

# DIN SPEC 91347:2018-03 (E)

## Integrated multi-functional Humble Lamppost (imHLa)

---

<b>Contents</b>		<b>Page</b>
Foreword .....		5
Introduction .....		7
1 Scope .....		10
2 Normative references .....		11
3 Terms and definitions .....		11
4 Symbols and abbreviations .....		14
5 Use cases .....		15
5.1 Introduction .....		15
5.2 Event-controlled adaptive street lighting system .....		16
5.2.1 Brief description .....		16
5.2.2 Use scenario .....		17
5.2.3 Implementation .....		17
5.3 Traffic monitoring .....		18
5.3.1 Brief description .....		18
5.3.2 Use scenario .....		18
5.3.3 Implementation .....		19
5.4 Intelligent communication between vehicles and the imHLa .....		19
5.4.1 Brief description .....		19
5.4.2 Use scenarios .....		19
5.4.3 Implementation .....		20
5.5 Public Wi-Fi .....		20
5.5.1 Brief description .....		20
5.5.2 Use scenario .....		20
5.5.3 Implementation .....		21
5.6 Wireless network support with a picocell or microcell .....		22
5.6.1 Brief description .....		22
5.6.2 Use scenario .....		22
5.6.3 Implementation .....		22
5.7 Environmental data acquisition .....		23
5.7.1 Brief description .....		23
5.7.2 Use scenario .....		23
5.7.3 Implementation .....		23
5.8 Charging station for electric vehicles .....		24
5.8.1 Brief description .....		24
5.8.2 Use scenario .....		24
5.8.3 Implementation .....		24
5.9 Drone charging infrastructure .....		25
5.9.1 Brief description .....		25
5.9.2 Use scenario .....		25
5.9.3 Implementation .....		26
5.10 Energy storage .....		26
5.10.1 Brief description .....		26
5.10.2 Use scenario .....		26
5.10.3 Implementation .....		27
5.11 Remote maintenance .....		28
5.11.1 Brief description .....		28

5.11.2	Use scenario .....	28
5.11.3	Implementation .....	28
5.12	Public security .....	29
5.12.1	Brief description .....	29
5.12.2	Use scenario .....	29
5.12.3	Implementation .....	30
5.13	Private security and surveillance .....	30
5.13.1	Brief description .....	30
5.13.2	Use scenario .....	30
5.13.3	Implementation .....	30
5.14	Signage and advertising .....	31
5.14.1	Brief description .....	31
5.14.2	Use scenario .....	31
5.14.3	Implementation .....	32
6	Integrated utilization concept .....	32
6.1	General .....	32
6.2	Roles and responsibilities .....	33
6.3	Target groups .....	34
6.3.1	General .....	34
6.3.2	Administration and municipal utilities .....	34
6.3.3	Service economy and industry .....	35
6.3.4	Developers and start-ups .....	35
6.3.5	Citizens .....	35
6.4	Organizational and operating models .....	35
6.5	Financing and business models .....	36
6.5.1	General .....	36
6.5.2	Smart city ecosystem .....	37
6.5.3	Business models for two-sided or multi-sided platforms .....	38
6.5.4	Combined business models .....	39
7	Logical architecture of an imHLA .....	39
7.1	General .....	39
7.2	Physical integration .....	40
7.3	Electrical integration .....	41
7.4	Communication integration .....	41
7.5	Functional components .....	42
7.6	Digital integration .....	43
7.7	Data integration .....	44
7.8	Integration of digital services .....	45
8	Design principles .....	46
8.1	Integration of infrastructures and interoperability .....	46
8.1.1	General .....	46
8.1.2	Mechanical and electrical integration .....	47
8.1.3	Communication .....	47
8.1.4	Data exchange and interoperability .....	48
8.1.5	Authentication and identity management .....	48
8.2	Open interfaces and protocols .....	48
8.3	Security, privacy and trust .....	50
8.3.1	Security by design .....	50
8.3.2	Privacy by design .....	50
8.4	Functional safety .....	51
8.5	Reliability, warranty and guarantee .....	52
9	Classification .....	52
10	Designation .....	54
	(informative) Recommendations .....	55Annex A
	Bibliography .....	56