs. 3.47, 3.52, 6.1, 7.1, 7.6.2; Figs. 1, 2, A.6; Tables 1, 13; Annex A.3  |
| LI    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1        | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| LI    | 2,514,056 | Method for Testing Electrical Components in Main Supply   | 1        | ISO 15118-2:2014, Secs. 1, 3.21, 7.3.1, 7.3.4, 7.5, 7.7.3.1, 7.7.3.2, 7.7.3.3, 7.7.3.4   |

## EV Charging Patent Portfolio License Cross-Reference Chart

| Ctry. | Patent    | Description   | CI | Standards / Sections   |
|-------|-----------|---|----|--|
| LT    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device           | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| LU    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device           | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| LV    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device           | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| MC    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device           | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| MK    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device           | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| MT    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device           | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| NL    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device           | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| NL    | 2,514,056 | Method for Testing Electrical Components in Main Supply   | 1  | ISO 15118-2:2014, Secs. 1, 3.21, 7.3.1, 7.3.4, 7.5, 7.7.3.1, 7.7.3.2, 7.7.3.3, 7.7.3.4   |
| NL    | 2,678,185 | Method for Establishing an IP-based Communications Connection Between an Electric Vehicle and a Charge Control Unit | 1  | ISO 15118-1:2019, Secs. 1, 3.1.12, 3.1.30, 3.1.31, 3.1.33, 3.1.57, 3.1.68, 7.2.1, 7.4.1, Tables 3 and 8<br>ISO 15118-2:2014, Secs. 1, 3.1, 3.2, 3.11, 7.4, 7.6, 7.6.3.3, 7.7.1.1, 7.8.2, 7.10.1.1, 7.10.1.4, 7.10.1.5, 7.10.1.7, Figs. 1 and 16, Table 8 |
| NO    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device           | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| PL    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device           | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| PL    | 2,678,185 | Method for Establishing an IP-based Communications Connection Between an Electric Vehicle and a Charge Control Unit | 1  | ISO 15118-1:2019, Secs. 1, 3.1.12, 3.1.30, 3.1.31, 3.1.33, 3.1.57, 3.1.68, 7.2.1, 7.4.1, Tables 3 and 8<br>ISO 15118-2:2014, Secs. 1, 3.1, 3.2, 3.11, 7.4, 7.6, 7.6.3.3, 7.7.1.1, 7.8.2, 7.10.1.1, 7.10.1.4, 7.10.1.5, 7.10.1.7, Figs. 1 and 16, Table 8 |
| PT    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device           | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| PT    | 2,678,185 | Method for Establishing an IP-based Communications Connection Between an Electric Vehicle and a Charge Control Unit | 1  | ISO 15118-1:2019, Secs. 1, 3.1.12, 3.1.30, 3.1.31, 3.1.33, 3.1.57, 3.1.68, 7.2.1, 7.4.1, Tables 3 and 8<br>ISO 15118-2:2014, Secs. 1, 3.1, 3.2, 3.11, 7.4, 7.6, 7.6.3.3, 7.7.1.1, 7.8.2, 7.10.1.1, 7.10.1.4, 7.10.1.5, 7.10.1.7, Figs. 1 and 16, Table 8 |
| RO    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device           | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |

## EV Charging Patent Portfolio License Cross-Reference Chart

| Ctry. | Patent    | Description   | CI | Standards / Sections   |
|-------|-----------|---|----|--|
| SE    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| SE    | 2,454,117 | Method/System for Communication Between a Vehicle and a Charging Station for Locking and Unlocking Mechanical Charging Cable Coupling | 1  | IEC 61851-1:2017, Secs. 1, 3, 3.1.1, 3.1.4, 3.1.5, 3.1.10, 3.1.11, 3.1.12, 3.3.1, 3.3.2, 3.3.3, 3.4.1, 3.5.2, 6.3.2.3, A.1, A.2.1, A.2.4, A.3, Fig. A.3, Table A.6<br>IEC 62196-1:2014, Secs. 3.9, 3.10, 3.11  |
| SE    | 2,678,185 | Method for Establishing an IP-based Communications Connection Between an Electric Vehicle and a Charge Control Unit                   | 1  | ISO 15118-1:2019, Secs. 1, 3.1.12, 3.1.30, 3.1.31, 3.1.33, 3.1.57, 3.1.68, 7.2.1, 7.4.1, Tables 3 and 8<br>ISO 15118-2:2014, Secs. 1, 3.1, 3.2, 3.11, 7.4, 7.6, 7.6.3.3, 7.7.1.1, 7.8.2, 7.10.1.1, 7.10.1.4, 7.10.1.5, 7.10.1.7, Figs. 1 and 16, Table 8 |
| SI    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| SK    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| SM    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| TR    | 2,199,143 | System and Method for Electric Vehicle Charging and Billing Using a Wireless Vehicle Communication Device                             | 1  | IEC 61851-1:2017, Sec. 1<br>ISO 15118-1:2013, Secs. 1, 3.1.27, 3.1.30, 3.1.31, 3.1.33, 3.1.34, 3.1.58, 3.1.68, 5.5.4, 5.6.2, 6, 7.6.1, 7.6.2, 7.9.2, 7.11.2, B.1.2.1, B.1.2.2; Figs. 1, 2, 3; Tables 12, 31, 39, B.2                                     |
| TR    | 2,514,056 | Method for Testing Electrical Components in Main Supply   | 1  | ISO 15118-2:2014, Secs. 1, 3.21, 7.3.1, 7.3.4, 7.5, 7.7.3.1, 7.7.3.2, 7.7.3.3, 7.7.3.4   |
| TR    | 2,678,185 | Method for Establishing an IP-based Communications Connection Between an Electric Vehicle and a Charge Control Unit                   | 1  | ISO 15118-1:2019, Secs. 1, 3.1.12, 3.1.30, 3.1.31, 3.1.33, 3.1.57, 3.1.68, 7.2.1, 7.4.1, Tables 3 and 8<br>ISO 15118-2:2014, Secs. 1, 3.1, 3.2, 3.11, 7.4, 7.6, 7.6.3.3, 7.7.1.1, 7.8.2, 7.10.1.1, 7.10.1.4, 7.10.1.5, 7.10.1.7, Figs. 1 and 16, Table 8 |
| US    | 6,650,120 | Apparatus and Method for Accessing Data Stored Within a Power Source  | 1  | IEC 61851-1:2017, Sec. 6.3.1.4, Annex A (59), Annex D (93-97), Tables D.11, D.22<br>IEC 61851-23:2014, CC.7<br>IEC 61851-24:2014, Table A.2<br>IEEE 2030.1.1-2015, Sec A.7.7.1<br>SAE J1772, Appendix E (60)   |
| US    | 8,232,763 | Electric Vehicle Profiles for Power Grid Operation  | 1  | IEC 61851-1:2017, Sec. 3.1.1<br>ISO 15118-1:2013, Secs. 3.17, 3.48, 5.4, 6.1, 7.5.2, 7.6.2, Tables 8, 13   |
| US    | 8,315,930 | Systems and Methods for Charging an Electric Vehicle Using Broadband Over Powerlines  | 1  | IEC 61851-1:2017, Sec. 3.1.1<br>IEC 61851-23:2014, Secs. 2, 6.4.3.104, Table CC.3<br>ISO 15118-1:2013, Secs. 3.2.1, 3.11, 5.3, Fig. 3, Tables 8, 13, 14, 18<br>ISO 15118-2:2014, Secs. 3.20, 7.7.3.3, 7.9.2.4  |
| US    | 8,384,347 | Method and System for Charging an Energy Storage Device   | 1  | IEC 61851-1:2017, Secs. 3.1.1, 5.5.2, Fig. 3<br>IEC 61851-23:2014, Secs. 6.4.1, 6.4.3.102, 6.4.3.114, Fig. CC.6, Table CC.5<br>ISO 15118-1:2013, Sec. 5.5.2  |
| US    | 8,390,252 | Charging Device, System and Method  | 1  | IEC 61851-1:2017, Secs. 1, 3.3, 3.4, Tables A.5, A.6<br>ISO 15118-1:2013, Secs. 1, 3, 3.25, 3.9, 3.11, 5.4, 7.6.2<br>ISO 15118-2:2014, Sec. 8.4.3.8.1  |

## EV Charging Patent Portfolio License Cross-Reference Chart

| Ctry. | Patent    | Description   | CI | Standards / Sections  |
|-------|-----------|---|----|---|
| US    | 8,466,656 | Charging Device and Methods for Charging Electrically Powered Vehicles                        | 1  | IEC 61851-1:2017, Secs. 3.1.1, 3.3.2, 3.3.4, 3.1.12, A.2.1, A.2.2, A.2.3, Figs. A.1, A.2, Table A.2, A.4<br>IEC 61851-23:2014, Secs. 3, 6.4.1, 102.2, 102.3.2, Table 102, CC.3.3, Table CC.4  |
| US    | 8,500,013 | Systems and Methods for Accessing Charging Capabilities of Electric Vehicle Charging Stations | 1  | IEC 61851-1:2017, IEC 61851-23:2014, ISO 15118-2:2014, Sec. 2 of each<br>ISO 15118-1:2019, Secs. 3.1.1, 3.1.27, 5.5.4, 6, 7.1, 7.6.2, 7.6.4, B.1.2.2, C.6.5.3, Fig. 2, Tables 12 and C.3  |
| US    | 8,624,719 | Smart Phone Control and Notification for an EV Charging Station                               | 1  | IEC 61851-23:2014, Table D.1, Fig. AA.1<br>SAE J1772:2017, p.29-30, Figs. 7-8:Control Electronics, p. 63/116 "PEV Scheduled Charge", "phone app"  |
| US    | 8,706,312 | Charging Device and Methods of Authorizing a Charging Request                                 | 1  | IEC 61851-1:2017, Sec. 3.1.1, Table A.5<br>IEC 61851-23:2014, Sec. 2<br>ISO 15118-1:2013, Secs. 3.11, 3.17, 3.19, 3.48, 5.3, 5.5.1, 5.5.3, Table 13   |
| US    | 8,710,796 | EVSE Having a Socket and a Method of Charging a EV  | 1  | IEC 61851-1:2017, Figures on pp. 86-91, Secs. 3.3.4, 8.3, 8.5, 13, 14, A 2.2  |
| US    | 8,823,330 | Charging System for Use with Electric Vehicles and Methods of Monitoring Same                 | 1  | IEC 61851-1:2017, Secs. 3.1.1, 5.5.2, Fig. 3<br>IEC 61851-23:2014, Secs. 6.4.1, 6.4.3.102, 6.4.3.114, Fig. CC.6, Table CC.5<br>ISO 15118-1:2013, Sec. 5.5.2   |
| US    | 8,850,226 | Method for Testing Electrical Components in Main Supply                                       | 1  | ISO 15118-2:2014, Secs. 1, 3.21, 7.3.1, 7.3.4, 7.5, 7.7.3.1, 7.7.3.2, 7.7.3.3, 7.7.3.4  |
| US    | 8,860,366 | Plug-in EVSE  | 1  | SAE J1772:2017, pp. 29, 30, 68, Figs. 7, 8, Table 9   |
| US    | 8,860,559 | Power Supply Device   | 1  | IEC 61851-1:2017, Secs. 3.1.12, 3.5.2, Fig. 3<br>IEC 61851-23:2014, Sec. 3.101, Figs. CC.1, CC.6, CC.7, Tables CC.3, CC.5, Annex CC.1, CC.3.1<br>ISO 15118-1:2013, Secs. 1, 3.14, 7.1, 7.5.2, Table 8<br>ISO 15118-3:2015, Sec. 6.3       |
| US    | 8,886,391 | Method and System for Retrieving Diagnostic Information from a Vehicle                        | 1  | ISO 15118-2:2014, Sec. 7.6.2.2, Sec. E.1.2 (R3)<br>IEC 61851-24:2014, Fig. 1, Table B.3<br>IEEE 2030.1.1-2015, Sec. A.7.2.7.2   |
| US    | 8,890,473 | Sequential Charging of Multiple EVs   | 1  | IEC 61851-1:2017, pp. 47, 51, 59, 86, 88-91, 122, Secs. 12.2.5, 13.1, 14, A 2.2<br>SAE J1772:2017, pp. 29, 30, 68   |
| US    | 9,024,744 | Smart Phone Control and Notification for an EV Charging Station                               | 1  | IEC 61851-23:2014, Fig. AA.1, Table D.1<br>SAE J1772:2017, p. 63, "phone app"   |
| US    | 9,030,153 | Systems and Methods for Delivering Energy to an Electric Vehicle with Parking Fee Collection  | 1  | IEC 61851-1:2017, Secs. 1, 3.1.1<br>IEC 61851-23:2014, Sec. 2<br>ISO 15118-1:2013, Secs. 5.2, 7.7.2, Tables 18, 19<br>ISO 15118-2:2014, Sec. 8.6.3.2  |
| US    | 9,035,607 | Vehicle Charging Stations and Method for Use in Charging an Electrically Powered Vehicle      | 1  | IEC 61851-1:2017, Secs. 3.1.1, Figs. 3, C.1<br>ISO 15118-1:2019, Sec. 5.3.1, Fig. A.4, Tables 34, A.2, C.3, E.1, Annex C.6.5.3<br>ISO 15118-2:2014, (Error Reporting, e.g., V2G1-ED2-8, -10, -11)   |
| US    | 9,054,535 | Methods and Systems for Charging an Energy Storage Device                                     | 1  | CCS 1.0-2015, Secs. 2.1, 2.4, 3.1, p. 11<br>IEC 61851-1:2017, Secs. 1.0, 3.1, 3.1.1, 3.3, 3.3.2, 3.3.4, 7.2, Table D.10<br>IEC 61851-23:2014, Table 102, pg. 30, BB.1, CC.3, CC.4, Figs. CC.1-CC.3<br>ISO 15118-1:2013, Sec. 7.2, Table 2 |
| US    | 9,090,174 | Power Supply Device and Power Supply Method   | 10 | ISO 15118-1:2013, Secs. 3.26, 3.29, 3.44, 7.5.2, Fig. A.4, Tables 8, A.1, Annex A.2<br>ISO 15118-3:2015, Secs. 3.20, 6.4.2.2, Table A.7, Annex A.9.4.1  |
| US    | 9,121,073 | Plug-in EVSE with Indicators  | 1  | IEC 61851-1:2017, Pages 88, 92, Table C.1, Figs. C.3, C.6<br>IEC 61851-23:2014, Figs. AA.1, BB.4, Table 101   |

## EV Charging Patent Portfolio License Cross-Reference Chart

| Ctry. | Patent     | Description   | CI            | Standards / Sections   |
|-------|------------|---|---------------|--|
| US    | 9,124,104  | Electrical Connecting Device for Hybrid and EVs and Associated Charging Method  | 1             | IEC 61851-1:2017, Pages 88, 92, Table C.1, Figs. C.3, C.6<br>IEC 61851-23:2014, Secs. CC.3.1, BB 3.6, Fig. AA.1, BB.4, Table 102   |
| US    | 9,203,241  | Method for Controlling the Stability of an Electric Supply Grid   | 1             | ISO 15118-1:2019, Secs. Intro, 3.2, 3.26, 5.5.1, 7.6.3, Fig. A.4, Tables 14, C.3<br>ISO 15118-2:2014, Secs. 8.4.3.8.1, 8.4.3.8.2, 8.4.3.8.3  |
| US    | 9,227,519  | Method/System for Communication Between a Vehicle and a Charging Station for Locking and Unlocking Mechanical Charging Cable Coupling | 1, 12, 14, 17 | IEC 61851-1:2017, Secs. 1, 3, 3.1.1, 3.1.4, 3.1.5, 3.1.10, 3.1.11, 3.1.12, 3.3.1, 3.3.2, 3.3.3, 3.4.1, 3.5.2, 6.3.2.3, A.1, A.2.1, A.2.4, A.3, Fig. A.3, Table A.6<br>IEC 62196-1:2014 Secs. 3.9, 3.10, 3.11                       |
| US    | 9,278,620  | Method/Device for Operating a Vehicle Computer Program, and Computer Program Product  | 1             | IEC 61851-1:2017, <i>passim</i> . Secs. 3.1.11, 7.1<br>IEC 61851-23:2014, Secs. 102.3.2, 102.5, CC.3.1, BB 3.6, Fig. AA.1, Tables 102, 103<br>ISO 15118-1:2013, Sec. 3.19  |
| US    | 9,283,863  | Method/Apparatus for Providing Electrical Energy  | 1,16          | ISO 15118-1:2013, Secs. 5.4, 7.1, 7.6.1, 7.6.2<br>IEC 61851-1:2017, <i>passim</i>  |
| US    | 9,475,393  | Charging Devices and Methods for Charging Electrically Powered Vehicles   | 1             | IEC 61851-1: 2017, Secs. 3.1.1, 3.1.12, 6.3.1.3, Fig. 3, 3.3.2, 3.3.4, Annex A (Secs. A.2.1, A.2.2, A.2.3, Figs. A1, A2, Tables A.2, A.4)<br>IEC 61851-23:2014, Secs. 3, 6.4.1, 102.2, 102.3.2, Table 102, Sec. CC.3.3, Table CC.4 |
| US    | 9,475,399  | Power Conduit, Charging Device, and Method for Charging A Power Storage Device  | 1             | IEC 61851-1:2017, Secs. 3.3.4, 3.5.2, Fig. C.6, Table A.6<br>IEC 61851-23:2014, Sec. 6.4.3.104<br>ISO 15118-1:2013, Secs. 3.1.4, 7.9<br>ISO 15118-2:2014, pp. 28 and 323   |
| US    | 9,475,400  | EV Charging Device and Method Therefor  | 1             | IEC 61851-1:2017, Secs. 3.1.12, 3.5.2, 8.5, 13.1-13.3<br>IEC 61851-23:2014, Secs. 3.107, 3.109, 6.2, 6.3.1, 6.4, 6.4.3.4, 6.4.3.114, 6.4.5, 102.1, 102.5.4, Annex CC Secs. 3.4, 4.2, 7, Table CC.5, Figs. CC.1, CC.3               |
| US    | 9,487,099  | Plug-in Electric Vehicle Supply Equipment   | 1             | SAE J1772:2017, pp. 29/116, Figs. 7, 8, p. 104 Fig. 27   |
| US    | 9,590,416  | Safety Device for a High-Voltage System   | 1, 11         | IEC 61851-1:2017, Secs. 3.3.5, 3.5.16, 3.7.6, 8.1, 8.2, A.4.7.1, C.2, Tables A.6, C.1, D.22<br>IEC 61851-23:2014, Annex CC, Table CC.4   |
| US    | 9,783,068  | Method and Apparatus for Providing Electrical Energy  | 4             | ISO 15118-1:2013, Secs. 1, 3, 3.11, 3.12, 3.24-26, 3.52, 7.6.3, 7.7.3, 7.7.4<br>ISO 15118-2:2014, Secs. 3, 3.2, 4, 8.4.3.8.1-3, 8.4.3.9.1-3, 8.5.2.13-15   |
| US    | 10,263,413 | Charging Station  | 10            | IEC 61851-1:2017, Secs. 3.1.1, 3.1.5, 3.5.2, 3.7.8, 6.3.1.6, 11.1, 11.2, 13.2, A.2.1, B.2, Tables A.8, B.2   |
| US    | 10,850,630 | On-Board Unit and Electric Vehicle Management System  | 1, 5, 13, 14  | ISO 15118-1:2013, Secs. 3.11, 3.14, 3.17, 3.19, 3.20, 3.22, 3.38, 5.3.1, 5.4, 6.1, 7.1, 7.2.1, 7.2.2, 7.5.3, 7.5.5, 7.6.2; Figs. 1, 2, 3; A.5; Tables 1, 3, 4, 9, 11, 13; Annex A.3<br>IEC 61851-23:2014, Annex DD, Fig. D.1       |
| US    | Re. 48,406 | Vehicle Data Collection System  | 8, 16-18, 20  | ISO 15118-1:2013, Secs. 3.6, 3.17, 3.20, 3.27, 3.35, 3.36, 3.53, 6.1, 7.1, 7.5.3, 7.5.5, 7.6.2; Figs. 1, 2, 3; Tables 9, 13<br>ISO 15118-2:2014, Fig. 5  |