

ECLA**EUROPEAN CLASSIFICATION****F21S****NON-PORTABLE LIGHTING DEVICES OR SYSTEMS THEREOF
(burners F23D) [C0904]**[N: **Notes** [N0904]

1. This subclass covers devices or systems intended for fixed installation, e.g. vehicle lighting, or for use at a permanent location, e.g. free-standing floor- or table-lamps.
 2. This subclass does not cover devices or systems specially adapted for transportation, which are covered by subclass F21L.
 3. Non-electric lighting devices or systems are classified in groups [F21S11/00](#) to [F21S15/00](#) only if a special adaptation related to the use of a non-electric light source is of interest.
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Guide heading: **Electric lighting****F21S2/00** **Systems of lighting devices, not provided for in main groups [F21S4/00](#) to [F21S10/00](#) or [F21S19/00](#), e.g. of modular construction [N0108] [C0904]**

F21S2/00A . [N: of modular construction] [N0108]

F21S4/00 **Lighting devices or systems using a string or strip of light sources [N0108] [C0904]**

F21S4/00E . [N: using a string of light sources, i.e. lighting devices or systems where the light sources are supported by loose electric cables, e.g. Christmas tree lights] [N1204] [M1207]

F21S4/00E2 . . [N: the strings forming a grid, net or web structure] [N1204]

F21S4/00L . [N: using a strip of light sources, i.e. lighting devices or systems where the light sources are supported on a linear support] [N1204]

F21S4/00L2 . . [N: the lighting device being flexible or deformable, e.g. into a curved shape] [N1204]

F21S4/00L2L . . . [N: the lighting device being a LED tape] [N1204]

F21S4/00L2R . . . [N: the lighting device being a LED rope light] [N1204]

F21S4/00L6 . . [N: the lighting device being rigid or comprising an elongated rigid housing, e.g. LED bars] [N1204]

F21S6/00 **Lighting devices intended to be free-standing ([F21S9/00](#), [F21S10/00](#), [N: [F21S13/12](#) take precedence]) [N: lighting devices specially adapted to be transported from place to place, e.g. lighting devices carried on wheeled supports F21L; details of supports for lighting devices [F21V21/00](#)] [N0109] [C1204]**F21S6/00C . [N: being candle-shaped (with varying lighting effect of simulating flames [F21S10/04](#); string of light sources [F21S4/00](#))] [N1204]

F21S6/00D . [N: Table lamps, e.g. for ambient lighting] [N1204]

F21S6/00D2 . . [N: for task lighting, e.g. for reading or desk work, e.g. angle poise lamps] [N1204]

- F21S6/00F . [N: with a lamp housing in direct contact with the floor or ground] [N1204]
- F21S6/00S . [N: with a lamp housing maintained at a distance from the floor or ground via a support, e.g. standing lamp for ambient lighting] [N1204]
- F21S6/00S2 . . [N: for direct lighting only, e.g. task lighting] [N1204]
- F21S6/00S4 . . [N: for indirect lighting only, e.g. torchiere with reflector bowl directed towards ceiling] [N1204]
- F21S6/00S6 . . [N: with a combination of direct and indirect lighting] [N1204]

- F21S8/00** **Lighting devices intended for fixed installation** ([F21S9/00](#), [F21S10/00](#) take precedence; using a string or strip of light sources [F21S4/00](#)) [N0109] [C0904]

- F21S8/00I . [N: Searchlights, i.e. outdoor lighting device producing powerful beam of parallel rays, e.g. for military or attraction purposes ([searchlights mounted on a vehicle B60Q1/24](#))] [N1204]
- F21S8/00M . [N: Solar simulators, e.g. for testing photovoltaic panels] [N1204]
- F21S8/02 . of recess-mounted type, e.g. downlighters ([F21S8/10](#) takes precedence; [N: details of recessed bases [F21V21/04](#)]) [N0109] [C1204]
- F21S8/02F . . [N: intended to be recessed in a floor or like ground surface, e.g. pavement or false floor] [N0109] [C1204]
- F21S8/02G . . [N: intended to be recessed in a wall or like vertical structure, e.g. building facade] [N1204]
- F21S8/02H . . [N: intended to be recessed in a ceiling or like overhead structure, e.g. suspended ceiling] [N1204]
- F21S8/02R . . [N: being retractable, i.e. having two fixed positions, one recessed, e.g. in a wall, floor or ceiling, and one extended when in use] [N1204]

- F21S8/03 . [N: of surface-mounted type ([F21S8/02](#), [F21S8/04](#) take precedence; details of wall or floor bases [F21V21/02](#))] [N1204]
 [N: **WARNING**
 [N1204]Group [F21S8/03](#) does not correspond to former or future IPC groups.
 Correspondence ECLA : IPC for this group is as following: - [F21S8/03](#) : [F21S8/00](#)
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- F21S8/03E . . [N: the device consisting essentially only of a light source holder with an exposed light source, e.g. a fluorescent tube] [N1204]
- F21S8/03F . . [N: the surface being a floor or like ground surface, e.g. pavement] [N1204]
- F21S8/03G . . [N: the surface being a wall or like vertical structure, e.g. building facade] [N1204]
- F21S8/03G1 . . . [N: by means of plugging into a wall outlet, e.g. night light] [N1204]
- F21S8/03G3 . . . [N: by means of a rigid support, e.g. bracket or arm] [N1204]
- F21S8/03G9 . . . [N: for mounting in a corner, i.e. between adjacent walls or wall and ceiling] [N1204]
- F21S8/03T . . [N: intended to be mounted on a light track ([suspended from a light track F21S8/06T](#); details of supporting elements displaceable along a guiding element [F21V21/34](#))] [N1204]

- F21S8/04 . intended only for mounting on a ceiling or the like overhead structures ([F21S8/02](#) takes precedence; [N: details of ceiling bases [F21V21/03](#)]) [N0109] [C1204]

- F21S8/04B . . [N: mounted by means of a rigid support, e.g. bracket or arm] [N1204]
- F21S8/04M . . [N: having multiple lighting devices, e.g. connected to a common ceiling base] [N1204]
- F21S8/06 . . by suspension [N0109]
- F21S8/06A . . . [N: with a non-rigid pendant, i.e. a cable, wire or chain] [N1204]
- F21S8/06B . . . [N: with a rigid pendant, i.e. a pipe or rod] [N1204]
- F21S8/06M . . . [N: multi-branched, e.g. a chandelier] [N1204]
- F21S8/06T . . . [N: from a light track (details of supporting elements displaceable along a guiding element [F21V21/34](#))] [N1204]
- F21S8/06W . . . [N: from a stretched wire] [N0109]

- F21S8/08 . with a standard [N: ([F21S6/00](#) takes precedence)] [N0109] [C1204]
- F21S8/08B . . [N: of low-built type, e.g. landscape light] [N1204]
- F21S8/08B5 . . . [N: of bollard type, i.e. with lighting fixture integrated into the standard or mounted on top of it and having substantially the same diameter] [N1204]
- F21S8/08H . . [N: of high-built type, e.g. street light] [N1204]
- F21S8/08H2 . . . [N: with lighting device attached sideways of the standard, e.g. for roads and highways] [N1204]
- F21S8/08H4 . . . [N: with lighting device mounted on top of the standard, e.g. for pedestrian zones] [N1204]

- F21S8/10 . specially adapted for vehicles [N0109] [C1202]

- [N: **WARNING**
[N1202] This group is no longer used for the classification of new documents as from January 1st, 2012. The backlog of this group is being continuously reclassified to [F21S48/00](#) and subgroups
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- F21S8/12 . . providing single shaped beams or asymmetric beams, e.g. for penetrating fog or for preventing glare [N0109] [C1202]

- [N: **WARNING**
[N1202] This group is no longer used for the classification of new documents as from January 1st, 2012. The backlog of this group is being continuously reclassified to [F21S48/00](#) and subgroups
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- F21S9/00** **Lighting devices with a built-in power supply; Systems employing lighting devices with a built-in power supply** [C0904]

- F21S9/02 . the power supply being a battery or accumulator
- F21S9/02E . . [N: Emergency lighting devices] [N1204]
- F21S9/02E4 . . . [N: using a supplementary light source for emergency lighting] [N1204]
- F21S9/02T . . [N: rechargeable by using wind power, e.g. using wind turbines] [N1204]
- F21S9/02W . . [N: rechargeable by using hydropower, e.g. using water powered turbines] [N1204]
- F21S9/03 . . rechargeable by exposure to light [N0004]
- F21S9/03I . . . [N: the solar unit being separate from the lighting unit] [N1204]
- F21S9/03S . . . [N: the solar unit being integrated within the support for the lighting unit, e.g. within or on a pole] [N1204]

F21S9/03W	<ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: the solar unit and the lighting unit being located within or on the same housing] [N1204]
F21S9/04	<ul style="list-style-type: none"> the power supply being a generator
F21S9/04F	<ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: driven by wind power, e.g. by wind turbines] [N1204]
F21S9/04P	<ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: driven by hydropower, e.g. by water powered turbines] [N1204]
F21S10/00	Lighting devices or systems producing a varying lighting effect [N0108] [C0904]
F21S10/00A	<ul style="list-style-type: none"> [N: using liquids, e.g. water (F21S8/00P7 takes precedence)] [N0108]
F21S10/00B	<ul style="list-style-type: none"> [N: using light guides (light guides specially adapted for lighting devices G02B6/00L)] [N0108]
F21S10/00C	<ul style="list-style-type: none"> [N: using rotating transparent or colored disks, e.g. gobo wheels] [N1204]
F21S10/02	<ul style="list-style-type: none"> changing colors [N: (F21S10/00A to F21S10/00C, F21S10/04 take precedence)] [N0108]
F21S10/02F	<ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: by selectively switching fixed light sources] [N1204]
F21S10/02M	<ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: by movement of parts, e.g. by movement of reflectors or light sources (F21S10/00C takes precedence)] [N1204]
F21S10/04	<ul style="list-style-type: none"> simulating flames [N0108]
F21S10/04F	<ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: by selectively switching fixed light sources] [N1204]
F21S10/04M	<ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: by movement of parts, e.g. by movement of reflectors or light sources] [N1204]
F21S10/06	<ul style="list-style-type: none"> flashing, e.g. with rotating reflector or light source [N: (signalling lighting devices mounted on vehicles B60Q1/26)] [N1204]
F21S10/06F	<ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: for providing a rotating light effect] [N1204]
F21S10/06F6	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: by selectively switching fixed light sources] [N1204]
Guide heading:	<u>Non-electric lighting</u>
F21S11/00	Non-electric lighting devices or systems using daylight [N: (roofs with sky-light opening E04D13/03; sun blinds for windows with means for redirecting light onto ceiling of a room E06B9/00; hybrid lighting devices combining artificial and natural light F21S19/00; solar heat collectors F24J2/00; solar cells or solar cell modules H01L31/00)] [N1204]
F21S11/00C	<ul style="list-style-type: none"> [N: characterised by the means for collecting or concentrating the sunlight, e.g. parabolic reflectors or Fresnel lenses] [N1204]
F21S11/00C4	<ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: with tracking means for following the position of the sun] [N1204]
F21S11/00T	<ul style="list-style-type: none"> [N: characterised by the means for transmitting light into the interior of a building] [N1204]
F21S13/00	Non-electric lighting devices or systems employing a point-like light source (candle holders F21V35/00); Non-electric lighting devices or systems employing a light source of unspecified shape [C0904]

F21S13/02	<ul style="list-style-type: none"> Devices intended to be fixed, e.g. ceiling lamp, wall lamp
F21S13/04	<ul style="list-style-type: none"> <ul style="list-style-type: none"> with a pendant
F21S13/06	<ul style="list-style-type: none"> <ul style="list-style-type: none"> multi-branched, e.g. chandelier
F21S13/08	<ul style="list-style-type: none"> <ul style="list-style-type: none"> with suspension from a stretched wire
F21S13/10	<ul style="list-style-type: none"> <ul style="list-style-type: none"> with a standard, e.g. street lamp
F21S13/12	<ul style="list-style-type: none"> Devices intended to be free-standing, e.g. table lamp, floor lamp
F21S13/14	<ul style="list-style-type: none"> Lighting systems
F21S15/00	Non-electric lighting devices or systems employing light sources not covered by main groups F21S11/00, F21S13/00 or F21S19/00 [C0904]
F21S19/00	Lighting devices or systems employing combinations of electric and non-electric light sources; Replacing or exchanging electric light sources with non-electric light sources or vice-versa [C0904]
F21S19/00H	<ul style="list-style-type: none"> [N: Combining sunlight and electric light sources for indoor illumination] [N1204]
F21S48/00	<p>[N: Lighting devices or systems specially adapted for vehicles (arrangements or adaptations for ships or waterborne vessels B63B45/00)] [N1202]</p> <p>[N: WARNING [N1202] Groups F21S48/00 to F21S48/34 do not correspond to former or current IPC groups. Concordance ECLA : IPC for these groups is as follows: - F21S48/00 - F21S48/34 : F21S8/10]</p>
F21S48/10	<ul style="list-style-type: none"> [N: Headlamps] [N1202]
F21S48/11	<ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: characterised by the light source] [N1202]
F21S48/11A	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: Attachment of light sources; Lamp holders; Terminals or connectors therefor (F21S48/17L2 takes precedence)] [N1202]
F21S48/11A2	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: Details of lamp holders, terminals or connectors (mounting of a ballast for a high intensity discharge lamp on the housing wall of a headlamp B60Q)] [N1202]
F21S48/11A4	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: Bayonet attachments] [N1205]
F21S48/11A6	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: Wire spring attachments] [N1205]
F21S48/11A8	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: Snap-fit attachments] [N1205]
F21S48/11E	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: Type of emitted light] [N1202]
F21S48/11E2	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: Colored light] [N1202]
F21S48/11E4	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: Ultraviolet (UV) or infrared (IR) light] [N1202]
F21S48/11E6	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: Polarized light] [N1202]
F21S48/11T	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: Type of light source] [N1202]
F21S48/11T2	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: Light emitting diodes (LEDs)] [N1205]
F21S48/11T2D	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> [N: the main emission direction of the LED being parallel to the optical axis of the headlamp] [N1205]

F21S48/11T2P	. . . . .	[N: the main emission direction of the LED being angled to the optical axis of the headlamp] [N1205]
F21S48/11T2S	. . . . .	[N: Surface emitters, e.g. OLEDs] [N1205]
F21S48/11T4	. . . . .	[N: Incandescent light sources, e.g. filament or halogen lamps] [N1202]
F21S48/11T4D	. . . . .	[N: having two or more filaments] [N1202]
F21S48/11T4S	. . . . .	[N: characterised by the shape of the filament] [N1205]
F21S48/11T4T	. . . . .	[N: having a filament being arranged transversally to the optical axis of the headlamp] [N1202]
F21S48/11T6	. . . . .	[N: High intensity discharge (HID) light source] [N1202]
F21S48/11T8	. . . . .	[N: Fluorescent, elongated light source] [N1202]
F21S48/11T10	. . . . .	[N: Combination of light sources of different types or shapes] [N1202]
F21S48/12	. . .	[N: characterised by refractors, transparent cover plates or filters] [N1202]
F21S48/12A	. . .	[N: Attachment of refractors, transparent cover plates or filters (F21S48/17F2 takes precedence)] [N1202]
F21S48/12A2	. . . . .	[N: specially adapted to projection lenses] [N1202]
F21S48/12T	. . . . .	[N: Type of refractor, transparent cover plates or filters] [N1202]
F21S48/12T2	. . . . .	[N: Cover glass] [N1202]
F21S48/12T4	. . . . .	[N: Light guides (light guides per se G02B6/00L)] [N1202]
F21S48/12T6	. . . . .	[N: Projection lenses] [N1202]
F21S48/12T6C	. . . . .	[N: Lenses with a circular or truncated circular outline, when seen from the front] [N1205]
F21S48/12T6E	. . . . .	[N: Elongated lenses] [N1205]
F21S48/12T6P	. . . . .	[N: Composite lenses; Lenses with a patch like shape] [N1205]
F21S48/12T6S	. . . . .	[N: Lens surfaces, e.g. coatings, surface structures] [N1205]
F21S48/12T6T	. . . . .	[N: Thick lenses for providing the final automotive light distribution] [N1205]
F21S48/13	. . .	[N: characterised by reflectors] [N1202]
F21S48/13A	. . . . .	[N: Attachment of reflectors (F21S48/17R2 takes precedence)] [N1202]
F21S48/13A2	. . . . .	[N: specially adapted to extension reflectors] [N1202]
F21S48/13D	. . . . .	[N: Optical design] [N1202]
F21S48/13D2	. . . . .	[N: the reflector being a surface of revolution or a planar surface, e.g. truncated] [N1202]
F21S48/13D4	. . . . .	[N: the reflector using total internal reflection] [N1202]
F21S48/13D6	. . . . .	[N: the reflector having two perpendicular cross sections having regular geometrical curves of a distinct nature] [N1202]
F21S48/13D8	. . . . .	[N: the reflector consisting of complete annular areas] [N1202]
F21S48/13D8C	. . . . .	[N: with continuity at the junction between adjacent areas] [N1202]
F21S48/13D8D	. . . . .	[N: with discontinuity at the junction between adjacent areas] [N1202]
F21S48/13D10	. . . . .	[N: the reflector consisting of patch like sectors] [N1202]
F21S48/13D10C	. . . . .	[N: with continuity at the junction between adjacent areas] [N1202]
F21S48/13D10D	. . . . .	[N: with discontinuity at the junction between adjacent areas] [N1202]
F21S48/13D12	. . . . .	[N: the reflector having a structured surface, e.g. with facets or corrugations] [N1202]
F21S48/13D14	. . . . .	[N: the reflector having surface portions added to its general concavity] [N1202]

F21S48/13D16	. . . .	[N: Combination of two or more reflectors] [N1202]
F21S48/13M	. . .	[N: Material, surface treatment or coating of the reflector] [N1202]
F21S48/14	. .	[N: characterised by screens, non-reflecting members, light-shielding members or fixed shades] [N1202]
F21S48/14A	. . .	[N: Attachment thereof (F21S48/17S2 takes precedence)] [N1202]
F21S48/14D	. . .	[N: Details of the shape of screens, non-reflecting members, light-shielding members or fixed shades] [N1202]
F21S48/14D2	. . . .	[N: Hoods or cap-shaped] [N1202]
F21S48/15	. .	[N: characterised by aesthetical components or components other than light sources, reflectors, refractors or screens, e.g. partition walls, covers, decorative trims] [N1202]
F21S48/15A	. . .	[N: Attachment thereof] [N1202]
F21S48/17	. .	[N: characterised by a variable light distribution] [N1202]
F21S48/17D	. . .	[N: Light distributions being switched] [N1202]
F21S48/17D2	. . . .	[N: between right and left traffic side] [N1202]
F21S48/17F	. . .	[N: by acting on refractors, filters or transparent cover plates] [N1202]
F21S48/17F2	. . . .	[N: by moving refractors, filters or transparent cover plates] [N1202]
F21S48/17F4	. . . .	[N: by changing the light transmissivity of the refractors, filters or transparent cover plates] [N1202]
F21S48/17F4E	. . . . .	[N: by electro-optic means, e.g. liquid crystal or electrochromic devices] [N1202]
F21S48/17L	. . .	[N: by acting on light sources] [N1202]
F21S48/17L2	. . . .	[N: by moving light sources] [N1202]
F21S48/17L4	. . . .	[N: by switching light sources (F21S48/11T4 takes precedence)] [N1202] [M1207]
F21S48/17R	. . .	[N: by acting on reflectors] [N1202]
F21S48/17R2	. . . .	[N: by moving reflectors] [N1202]
F21S48/17S	. . .	[N: by acting on screens] [N1202]
F21S48/17S2	. . . .	[N: by moving screens] [N1202]
F21S48/17S2B	. . . . .	[N: Blades, i.e. screens moving in a vertical plane] [N1205]
F21S48/17S2F	. . . . .	[N: Flaps, i.e. screens pivoting around one of its edges] [N1205]
F21S48/17S2H	. . . . .	[N: Shields, i.e. screens not creating an image meant to be projected, e.g. shielding a part of the light source or a part of an additional optical element] [N1205]
F21S48/17S2R	. . . . .	[N: Rotating screens, i.e. screens rotating around a vertical axis] [N1205]
F21S48/17S2S	. . . . .	[N: Shafts, i.e. screens being a rotating shaft] [N1205]
F21S48/20	. .	[N: Signal lamps, e.g. brake lamps or turn signal lamps] [N1202]
F21S48/21	. .	[N: characterised by the light source] [N1202]
F21S48/21A	. . .	[N: Attachment of light sources; Lamp holders, terminals or connectors therefor] [N1202]
F21S48/21A2	. . . .	[N: Details of lamp holders, terminals or connectors] [N1202]
F21S48/21T	. . .	[N: Type of the light source] [N1202]
F21S48/21T2	. . . .	[N: Light emitting diodes (LEDs)] [N1205]
F21S48/21T2S	. . . . .	[N: Surface emitters, e.g. OLEDs] [N1205]

F21S48/21T12	. . . .	[N: Strips of light sources] [N1202]
F21S48/22	. .	[N: characterised by refractors, filters or transparent cover plates] [N1202]
F21S48/22A	. . .	[N: Attachment thereof] [N1202]
F21S48/22T	. . .	[N: Type of refractors, filters or transparent cover plates] [N1202]
F21S48/22T2	. . . .	[N: Filters] [N1202]
F21S48/22T4	. . . .	[N: Light guides (light guides per se G02B6/00L)] [N1202]
F21S48/22T4D	. . . . .	[N: characterised by the shape of the light guide] [N1202]
F21S48/22T4D2	. . . . .	[N: Bar or rod-like light guides] [N1202]
F21S48/22T4D4	. . . . .	[N: Plate-like light guides] [N1202]
F21S48/22T4D6	. . . . .	[N: Light guides of complex shape or comprising a portion having a complex shape] [N1202]
		[N: Notes [N1202]additional classification should be given in the groups characterising the shape of the light guides]
F21S48/22T4E	. . . . .	[N: characterised by the emission area] [N1202]
F21S48/22T4E2	. . . . .	[N: the light guide emitting on its extremity] [N1202]
F21S48/22T4E4	. . . . .	[N: the light guide emitting on its surface] [N1202]
F21S48/22T4S	. . . . .	[N: characterised by the number of light sources coupled into the light guide] [N1202]
F21S48/22T4S2	. . . . .	[N: Multiple light sources] [N1202]
F21S48/22T4S4	. . . . .	[N: Single light source] [N1202]
F21S48/22T4T	. . . . .	[N: the light guide being used to transport light from a remote light source, e.g. from light generators] [N1202]
F21S48/23	. .	[N: characterised by reflectors] [N1202]
F21S48/23A	. . .	[N: Attachment thereof] [N1202]
F21S48/23D	. . .	[N: Optical design thereof] [N1205]
F21S48/23D4	. . . .	[N: using total internal reflection] [N1205]
F21S48/23M	. . .	[N: Materials thereof, e.g. coatings] [N1205]
F21S48/24	. .	[N: characterised by the combination of reflectors and refractors] [N1202]
F21S48/25	. .	[N: characterised by aesthetical components or components other than light sources, reflectors, refractors, e.g. partition walls, covers or decorative trims] [N1202]
F21S48/25A	. . .	[N: Attachment thereof] [N1202]
F21S48/30	. .	[N: Arrangements dedicated to purposes other than light emission or distribution] [N1202]
F21S48/31	. .	[N: Protection of the lighting devices] [N1202]
F21S48/32	. .	[N: Cooling of the lighting devices] [N1202]
F21S48/32A	. . .	[N: Attachment of the means for cooling; Cooling arrangements] [N1202]
F21S48/32F	. . .	[N: Forced cooling] [N1202]
F21S48/32F2	. . . .	[N: using air or other gas] [N1202]
F21S48/32F4	. . . .	[N: using liquid] [N1202]
F21S48/32P	. . .	[N: Passive cooling] [N1202]
F21S48/33	. .	[N: Waterproofing] [N1202]

F21S48/33V	. . .	[N: Provisions for ventilation or drainage] [N1202]
F21S48/33V2	. . . .	[N: specifically adapted for headlamps] [N1202]
F21S48/33V4	. . . .	[N: specifically adapted for signal lamps] [N1202]
F21S48/34	. .	[N: Heating of the lighting devices, e.g. for de-fogging] [N1202]