

# CPC COOPERATIVE PATENT CLASSIFICATION

## G PHYSICS (NOTES omitted)

### INSTRUMENTS

**G02 OPTICS** (making optical elements or apparatus [B24B](#), [B29D 11/00](#), [C03](#), or other appropriate subclasses or classes; materials [per se](#), [see the relevant places](#), e.g. [C03B](#), [C03C](#))  
(NOTE omitted)

**G02F DEVICES OR ARRANGEMENTS, THE OPTICAL OPERATION OF WHICH IS MODIFIED BY CHANGING THE OPTICAL PROPERTIES OF THE MEDIUM OF THE DEVICES OR ARRANGEMENTS FOR THE CONTROL OF THE INTENSITY, COLOUR, PHASE, POLARISATION OR DIRECTION OF LIGHT**, e.g. SWITCHING, GATING, MODULATING OR DEMODULATING; TECHNIQUES OR PROCEDURES FOR THE OPERATION THEREOF; FREQUENCY-CHANGING; NON-LINEAR OPTICS; OPTICAL LOGIC ELEMENTS; OPTICAL ANALOGUE/DIGITAL CONVERTERS (optical transfer means between sensing member and indicating or recording part in connection with measuring [G01D 5/26](#); devices in which mathematical operations are carried out with optical elements [G06E 3/00](#), {[G06E 3/001](#)} ; electrical signal transmission systems using optical means to convert the input signal [G08C 19/36](#); information-recording by electric or magnetic means and reproducing by sensing optical properties [G11B 11/00](#); static stores using optical elements [G11C 13/04](#); transmission systems employing electromagnetic waves other than radio waves, e.g. light, infra-red radiation, [H04B 10/00](#); optical multiplex systems [H04J 14/00](#); pictorial communication, e.g. television [H04N](#))

#### WARNING

The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

Subject matter covered by these groups is classified in the following CPC groups:

[G02F 1/13357](#)

covered by

[G02F 1/1336](#) and subgroups

**1/00 Devices or arrangements for the control of the intensity, colour, phase, polarisation or direction of light arriving from an independent light source, e.g. switching, gating, or modulating; Non-linear optics** (thermometers using change of colour or translucency [G01K 11/12](#); using changes in fluorescence [G01K 11/32](#); light guide devices [G02B 6/00](#); optical devices or arrangements using movable or deformable elements for controlling light independent of the light source [G02B 26/00](#); control of light in general [G05D 25/00](#); visible signalling systems [G08B 5/00](#); indicating arrangements for variable information by selection or combination of individual elements [G09F 9/00](#); control arrangements or circuits for visual indicators other than cathode-ray tubes [G09G 3/00](#); control of light sources [H01S 3/10](#), [H05B 33/08](#), [H05B 35/00](#) - [H05B 43/00](#); {photochromic filters [G02B 5/23](#); optical logic elements [G02F 3/00](#)})

#### NOTE

This group covers only :

- devices or arrangements, e.g. cells, the optical operation of which is modified by changing the

optical properties of the medium of the devices or arrangements by the influence or control of physical parameters, e.g. electric fields, electric current, magnetic fields, sound or mechanical vibrations, stress or thermal effects;

- devices or arrangements in which the electric or magnetic field component of the light beams influences the optical properties of the medium, i.e. non-linear optics;
- control of light by electromagnetic waves, e.g. radio waves, or by electrons or other elementary particles.

1/0009 . {Materials therefor}

#### NOTE

[G02F 1/0009](#) and subgroups contain mostly non-patent literature

1/0018 . . {Electro-optical materials}

1/0027 . . . {with ferro-electric properties (domain inversion in ferro-electric materials [G02F 1/3558](#); ferro-electric materials in general [H01G 7/02](#))}

1/0036	. . {Magneto-optical materials (magnetic materials in general <a href="#">H01F</a> )}	1/0136	. . {for the control of polarisation, e.g. state of polarisation [SOP] control, polarisation scrambling, TE-TM mode conversion or separation ( <a href="#">G02F 1/0353</a> takes precedence)}
1/0045	. . {Liquid crystals as far as the physical properties are concerned (chemical composition and properties of liquid crystals <a href="#">C09K 19/00</a> )}	2001/0139	. . . {Polarisation scrambling; Depolarisers}
1/0054	. . {Structure, phase transitions, NMR, ESR, Moessbauer spectra}	2001/0142	. . . {TE-TM mode conversion}
1/0063	. . {Optical properties, e.g. absorption, reflection, non-linear effects, birefringence (non linear optics in general <a href="#">G02F 1/35</a> )}	2001/0144	. . . {TE-TM mode separation}
1/0072	. . {Mechanical, acoustic, electro-elastic, magneto-elastic properties}	1/0147	. . {based on thermo-optic effects ( <a href="#">G02F 1/132</a> takes precedence; tenebrescent compositions <a href="#">C09K 9/00</a> ; radiation pyrometry <a href="#">G01J 5/00</a> ; thermometers using change of colour or translucency <a href="#">G01K 11/12</a> )}
1/0081	. . {Electric or magnetic properties}	1/015	. . based on semiconductor elements with at least one potential jump barrier, e.g. PN, PIN junction ( <a href="#">G02F 1/03</a> takes precedence)
1/009	. . {Thermal properties (thermometers using change of colour or translucency <a href="#">G01K 11/12</a> ; radiation pyrometry <a href="#">G01J 5/00</a> )}	2001/0151	. . . {modulating the refractive index}
1/01	. for the control of the intensity, phase, polarisation or colour ( <a href="#">G02F 1/29</a> , <a href="#">G02F 1/35</a> take precedence; polarising elements per se <a href="#">G02B 5/30</a> ; static storage per se <a href="#">G11C</a> ; image tube screens acting as light valves by shutter operation <a href="#">H01J 29/12</a> ; such screens acting by discoloration <a href="#">H01J 29/14</a> ; {projection arrangements for television image reproduction, e.g. using eidophor <a href="#">H04N 5/74</a> ; recording by light <a href="#">G11B 7/00</a> - <a href="#">G11B 11/00</a> )}	2001/0152	. . . . {by free carrier effects (Plasma)}
1/0102	. . {Constructional details ( <a href="#">G02F 1/1306</a> , <a href="#">G02F 1/133</a> take precedence)}	2001/0153	. . . . {by electro-refraction (Kramers-Kronig relation)}
1/0105	. . . {Illumination devices (for liquid crystal cells <a href="#">G02F1/13357</a> ; for display devices for electronic time pieces <a href="#">G04G 9/0041</a> )}	2001/0154	. . . . {by electro-optic effects (LEO=Pockels, QEO=Kerr)}
1/0107	. . . {Gaskets, spacers, sealing of the cell; Filling and closing of the cell (for liquid crystal cells <a href="#">G02F 1/1339</a> , <a href="#">G02F 1/1341</a> ; for electrochromic or electrolytic cells <a href="#">G02F 1/161</a> )}	2001/0155	. . . . {modulating the optical absorption}
1/011	. . {in optical waveguides ( <a href="#">G02F 1/0134</a> , <a href="#">G02F 1/01708</a> , <a href="#">G02F 1/025</a> , <a href="#">G02F 1/035</a> , <a href="#">G02F 1/0508</a> , <a href="#">G02F 1/0553</a> , <a href="#">G02F 1/065</a> , <a href="#">G02F 1/073</a> , <a href="#">G02F 1/095</a> , <a href="#">G02F 1/125</a> , <a href="#">G02F 1/1326</a> , <a href="#">G02F 1/225</a> take precedence; optical waveguides in general <a href="#">G02B 6/00</a> )}	2001/0156	. . . . {by free carrier absorption}
2001/0113	. . . {made of glass, e.g. silica-based optical waveguides}	2001/0157	. . . . {by electro-absorption effects (FK, Stark, QCSE)}
1/0115	. . . {in optical fibres}	2001/0158	. . . . . {with blue-shift of the absorption band}
1/0118	. . . . {by controlling the evanescent coupling of light from a fibre into an active, e.g. electro-optic, overlay}	2001/0159	. . . . . {with red-shift of the absorption band}
1/0121	. . {Operation of the device; Circuit arrangements not otherwise provided for ( <a href="#">G02F 1/0327</a> , <a href="#">G02F 1/0516</a> , <a href="#">G02F 1/076</a> , <a href="#">G02F 1/092</a> , <a href="#">G02F 1/113</a> , <a href="#">G02F 1/13306</a> , <a href="#">G02F 1/163</a> take precedence)}	1/017	. . . Structures with periodic or quasi periodic potential variation, e.g. superlattices, quantum wells
1/0123	. . . {Circuits for the control or stabilisation of the bias voltage, e.g. automatic bias control [ABC] feedback loops}	1/01708	. . . . {in an optical waveguide structure}
1/0126	. . {by another light beam, i.e. opto-optical modulation ( <a href="#">G02F 1/01716</a> , <a href="#">G02F 1/0338</a> , <a href="#">G02F 1/0533</a> , <a href="#">G02F 1/0541</a> , <a href="#">G02F 1/0558</a> , <a href="#">G02F 1/135</a> , <a href="#">G02F 1/293</a> take precedence)}	1/01716	. . . . {Optically controlled superlattice or quantum well devices}
1/0128	. . {based on electro-mechanical, magneto-mechanical, elasto-optic effects}	1/01725	. . . . {with a non-rectangular quantum well structure, e.g. coupled, graded, stepped quantum wells}
1/0131	. . . {based on elasto-optic, i.e. photoelastic effect, e.g. mechanically induced birefringence (acousto-optic devices <a href="#">G02F 1/11</a> )}	2001/01733	. . . . . {Coupled or double quantum wells}
1/0134	. . . . {in optical waveguides}	2001/01741	. . . . . {Asymmetrically coupled or double quantum wells}
		2001/0175	. . . . . {with a spatially varied well profile, e.g. graded, stepped quantum wells}
		2001/01758	. . . . . {with an asymmetric well profile, e.g. asymmetrically stepped quantum wells}
		2001/01766	. . . . {Strained superlattice or quantum well devices}
		2001/01775	. . . . {involving an intersubband transition in one well, e.g. $e1 \rightarrow e2$ }
		2001/01783	. . . . {Quantum wire}
		2001/01791	. . . . {Quantum box or dot}
		1/025	. . . in an optical waveguide structure ( <a href="#">G02F 1/017</a> , <a href="#">G02F 1/2257</a> take precedence)
		1/03	. . based on ceramics or electro-optical crystals, e.g. exhibiting Pockels effect or Kerr effect ( <a href="#">G02F 1/061</a> takes precedence)
		1/0305	. . . {Constructional arrangements ( <a href="#">G02F 1/0327</a> - <a href="#">G02F 1/05</a> take precedence)}
		1/0311	. . . . {Structural association of optical elements, e.g. lenses, polarizers, phase plates, with the crystal}
		1/0316	. . . . {Electrodes}
		1/0322	. . . . {Arrangements comprising two or more independently controlled crystals}
		1/0327	. . . {Operation of the cell; Circuit arrangements ( <a href="#">G02F 1/05</a> takes precedence)}

- 1/0333 . . . {addressed by a beam of charged particles, e.g. directed to an adjacent layer exhibiting secondary emission or bombardment-induced conductivity effect ([G02F 1/05](#) takes precedence; [electrography](#), [electrophotography G03G](#); screens for cathode ray tubes acting as light valves [H01J 29/12](#))}
- 1/0338 . . . {structurally associated with a photoconductive layer or having photo-refractive properties ([G02F 1/05](#) takes precedence)}
- 1/0344 . . . {controlled by a high-frequency electromagnetic wave component in an electric waveguide ([G02F 1/0356](#), [G02F 1/05](#), [G02F 1/2255](#), [G02F 1/3134](#) take precedence)}
- 1/035 . . . in an optical waveguide structure
- 1/0353 . . . {involving an electro-optic TE-TM mode conversion}
- 1/0356 . . . {controlled by a high-frequency electromagnetic wave component in an electric waveguide structure}
- 1/05 . . . with ferro-electric properties ([G02F 1/035](#), [G02F 1/055](#) take precedence ; domain inversion in ferro-electric materials [G02F 1/3558](#); ferro-electric digital stores [G11C 11/22](#))}
- 1/0508 . . . {specially adapted for gating or modulating in optical waveguides}
- 1/0516 . . . {Operation of the cell; Circuit arrangements}
- 1/0525 . . . {addressed by a beam of charged particles, e.g. directed to an adjacent layer exhibiting secondary emission or bombardment-induced conductivity effect ([electrography](#), [electrophotography G03G](#); screens for cathode-ray tubes acting as light valves [H01J 29/12](#))}
- 1/0533 . . . {structurally associated with a photo-conductive layer}
- 1/0541 . . . {using photo-refractive effects ([holography G03H](#); electro-optical digital static stores using an interference pattern [G11C 13/044](#))}
- 1/055 . . . the active material being a ceramic ([G02F 1/035](#) takes precedence)
- 1/0551 . . . {Constructional details}
- 1/0553 . . . {specially adapted for gating or modulating in optical waveguides}
- 1/0555 . . . {Operation of the cell; Circuit arrangements}
- 1/0556 . . . {specially adapted for a particular application}
- 1/0558 . . . {structurally associated with a photoconductive layer or exhibiting photo-refractive properties}
- 1/061 . . based on electro-optical organic material ([G02F 1/07](#), [G02F 1/13](#) take precedence)
- 1/065 . . . in an optical waveguide structure
- 1/07 . . based on electro-optical liquids exhibiting Kerr effect
- 1/073 . . . {specially adapted for gating or modulating in optical waveguides}
- 1/076 . . . {Operation of the cell; Circuit arrangements}
- 1/09 . . based on magneto-optical elements, e.g. exhibiting Faraday effect
- 1/091 . . . {based on magneto-absorption or magneto-reflection}
- 1/092 . . . {Operation of the cell; Circuit arrangements}
- 1/093 . . . {used as non-reciprocal devices, e.g. optical isolators, circulators ([G02F 1/0955](#) takes precedence)}
- 2001/094 . . . {Based on magnetophoretic effect}
- 1/095 . . . in an optical waveguide structure
- 1/0955 . . . {used as non-reciprocal devices, e.g. optical isolators, circulators}
- 1/11 . . based on acousto-optical elements, e.g. using variable diffraction by sound or like mechanical waves ({[elasto-optic effect without wave propagation G02F 1/0131](#); } [acousto-optical deflection G02F 1/33](#))}
- 1/113 . . . {Circuit or control arrangements}
- 1/116 . . . {using an optically anisotropic medium, wherein the incident and the diffracted light waves have different polarizations, e.g. acousto-optic tunable filter [AOTF] ([G02F 1/125](#) takes precedence)}
- 1/125 . . . in an optical waveguide structure
- 1/13 . . based on liquid crystals, e.g. single liquid crystal display cells ([liquid crystal materials C09K 19/00](#))}
- 1/1303 . . . {Apparatus specially adapted to the manufacture of LCDs}
- 1/1306 . . . {Details (not used, see sub-groups)}
- 1/1309 . . . {Repairing; Testing ([testing of optical apparatus G01M 11/00](#); [electronic testing of displays or display drivers, e.g. of LCDs, G09G 3/006](#))}
- 1/1313 . . . {specially adapted for a particular application}
- 2001/1316 . . . {Cleaning methods or materials for cleaning part of liquid crystal cell components during the manufacturing process}
- 1/132 . . . {Thermal activation of liquid crystals exhibiting a thermo-optic effect ([thermometers using change of colour or translucency of liquid crystals G01K 11/165](#); [thermally addressed liquid crystal elements in a matrix G09G 3/3603](#))}
- 1/1323 . . . {Arrangements for providing a switchable viewing angle}
- 1/1326 . . . {Liquid crystal optical waveguides or liquid crystal cells specially adapted for gating or modulating between optical waveguides}
- 1/133 . . . Constructional arrangements; Operation of liquid crystal cells; Circuit arrangements (arrangements or circuits for control of liquid crystal elements in a {segment display or a} matrix, not structurally associated with these elements, {respectively [G09G 3/18](#) and } [G09G 3/36](#))}
- 1/13306 . . . {Circuit arrangements or driving methods for the control of single liquid crystal cells ([G02F 1/132](#), [G02F 1/133382](#) take precedence)}
- 2001/13312 . . . {Circuits comprising a photodetector not for feedback}
- 1/13318 . . . {Circuits comprising a photodetector}
- 2001/13324 . . . {Circuits comprising a solar cell}
- 1/1333 . . . Constructional arrangements; {Manufacturing methods} ([G02F 1/135](#), [G02F 1/136](#) take precedence)
- 2001/133302 . . . {rigid substrate, e.g. inorganic}
- 1/133305 . . . {Flexible substrates, e.g. plastics, organic film}

1/133308 . . . . .	{LCD panel immediate support structure, e.g. front and back frame or bezel}	2001/133391 . . . . .	{Constructional arrangement for sub-divided displays}
2001/133311 . . . . .	{Environmental protection, e.g. dust, humidity}	2001/133394 . . . . .	{Piezoelectric element associated with the cell}
2001/133314 . . . . .	{Back frame}	2001/133397 . . . . .	{for suppressing after-image or image-sticking}
2001/133317 . . . . .	{Intermediate frame, e.g. between backlight housing and front frame}	1/1334 . . . . .	based on polymer dispersed liquid crystals, e.g. microencapsulated liquid crystals <a href="#">{(compositions C09K 19/544)}</a>
2001/13332 . . . . .	{Front frame}	1/13342 . . . . .	{Holographic polymer dispersed liquid crystals}
2001/133322 . . . . .	{Mechanical guiding and alignment of LCD panel support components}	2001/13345 . . . . .	{Network or three-dimensional gel}
2001/133325 . . . . .	{Method of assembling <a href="#">(G02F 2201/465 takes precedence)</a> }	2001/13347 . . . . .	{Reverse mode, i.e. clear in the off-state and scattering in the on-state}
2001/133328 . . . . .	{Segmented frame}	1/1335 . . . . .	Structural association of optical devices, e.g. polarisers, reflectors or illuminating devices, with the cell
2001/133331 . . . . .	{Cover glass}	1/133502 . . . . .	{Antiglare, refractive index matching layers}
2001/133334 . . . . .	{Electromagnetic shield}	1/133504 . . . . .	{Diffusing, scattering, diffracting elements <a href="#">(associated to illuminating devices G02F 1/133606)</a> }
2001/133337 . . . . .	{Ion-diffusion preventing or absorbing layer}	2001/133507 . . . . .	{Luminance enhancement films}
1/13334 . . . . .	{Plasma addressed liquid crystal cells [PALC] <a href="#">(plasma panels H01J 17/49)</a> }	1/133509 . . . . .	{Filters, e.g. light shielding masks <a href="#">(optical filters G02B 5/20)</a> }
2001/133342 . . . . .	{for double side displays}	1/133512 . . . . .	{Light shielding layers, e.g. black matrix <a href="#">(G02F 1/136209 takes precedence)</a> }
1/133345 . . . . .	{Insulating layers <a href="#">(G02F 1/1335, G02F 1/1337, G02F 1/135, G02F 1/136 take precedence)</a> }	1/133514 . . . . .	{Colour filters <a href="#">(luminescent elements G02F 1/133617)</a> }
1/133348 . . . . .	{Charged-particles, e.g. electron-beam, addressed liquid crystals cells <a href="#">(screen for cathode ray tubes acting as light valves H01J 29/12; electrography, electrophotography G03G)</a> }	1/133516 . . . . .	{Methods of making thereof, e.g. printing, electro-deposition, photolithography <a href="#">(photomechanical production of textured or patterned surfaces G03F)</a> }
1/133351 . . . . .	{Manufacturing of individual cells out of a plurality of cells, e.g. by dicing}	2001/133519 . . . . .	{overcoating}
2001/133354 . . . . .	{Arrangements for aligning or assembling the substrates}	2001/133521 . . . . .	{Interference filters}
2001/133357 . . . . .	{Planarisation layer}	1/133524 . . . . .	{Light-guides, e.g. fibre-optic bundles, louvered or jalousie light-guides}
1/13336 . . . . .	{Combining plural substrates to produce large-area displays, e.g. tiled displays}	1/133526 . . . . .	{Lenses, e.g. microlenses, Fresnel lenses <a href="#">(lenses in general G02B 3/00)</a> }
1/133362 . . . . .	{Optically addressed liquid crystal cells <a href="#">(G02F 1/135 takes precedence)</a> }	1/133528 . . . . .	{Polarisers <a href="#">(polarisers per se G02B 5/30)</a> }
1/133365 . . . . .	{Cells in which the active layer comprises a liquid crystalline polymer <a href="#">(liquid crystalline polymers in general C09K 19/38)</a> }	2001/133531 . . . . .	{Special arrangement of polariser or analyser axes}
2001/133368 . . . . .	{cell having two substrates with different characteristic, e.g. thickness or material}	1/133533 . . . . .	{Colour selective polarisers <a href="#">(G02F 1/1347 takes precedence)</a> }
1/133371 . . . . .	{Cells with varying thickness of the liquid crystal layer}	1/133536 . . . . .	{Reflective polarizers <a href="#">(G02F 1/13362 takes precedence)</a> }
2001/133374 . . . . .	{for displaying permanent signs or marks}	2001/133538 . . . . .	{with a spatial distribution of the polarisation direction}
1/133377 . . . . .	{Cells with plural compartments or having plurality of liquid crystal microcells partitioned by walls, e.g. one microcell per pixel}	2001/133541 . . . . .	{Circular polarisers}
1/13338 . . . . .	{Input devices, e.g. touch-panels <a href="#">(specially adapted as input devices to computers G06F 3/033; touch-panels per se G06K 11/06, keyboard switches per se H01H 13/70)</a> }	2001/133543 . . . . .	{Cholesteric polarisers}
1/133382 . . . . .	{Heating or cooling of liquid crystal cells other than for activation, e.g. circuits or arrangements for temperature control, stabilisation or uniform distribution over the cell}	2001/133545 . . . . .	{Dielectric stack polarisers}
1/133385 . . . . .	{with cooling means, e.g. fans}	2001/133548 . . . . .	{Wire-grid polarisers}
2001/133388 . . . . .	{Constructional difference between the display region and the peripheral region}	2001/13355 . . . . .	{Polarising beam splitters [PBS]}
		1/133553 . . . . .	{Reflecting elements <a href="#">(associated to illuminating devices G02F 1/133605)</a> }
		1/133555 . . . . .	{Transflectors}
		2001/133557 . . . . .	{Half-mirror}
		2001/13356 . . . . .	{Particular location of the optical element}
		2001/133562 . . . . .	{on the viewer side}



2001/133565 . . . . .	{inside the LC element, i.e. between the cell substrates}	1/133634 . . . . .	{the refractive index Nz perpendicular to the element surface being different from in-plane refractive indices Nx and Ny, e.g. biaxial or with normal optical axis}
2001/133567 . . . . .	{on the back side}	2001/133635 . . . . .	{Multifunctional compensators}
1/1336 . . . . .	{Illuminating devices ( <a href="#">in general F21V</a> ; associated with display devices for electronic watches <a href="#">G04G 9/0041</a> )}	1/133636 . . . . .	{with twisted orientation, e.g. comprising helically oriented LC-molecules or a plurality of twisted birefringent sublayers}
2001/133601 . . . . .	{for spatial active dimming}	2001/133637 . . . . .	{characterized by the wavelength dispersion}
1/133602 . . . . .	{Direct backlight}	2001/133638 . . . . .	{Waveplates, i.e. plates with a retardation value of $\lambda/2n$ }
1/133603 . . . . .	{with LEDs}	1/1337 . . . . .	Surface-induced orientation of the liquid crystal molecules, e.g. by alignment layers
1/133604 . . . . .	{with lamps}	1/133703 . . . . .	{by introducing organic surfactant additives into the liquid crystal material ( <a href="#">C09K 19/56</a> takes precedence)}
1/133605 . . . . .	{including specially adapted reflectors}	1/133707 . . . . .	{Structures for producing distorted electric fields, e.g. bumps, protrusions, recesses, slits in pixel electrodes}
1/133606 . . . . .	{including a specially adapted diffusing, scattering or light controlling members}	1/133711 . . . . .	{by organic films, e.g. polymeric films}
2001/133607 . . . . .	{the light controlling member including light directing or refracting elements, e.g. prisms or lenses}	2001/133715 . . . . .	{by first depositing a monomer}
1/133608 . . . . .	{including particular frames or supporting means}	1/133719 . . . . .	{with coupling agent molecules, e.g. silane}
1/133609 . . . . .	{including means for improving the color mixing, e.g. white}	1/133723 . . . . .	{Polyimide, polyamide-imide}
1/133611 . . . . .	{including means for improving the brightness uniformity}	2001/133726 . . . . .	{made of a mesogenic material}
2001/133612 . . . . .	{Electrical details}	2001/13373 . . . . .	{Disclination line; Reverse tilt}
2001/133613 . . . . .	{including a particular sequence of light sources}	1/133734 . . . . .	{by obliquely evaporated films, e.g. Si or SiO <sub>2</sub> films}
2001/133614 . . . . .	{the light is generated by photoluminescence, e.g. a phosphor is illuminated by UV or blue light}	2001/133738 . . . . .	{for homogeneous alignment}
1/133615 . . . . .	{Edge-illuminating devices, i.e. illuminating from the side ( <a href="#">G02B 6/0001</a> takes precedence)}	2001/133742 . . . . .	{for homeotropic alignment}
2001/133616 . . . . .	{Front illuminating devices}	2001/133746 . . . . .	{for high pretilt angle, i.e. > 15 degrees}
1/133617 . . . . .	{Illumination with ultra-violet light; Luminescent elements or materials associated to the cell}	2001/133749 . . . . .	{for low pretilt angle, i.e. < 15 degrees}
2001/133618 . . . . .	{for ambient light}	1/133753 . . . . .	{with different alignment orientations or pretilt angles on a same surface, e.g. for grey scale or improved viewing angle}
1/13362 . . . . .	{providing polarised light, e.g. by converting a polarisation component into another one ( <a href="#">optical systems for polarising G02B 27/28</a> )}	2001/133757 . . . . .	{with different alignment orientations}
1/133621 . . . . .	{providing coloured light ( <a href="#">G02F 1/133617</a> , <a href="#">G02F 1/133533</a> take precedence)}	2001/133761 . . . . .	{with different pretilt angles}
2001/133622 . . . . .	{colour sequential illumination}	2001/133765 . . . . .	{without a surface treatment}
2001/133623 . . . . .	{Inclined coloured light beams}	2001/133769 . . . . .	{comprising an active, e.g. switchable alignment layer}
2001/133624 . . . . .	{having a particular spectral emission}	2001/133773 . . . . .	{The alignment material or treatment is different for the two opposite substrates}
2001/133625 . . . . .	{Electron stream lamps}	2001/133776 . . . . .	{having structures, i.e. unevenness locally influencing the alignment}
2001/133626 . . . . .	{providing two modes of illumination, e.g. day-night}	1/13378 . . . . .	{by treatment of the surface, e.g. embossing, rubbing, light irradiation ( <a href="#">G02F 1/133711</a> , <a href="#">G02F 1/133734</a> , <a href="#">G02F 1/133753</a> take precedence)}
2001/133627 . . . . .	{Projection-direct viewing}	1/133784 . . . . .	{by rubbing}
2001/133628 . . . . .	{with cooling means}	1/133788 . . . . .	{by light irradiation, e.g. linearly polarised light photo-polymerisation}
1/13363 . . . . .	Birefringent elements, e.g. for optical compensation	2001/133792 . . . . .	{by etching}
2001/133631 . . . . .	{with a spatial distribution of the retardation value}	2001/133796 . . . . .	{having conducting property}
1/133632 . . . . .	{with refractive index ellipsoid inclined relative to the LC-layer surface}	1/1339 . . . . .	Gaskets; Spacers {, also spacers with conducting properties ( <a href="#">electric line connectors H01R</a> )}; Sealing of the cell
2001/133633 . . . . .	{using mesogenic materials}	1/13392 . . . . .	{spacers dispersed on the cell substrate, e.g. spherical particles, microfibres}

1/13394 . . . . .	{spacers regularly patterned on the cell substrate, e.g. walls, pillars ( <a href="#">G02F 1/133377 takes precedence</a> )}	1/13476 . . . . .	{in which at least one liquid crystal cell or layer assumes a scattering state}
2001/13396 . . . . .	{Spacers having different sizes}	2001/13478 . . . . .	{based on selective reflection}
2001/13398 . . . . .	{Materials and properties of the spacer}	1/135 . . . . .	Liquid crystal cells structurally associated with a photoconducting or a ferro-electric layer, the properties of which can be optically or electrically varied ( <a href="#">G02F 1/133348 takes precedence</a> )}
1/1341 . . . . .	Filling or closing of the cell ( <a href="#">G02F 1/133365</a> , <a href="#">G02F 1/1334</a> take precedence)}	2001/1351 . . . . .	{light-absorbing or blocking layer}
2001/13415 . . . . .	{Drop filling process}	2001/1352 . . . . .	{light-reflecting layer}
1/1343 . . . . .	Electrodes ( <a href="#">reflective electrodes G02F 1/133553</a> )}	1/1354 . . . . .	{having a particular photoconducting structure or material}
1/134309 . . . . .	{characterised by their geometrical arrangement ( <a href="#">G09F 9/302 takes precedence</a> )}	2001/1355 . . . . .	{material or manufacturing process thereof}
2001/134318 . . . . .	{having a patterned common electrode}	2001/1357 . . . . .	{electrode structure}
1/134327 . . . . .	{Segmented, e.g. alpha numeric display}	1/1358 . . . . .	{the supplementary layer being a ferro-electric layer}
1/134336 . . . . .	{Matrix}	1/136 . . . . .	Liquid crystal cells structurally associated with a semi-conducting layer or substrate, e.g. cells forming part of an integrated circuit ( <a href="#">G02F 1/135 takes precedence</a> )}
2001/134345 . . . . .	{Subdivided pixels, e.g. grey scale, redundancy}	2001/13606 . . . . .	{having means for reducing parasitic capacitance}
2001/134354 . . . . .	{the sub-pixels being capacitively coupled}	2001/13613 . . . . .	{the semiconductor element is formed on a first substrate and thereafter transferred to the final cell substrate}
1/134363 . . . . .	{for applying an electric field parallel to the substrate, i.e. in-plane switching [IPS]}	1/1362 . . . . .	Active matrix addressed cells ( <a href="#">G02F 1/134336</a> , <a href="#">G02F 1/134363 take precedence</a> )}
2001/134372 . . . . .	{for fringe field switching [FFS] where the common electrode is not patterned, e.g. planar}	1/136204 . . . . .	{Arrangements to prevent high voltage or static electricity failures}
2001/134381 . . . . .	{Hybrid switching mode, i.e. for applying an electric field both parallel and orthogonal to the substrates}	1/136209 . . . . .	{Light shielding layers, e.g. black matrix, incorporated in the active matrix substrate, e.g. structurally associated with the switching element}
1/13439 . . . . .	{characterised by their electrical, optical, physical properties; materials therefor; method of making}	1/136213 . . . . .	{Storage capacitors associated with the pixel electrode}
1/1345 . . . . .	Conductors connecting electrodes to cell terminals	2001/136218 . . . . .	{Shield electrode}
1/13452 . . . . .	{Conductors connecting driver circuitry and terminals of panels ( <a href="#">H01L 21/00 takes precedence</a> ; electrical details inside the cell <a href="#">G02F 1/133</a> ;)}	2001/136222 . . . . .	{Color filter incorporated in the active matrix substrate}
1/13454 . . . . .	{Drivers integrated on the active matrix substrate ( <a href="#">G02F 1/136277 takes precedence</a> )}	1/136227 . . . . .	{Through-hole connection of the pixel electrode to the active element through an insulation layer}
2001/13456 . . . . .	{cell terminals on one side of the display only}	2001/136231 . . . . .	{for reducing the number of lithographic steps}
1/13458 . . . . .	{Terminal pads}	2001/136236 . . . . .	{using a gray or half tone lithographic process}
1/1347 . . . . .	Arrangement of liquid crystal layers or cells in which the final condition of one light beam is achieved by the addition of the effects of two or more layers or cells ( <a href="#">colour projection displays with liquid crystal valves H04N 9/3197</a> )}	1/13624 . . . . .	{having more than one switching element per pixel}
1/13471 . . . . .	{in which all the liquid crystal cells or layers remain transparent, e.g. FLC, ECB, DAP, HAN, TN, STN, SBE-LC cells ( <a href="#">G02F 1/13475 takes precedence</a> )}	2001/136245 . . . . .	{having complementary transistors}
1/13473 . . . . .	{for wavelength filtering or for colour display without the use of colour mosaic filters}	2001/13625 . . . . .	{Patterning using a multi-mask exposure}
1/13475 . . . . .	{in which at least one liquid crystal cell or layer is doped with a pleochroic dye, e.g. GH-LC cell ( <a href="#">G02F 1/13476 takes precedence</a> )}	2001/136254 . . . . .	{Checking; Testing}
		1/136259 . . . . .	{Repairing; Defects}
		2001/136263 . . . . .	{Line defect}
		2001/136268 . . . . .	{Switch defect}
		2001/136272 . . . . .	{Auxiliary line}
		1/136277 . . . . .	{formed on a semiconductor substrate, e.g. silicon}
		2001/136281 . . . . .	{having a transmissive semiconductor substrate}
		1/136286 . . . . .	{Wiring, e.g. gate line, drain line}
		2001/13629 . . . . .	{Multi-layer wirings}

2001/136295	. . . . .	{Materials; Compositions; Methods of manufacturing}	1/1397	. . . . .	{the twist being substantially higher than 90°, e.g. STN-, SBE-, OMI-LC cells}
1/1365	. . . . .	in which the switching element is a two-electrode device {(G02F 1/136277 takes precedence)}	2001/1398	. . . . .	{the twist being below 90°C}
1/1368	. . . . .	in which the switching element is a three-electrode device {(G02F 1/136277 takes precedence)}	1/141	. . . . .	using ferroelectric liquid crystals
2001/13685	. . . . .	{Top gate}	2001/1412	. . . . .	{Antiferroelectric liquid crystals}
1/137	. . .	characterised by a particular electro- or magneto-optical effect, e.g. field-induced phase transition, orientation effect, guest-host interaction, dynamic scattering	2001/1414	. . . . .	{Deformed helix ferroelectric [DHL]}
2001/13706	. . . .	{the LC having positive dielectric anisotropy}	1/1416	. . . . .	{Details of the smectic layer structure, e.g. bookshelf, chevron, C1 and C2}
2001/13712	. . . .	{the LC having negative dielectric anisotropy}	1/1418	. . . . .	{using smectic liquid crystals, e.g. based on the electroclinic effect}
1/13718	. . . .	{based on a change of the texture state of a cholesteric liquid crystal}	1/15	. .	based on electrochromic elements {(electrochromic materials C09K 9/00)}
1/13725	. . . .	{based on guest-host interaction (G02F 1/13762, G02F 1/13737, take precedence)}	2001/1502	. . .	{complementary cell}
1/13731	. . . .	{based on a field-induced phase transition (G02F 1/13781 takes precedence)}	2001/1504	. . . .	{having an inorganic electrochromic layer and a second solid organic electrochromic layer}
1/13737	. . . .	{in liquid crystals doped with a plechroic dye}	1/1506	. . .	{based on electrolytic deposition of a non-organic material on or in the vicinity of an electrode}
1/13743	. . . .	{based on electrohydrodynamic instabilities or domain formation in liquid crystals}	1/1508	. . . .	{using a solid electrolyte}
1/1375	. . . .	{using dynamic scattering}	2001/151	. . .	{the electrochromic material comprises ferrocene compounds}
2001/13756	. . . .	{the liquid crystal selectively assuming a light-scattering state (G02F 1/1334, G02F 1/13718 take precedence)}	2001/1512	. . .	{the electrochromic layer comprises a mixture of anodic and cathodic compounds}
1/13762	. . . .	{containing luminescent or electroluminescent additives (luminescent materials in general C09K 11/00; compositions of liquid crystals comprising additives C09K 19/52 - C09K 19/603; electroluminescent light sources H05B 33/00)}	2001/1515	. . .	{the electrochromic material is made of polymer}
1/13768	. . . .	{based on magneto-optical effects}	2001/1517	. . .	{based on cyano complex compound, e.g. Prussian blue}
2001/13775	. . . .	{Polymer stabilized liquid crystal layers}	2001/1519	. . .	{the electrolyte is made of polymer}
1/13781	. . . .	{using smectic liquid crystals (G02F 1/141 takes precedence)}	1/1521	. . .	{based on oxidation reduction in organic liquid solutions, e.g. viologens solutions}
2001/13787	. . . .	{Hybrid alignment cells (G02F 1/1393 takes precedence)}	1/1523	. . .	{based on solid inorganic materials, e.g. transition metal compounds, e.g. in combination with a liquid or solid electrolyte (G02F 1/1506 takes precedence)}
2001/13793	. . . .	{Blue phases}	1/1525	. . . .	{characterised by a particular ion transporting layer, e.g. electrolyte (H01M 6/18, H01M 10/08 take precedence)}
1/139	. . . .	based on orientation effects in which the liquid crystal remains transparent	1/1527	. . . .	{based on iridium oxide or hydroxide}
1/1391	. . . .	{Bistable or multi-stable liquid crystal cells (G02F 1/141 takes precedence)}	1/153	. . .	Constructional arrangements
1/1392	. . . .	{using a field-induced sign-reversal of the dielectric anisotropy}	1/1533	. . . .	{structural features not otherwise provided for}
1/1393	. . . .	{the birefringence of the liquid crystal being electrically controlled, e.g. ECB-, DAP-, HAN-, PI-LC cells (G02F 1/1396, G02F 1/141 take precedence)}	2001/1536	. . . .	{additional, e.g. protective, layer inside the cell}
1/1395	. . . .	{Optically compensated birefringence [OCB]- cells or PI- cells}	1/155	. . . .	Electrodes
1/1396	. . . .	{the liquid crystal being selectively controlled between a twisted state and a non-twisted state, e.g. TN-LC cell (G02F 1/141 takes precedence)}	2001/1552	. . . .	{Inner electrode, e.g. the electrochromic layer being sandwiched between the inner electrode and the support substrate---- this group, now to be changed, should already been created by implementation of a previous DOC14 (prior to the one referred to above)----}
			2001/1555	. . . .	{Counter electrode}
			2001/1557	. . . .	{Side by side arrangements of working and counter electrodes}
			1/157	. . . .	Structural association of optical devices, e.g. reflectors or illuminating devices, with the cell
			1/161	. . . .	Gaskets; Spacers; Sealing of the cell; Filling or closing of the cell
			1/163	. . .	Operation of electrochromic cells; Circuit arrangements

- 2001/1635 . . . . {the pixel comprises active switching elements, e.g. TFT}
- 1/167 . . based on electrophoresis
- 2001/1672 . . . . {of the microcup type}
- 2001/1674 . . . . {comprising a dry toner particle}
- 2001/1676 . . . . {having a particular electrode}
- 2001/1678 . . . . {having a particular composition or particle type}
- 1/17 . . based on variable absorption elements  
([G02F 1/015](#) - [G02F 1/167](#) take precedence;  
{[tenebrescent compositions C09K 9/00](#)})
- 1/172 . . . . {based on a suspension of orientable dipolar particles, e.g. suspended particles displays}
- 1/174 . . . . {based on absorption band-shift, e.g. Stark - or Franz-Keldysh effect ([G02F 1/015](#), [G02F 1/178](#) take precedence)}
- 1/176 . . . . {using acid- based indicators}
- 1/178 . . . . {based on pressure effects ([G02F 1/195](#) takes precedence)}
- 1/19 . . based on variable reflection or refraction elements  
([G02F 1/015](#) - [G02F 1/167](#) take precedence)
- 1/195 . . . . {by using frustrated reflection (digital reflection using controlled total internal reflection [G02F 1/315](#))}
- 1/21 . . by interference
- 2001/211 . . . . {Sagnac type}
- 2001/212 . . . . {Mach-Zender type}
- 2001/213 . . . . {Fabry-Perot type}
- 2001/215 . . . . {Michelson type}
- 1/216 . . . . {using liquid crystals, e.g. liquid crystal Fabry-Perot filters}
- 2001/217 . . . . {Multi mode interference type}
- 1/218 . . . . {using semi-conducting materials}
- 1/225 . . . . in an optical waveguide structure
- 1/2252 . . . . . {in optical fibres}
- 1/2255 . . . . . {controlled by a high-frequency electromagnetic component in an electric waveguide structure}
- 1/2257 . . . . . {the optical waveguides being made of semiconducting material}
- 1/23 . . for the control of the colour  
([G02F 1/03](#) - [G02F 1/21](#) take precedence)
- 1/25 . . . . as to hue or predominant wavelength
- 1/29 . . for the control of the position or the direction of light beams, i.e. deflection ({optical coupling means [G02B 6/26](#); optical-mechanical scanning in general [G02B 26/10](#)) ; static stores with electric or magnetic read-in and optical read-out [G11C](#); lasers provided with means to change the location from which, or the direction in which, laser radiation is emitted [H01S 3/101](#))
- 2001/291 . . {Two-dimensional analog deflection}
- 1/292 . . {by controlled diffraction or phased-array beam steering (controlled diffraction for optical switching [G02F 1/31](#))}
- 1/293 . . {by another light beam, i.e. opto-optical deflection}
- 2001/294 . . {Variable focal length device}
- 1/295 . . {Analog deflection from or} in an optical waveguide structure]
- 1/2955 . . . . {by controlled diffraction or phased-array beam steering (controlled diffraction for optical waveguide switching [G02F 1/313](#))}
- 1/31 . . Digital deflection, {i.e. optical switching} ([G02F 1/33](#) takes precedence)
- 2001/311 . . . . {Cascade arrangement of plural switches}
- 1/313 . . . . in an optical waveguide structure
- 1/3131 . . . . . {in optical fibres}
- 1/3132 . . . . . {of directional coupler type (all-optical modulation, gating or switching using a non-linear directional coupler [G02F 1/3521](#))}
- 1/3133 . . . . . {the optical waveguides being made of semiconducting materials}
- 1/3134 . . . . . {controlled by a high-frequency electromagnetic wave component in an electric waveguide structure}
- 2001/3135 . . . . . {vertical structure}
- 1/3136 . . . . . {of interferometric switch type}
- 1/3137 . . . . . {with intersecting or branching waveguides, e.g. X-switches and Y-junctions}
- 1/3138 . . . . . {the optical waveguides being made of semiconducting materials}
- 1/315 . . . . based on the use of controlled internal reflection
- 1/33 . . Acousto-optical deflection devices {(circuit or control arrangements therefor [G02F 1/113](#))}
- 1/332 . . . . {comprising a plurality of transducers on the same crystal surface, e.g. multi-channel Bragg cell}
- 1/335 . . . . having an optical waveguide structure
- 1/35 . . Non-linear optics (optical bistable devices [G02F 3/02](#); lasers using stimulated Brillouin or Raman effect [H01S 3/30](#))
- 1/3501 . . {Constructional arrangements of non-linear optical devices, e.g. shape of non-linear crystals (constructional arrangements of electro-optic devices [G02F 1/0305](#))}
- 2001/3503 . . . . {Structural association of optical elements, e.g. lenses, with the nonlinear optical device}
- 2001/3505 . . . . {Coatings; Housings; Supports}
- 2001/3507 . . . . {Arrangements comprising two or more nonlinear optical devices}
- 2001/3509 . . . . {Shape, e.g. shape of end face}
- 1/3511 . . {Self-focusing or self-trapping of light; Light-induced birefringence; Induced optical Kerr-effect (photorefractive effects of electro-optic crystals [G02F 1/0338](#), [G02F 1/0541](#), of ceramics [G02F 1/0558](#); opto-optical modulation [G02F 1/0126](#); opto-optical deflection [G02F 1/293](#))}
- 1/3513 . . . . {Soliton propagation}
- 1/3515 . . {All-optical modulation, gating, switching, e.g. control of a light beam by another light beam ([G02F 1/353](#), [G02F 1/37](#), [G02F 1/39](#) take precedence)}
- 1/3517 . . . . {using an interferometer}
- 1/3519 . . . . . {of Sagnac type, i.e. nonlinear optical loop mirror [NOLM]}
- 1/3521 . . . . {using a directional coupler}
- 1/3523 . . {Non-linear absorption changing by light, e.g. bleaching (laser Q-switching using bleachable media [H01S 3/113](#))}
- 1/3525 . . {Optical damage}
- 1/3526 . . {using two-photon emission or absorption processes (Raman effect [H01S 3/30](#))}
- 2001/3528 . . {for producing a supercontinuum}



1/353	. . {Frequency conversion, i.e. wherein a light beam with frequency components different from those of the incident light beams is generated (second harmonic generation <a href="#">G02F 1/37</a> ; optical parametric generation or amplification <a href="#">G02F 1/39</a> ; transferring the modulation of modulated light <a href="#">G02F 2/004</a> ; optical pumping of a laser by another laser <a href="#">H01S 3/094</a> ; nonlinear optical devices inside a laser cavity <a href="#">H01S 3/108</a> )}	1/39	. . for parametric generation or amplification of light, infra-red or ultra-violet waves ( <a href="#">G02F 1/3532</a> takes precedence; ) electrical parametric amplifiers <a href="#">H03F 7/00</a> )
1/3532	. . . {Arrangements of plural nonlinear devices for generating multi-colour light beams, e.g. arrangements of SHG, SFG, OPO devices for generating RGB light beams}	2001/392	. . . {Parametric amplification}
1/3534	. . . {Three-wave interaction, e.g. sum-difference frequency generation ( <a href="#">G02F 1/3532</a> takes precedence)}	1/395	. . . {in optical waveguides}
1/3536	. . . {Four-wave interaction}	1/397	. . . {Amplification of light by wave mixing involving an interference pattern, e.g. using photorefractive material}
1/3538	. . . . {for optical phase conjugation ( <a href="#">H01S 3/10076</a> takes precedence)}	<b>2/00</b>	<b>Demodulating light; Transferring the modulation of modulated light; Frequency-changing of light</b> ( <a href="#">G02F 1/35</a> takes precedence; photoelectric detecting or measuring devices <a href="#">G01J</a> , <a href="#">H01J 40/00</a> , <a href="#">H01L 31/00</a> ; demodulating laser arrangements {, e.g. switching, gating} <a href="#">H01S 3/10</a> ; demodulation or transference of modulation of modulated electro-magnetic waves in general <a href="#">H03D 9/00</a> )
2001/354	. . . {Third or higher harmonic generation}	2/002	. {using optical mixing (homodyne, heterodyne systems <a href="#">H04B 10/142</a> )}
2001/3542	. . . {Multi-pass arrangements, i.e. arrangements to pass light a plurality of times through the same element, e.g. by using an enhancement cavity}	2/004	. {Transferring the modulation of modulated light, i.e. transferring the information from one optical carrier of a first wavelength to a second optical carrier of a second wavelength, e.g. all-optical wavelength converter}
1/3544	. . . {Particular phase matching techniques}	2002/006	. . {All-optical wavelength conversion}
2001/3546	. . . . {Active phase matching, e.g. by electro- or thermo-optic tuning}	2002/008	. . {Opto-electronic wavelength conversion, i.e. involving photo-detection of the first optical carrier}
2001/3548	. . . . {Quasi-phase-matching [QPM], e.g. using a periodic domain inverted structure}	2/02	. Frequency-changing of light, e.g. by quantum counters ( <a href="#">luminescent materials C09K 11/00</a> )
1/355	. . characterised by the materials used	<b>3/00</b>	<b>Optical logic elements</b> ({optical computing <a href="#">G06E</a> }; electric pulse generators using opto-electronic devices as active elements <a href="#">H03K 3/42</a> ; logic circuits using opto-electronic devices <a href="#">H03K 19/14</a> ); <b>Optical bistable devices</b>
1/3551	. . . {Crystals}	3/02	. Optical bistable devices
1/3553	. . . . {having the formula MTiOYO <sub>4</sub> , where M=K, Rb, TI, NH <sub>4</sub> or Cs and Y=P or As, e.g. KTP}	3/022	. . {based on electro-, magneto- or acousto-optical elements ( <a href="#">G02F 3/028</a> takes precedence)}
1/3555	. . . {Glasses}	3/024	. . {based on non-linear elements, e.g. non-linear Fabry-Perot cavity ( <a href="#">G02F 3/028</a> takes precedence)}
1/3556	. . . {Semiconductor materials, e.g. quantum wells}	3/026	. . {based on laser effects}
1/3558	. . . {Poled materials, e.g. with periodic poling; Fabrication of domain inverted structures, e.g. for quasi-phase-matching [QPM]}	3/028	. . {based on self electro-optic effect devices [SEED]}
1/361	. . . Organic materials	<b>7/00</b>	<b>Optical analogue/digital converters</b>
1/3611	. . . . {containing Nitrogen}	<b>NOTE</b>	This group covers only converters based in substantial manner on elements which are provided for in group <a href="#">G02F 1/00</a> .
1/3612	. . . . . {Heterocycles having N as heteroatom}	<b>2201/00</b>	<b>Constructional arrangements not provided for in groups <a href="#">G02F 1/00</a> - <a href="#">G02F 7/00</a></b>
1/3613	. . . . . {containing Sulfur}	2201/02	. fibre
1/3614	. . . . . {Heterocycles having S as heteroatom}	2201/04	. monomode
1/3615	. . . . . {containing polymers}	2201/05	. multimode
1/3616	. . . . . {having the non-linear optical group in the main chain}	2201/06	. integrated waveguide
1/3617	. . . . . {having the non-linear optical group in a side chain}	2201/063	. . ridge; rib; strip loaded
1/3618	. . . . . {Langmuir Blodgett Films}	2201/066	. . channel; buried
1/3619	. . . . . {Organometallic compounds}	2201/07	. buffer layer
1/365	. . in an optical waveguide structure ( <a href="#">G02F 1/377</a> , <a href="#">G02F 1/395</a> take precedence)	2201/08	. light absorbing layer
1/37	. . for second-harmonic generation { ( <a href="#">G02F 1/3532</a> takes precedence)}	2201/083	. . infra-red absorbing
2001/372	. . . {means for homogenizing the output beam}	2201/086	. . UV absorbing
2001/374	. . . {Cerenkov radiation}		
1/377	. . . in an optical waveguide structure		
1/3775	. . . . {with a periodic structure, e.g. domain inversion, for quasi-phase-matching [QPM] ( <a href="#">G02F 1/383</a> takes precedence)}		
1/383	. . . . of the optical fibre type		

2201/12	. electrode	2202/028	. . photobleached
2201/121	. . common or background	2202/04	. dye
2201/122	. . having a particular pattern	2202/043	. . pleochroic
2201/123	. . pixel	2202/046	. . fluorescent
2201/124	. . interdigital	2202/06	. dopant
2201/125	. . delta-beta	2202/07	. poled
2201/126	. . push-pull	2202/08	. glass transition temperature
2201/127	. . travelling wave	2202/09	. inorganic glass
2201/128	. . field shaping	2202/10	. semiconductor
2201/14	. asymmetric	2202/101	. . Ga $\times$ As and alloy
2201/15	. periodic	2202/102	. . In $\times$ P and alloy
2201/16	. series; tandem	2202/103	. . a-Si
2201/17	. Multi-pass arrangements, i.e. arrangements to pass light a plurality of times through the same element, e.g. by using an enhancement cavity	2202/104	. . poly-Si
2201/18	. parallel	2202/105	. . single crystal Si
2201/20	. delay line	2202/106	. . Cd $\times$ Se or Cd $\times$ Te and alloys
2201/205	. . of fibre type	2202/107	. . Zn $\times$ S or Zn $\times$ Se and alloys
2201/30	. grating	2202/108	. . quantum wells
2201/302	. . grating coupler	2202/12	. photoconductor
2201/305	. . diffraction grating	2202/13	. photorefractive
2201/307	. . Reflective grating, i.e. Bragg grating	2202/14	. photochromic
2201/34	. reflector	2202/16	. conductive
2201/343	. . cholesteric liquid crystal reflector	2202/20	. LiNbO <sub>3</sub> , LiTaO <sub>3</sub>
2201/346	. . distributed (Bragg) reflector	2202/22	. Antistatic materials or arrangements
2201/36	. Airflow channels, e.g. constructional arrangements facilitating the flow of air	2202/28	. Adhesive materials or arrangements
2201/38	. Anti-reflection arrangements	2202/30	. Metamaterials
2201/40	. Arrangements for improving the aperture ratio	2202/32	. Photonic crystals
2201/42	. Arrangements for providing conduction through an insulating substrate	2202/34	. Metal hydrides materials
2201/44	. Arrangements combining different electro-active layers, e.g. electrochromic, liquid crystal or electroluminescent layers	2202/36	. Micro- or nanomaterials
2201/46	. Fixing elements	2202/38	. Sol-gel materials
2201/465	. . Snap -fit	2202/40	. Materials having a particular birefringence, retardation
2201/48	. Flattening arrangements	2202/42	. Materials having a particular dielectric constant
2201/50	. Protective arrangements	2202/99	. Test HW
2201/501	. . Blocking layers, e.g. against migration of ions	<b>2203/00</b>	<b>Function characteristic</b>
2201/503	. . Arrangements improving the resistance to shock	2203/01	. transmissive
2201/505	. . Arrangements improving the resistance to acoustic resonance like noise	2203/02	. reflective
2201/506	. . Repairing, e.g. with redundant arrangement against defective part	2203/023	. . total internal reflection
2201/508	. . . Pseudo repairing, e.g. a defective part is brought into a condition in which it does not disturb the functioning of the device	2203/026	. . attenuated or frustated internal reflection
2201/52	. RGB geometrical arrangements	2203/03	. scattering
2201/54	. Arrangements for reducing warping-twist	2203/04	. wavelength independent
2201/56	. Substrates having a particular shape, e.g. non-rectangular	2203/05	. wavelength dependent
2201/58	. Arrangements comprising a monitoring photodetector	2203/055	. . wavelength filtering
<b>2202/00</b>	<b>Materials and properties</b>	2203/06	. Polarisation independent
2202/01	. dipole	2203/07	. Polarisation dependent
2202/02	. organic material	2203/09	. transfective
2202/021	. . low molecular weight	2203/10	. plasmon
2202/022	. . polymeric	2203/11	. involving infrared radiation
2202/023	. . . curable	2203/12	. spatial light modulator
2202/025	. . . thermocurable	2203/13	. involving THZ radiation
2202/026	. . charge transfer complex	2203/15	. involving resonance effects, e.g. resonantly enhanced interaction
2202/027	. . Langmuir-Blodgett film	2203/16	. involving spin polarization effects
		2203/17	. involving soliton waves
		2203/18	. adaptive optics, e.g. wavefront correction
		2203/19	. linearised modulation; reduction of harmonic distortions
		2203/20	. Intrinsic phase difference, i.e. optical bias, of an optical modulator; Methods for the pre-set thereof
		2203/21	. Thermal instability, i.e. DC drift, of an optical modulator; Arrangements or methods for the reduction thereof

- 2203/22 . diffractive
- 2203/24 . beam steering
- 2203/25 . Frequency chirping of an optical modulator;  
Arrangements or methods for the pre-set or tuning thereof
- 2203/255 . . Negative chirp
- 2203/26 . Pulse shaping; Apparatus or methods therefor
- 2203/28 . focussing or defocussing
- 2203/30 . Gray scale
- 2203/34 . Colour display without the use of colour mosaic filters
- 2203/48 . Variable attenuator
- 2203/50 . Phase-only modulation
- 2203/52 . Optical limiters
- 2203/54 . Optical pulse train (comb) synthesizer
- 2203/56 . Frequency comb synthesizer
- 2203/58 . Multi-wavelength, e.g. operation of the device at a plurality of wavelengths
- 2203/585 . . Add/drop devices
- 2203/60 . Temperature independent
- 2203/62 . Switchable arrangements whereby the element being usually not switchable
- 2203/64 . Normally black display, i.e. the off state being black
- 2203/66 . Normally white display, i.e. the off state being white
- 2203/68 . Green display, e.g. recycling, reduction of harmful substances
- 2203/69 . Arrangements or methods for testing or calibrating a device
- 2203/70 . Semiconductor optical amplifier [SOA] used in a device covered by [G02F](#)
- 2413/00 Indexing scheme related to [G02F 1/13363](#),  
i.e. to birefringent elements, e.g. for optical compensation, characterised by the number, position, orientation or value of the compensation plates**
- 2413/01 . Number of plates being 1
- 2413/02 . Number of plates being 2
- 2413/03 . Number of plates being 3
- 2413/04 . Number of plates greater than or equal to 4
- 2413/05 . Single plate on one side of the LC cell
- 2413/06 . Two plates on one side of the LC cell
- 2413/07 . All plates on one side of the LC cell
- 2413/08 . with a particular optical axis orientation
- 2413/09 . with a spatial distribution of the retardation value
- 2413/10 . with refractive index ellipsoid inclined, or tilted, relative to the LC-layer surface O plate
- 2413/105 . . with varying inclination in thickness direction, e.g. hybrid oriented discotic LC
- 2413/11 . The refractive index  $N_z$  perpendicular to the element surface being different from in-plane refractive indices  $N_x$  and  $N_y$ , e.g. C plate
- 2413/12 . Biaxial compensators
- 2413/13 . Positive birefringence
- 2413/14 . Negative birefringence
- 2413/15 . with twisted orientation, e.g. comprising helically oriented LC-molecules or a plurality of twisted birefringent sublayers