

[0193] FIG. 29A is a schematic representation of a first illustrative embodiment of a single-layer CLC-based spectral filtering structure which can be employed in the LCD panel assembly shown in FIG. 2;

[0194] FIG. 30A1 is a schematic representation of an exploded, cross-sectional view of an exemplary pixel structure within the LCD panel of FIG. 29, wherein the spatial-intensity modulating elements of the LCD panel are realized using linear-type polarization rotating elements, and the pixel driver signals provided thereto are selected to produce "bright" output levels at each of the RGB subpixels of the exemplary pixel structure;

[0195] FIG. 30A2 is a schematic representation of an exploded, cross-sectional view of an exemplary pixel structure within the second particular embodiment of the generalized LCD panel of FIG. 2, wherein the spatial-intensity modulating elements of the LCD panel are realized using linear-type polarization rotating elements, and the pixel driver signals provided thereto are selected to produce "dark" output levels at each of the RGB subpixels of the exemplary pixel structure;

[0196] FIG. 30B is a schematic representation graphically illustrating ideal reflection characteristics for the broad-band linearly polarizing (LHP1) reflective panel of the LCD panel of FIGS. 30A1 and 30A2, indicating how such a broad-band linearly polarizing panel responds to incident illuminating having linear polarization state LP1;

[0197] FIG. 30C is a schematic representation graphically illustrating ideal reflection characteristics for the broad-band linearly polarizing (LP2) reflective panel of the LCD panel of FIGS. 30A1 and 30A2, indicating how such a broad-band linearly polarizing panel responds to incident illuminating having linear polarization state LP2;

[0198] FIG. 30D is a schematic representation graphically illustrating ideal reflection characteristics for the pass-band linearly polarizing (LP2) reflective filter element associated with each "blue" subpixel of the LCD panel of FIGS. 30A1 and 30A2, indicating how such a non-absorbing spectral filter element responds to incident broad-band illumination having linear polarization state LP2;

[0199] FIG. 30E is a schematic representation graphically illustrating ideal reflection characteristics for the pass-band linearly polarizing (LP2) reflective filter element associated with each "green" subpixel of the LCD panel of FIGS. 30A1 and 30A2, indicating how such a non-absorbing spectral filter element responds to incident broad-band illumination having linear polarization state LP2;

[0200] FIG. 30F is a schematic representation graphically illustrating ideal reflection characteristics for the pass-band linearly polarizing (LP2) reflective filter element associated with each "red" subpixel of the LCD panel of FIGS. 30A1 and 30A2, indicating how such a non-absorbing spectral filter element responds to incident broad-band illumination having linear polarization state LP2;

[0201] FIG. 31 is an exploded schematic diagram of the second generalized LCD panel construction of the present invention comprising (i) its backlighting structure realized by a quasi-specular reflector, a light guiding panel, a pair of edge-illuminating light sources, a light condensing film, and broad-band polarizing reflective panel, (ii) its spatial-inten-

sity modulating array realized as an array of electronically-controlled polarization rotating elements and a broad-band polarizing reflective panel, and (iii) its array of spectral filtering elements realized as an array of pass-band polarizing reflective elements and a polarization-state preserving light diffusive film layer disposed thereon to improve the viewing angle of the system;

[0202] FIG. 31A1 is a schematic representation of an exploded, partially cut-away cross-sectional view of a first illustrative embodiment the second generalized CLC-based LCD panel assembly shown in FIG. 31, wherein the spatial-intensity modulating panel is disposed between the backlighting structure and the spectral filtering structure of the system and the spatial-intensity modulating elements employed therein are realized using linear-type polarization rotating elements, and the pixel driver signals provided thereto are selected to produce "bright" output levels at each of the RGB subpixels of the exemplary pixel structure;

[0203] FIG. 31A2 is a schematic representation of the LCD panel shown in FIG. 31A1, wherein the pixel driver signals provided thereto are selected to produce "dark" output levels at each of the RGB subpixels of the exemplary pixel structure;

[0204] FIG. 31B is a schematic representation graphically illustrating ideal reflection characteristics for the broad-band circularly polarizing (LHCP) reflective panel of the LCD panel of FIGS. 33A1 and 33A2, indicating how such a broad-band circularly polarizing panel responds to incident illuminating having circular polarization state LHCP;

[0205] FIG. 31C is a schematic representation graphically illustrating ideal reflection characteristics for the broad-band circularly polarizing (RHCP) reflective panel of the LCD panel of FIGS. 31A1 and 31A2, indicating how such a broad-band circularly polarizing panel responds to incident illuminating having circular polarization state RHCP;

[0206] FIG. 31D is a schematic representation graphically illustrating ideal reflection characteristics for the pass-band circularly polarizing (RHCP) reflective filter element associated with each "blue" subpixel of the LCD panel of FIGS. 31A1 and 31A2, indicating how such a non-absorbing spectral filter element responds to incident broad-band illumination having circular polarization state RHCP;

[0207] FIG. 31E is a schematic representation graphically illustrating ideal reflection characteristics for the pass-band circularly polarizing (RHCP) reflective filter element associated with each "green" subpixel of the LCD panel of FIGS. 31A1 and 31A2, indicating how such a non-absorbing spectral filter element responds to incident broad-band illumination having circular polarization state RHCP;

[0208] FIG. 31F is a schematic representation graphically illustrating ideal reflection characteristics for the pass-band circularly polarizing (RHCP) reflective filter element associated with each "red" subpixel of the LCD panel of FIGS. 31A1 and 31A2, indicating how such a non-absorbing spectral filter element responds to incident broad-band illumination having circular polarization state RHCP;

[0209] FIG. 32A1 is a schematic representation of an exploded, partially cut-away cross-sectional view of a second illustrative embodiment the generalized CLC-based LCD panel assembly shown in FIG. 31, wherein the spatial-