that spectral wavelengths residing within the blue and green bands of the electromagnetic spectrum and having a LHCP state are strongly reflected from the subpixel structure, while spectral wavelengths residing within the red band and having a LHCP polarization state are weakly reflected from the layer (i.e. strongly transmitted therethrough);

[0127] **FIG. 6J** is a schematic representation graphically illustrating the actual spectral reflection characteristics of the "blue, green and red" subpixel regions in the CLC-based spectral filtering structure depicted in **FIGS. 5 through 5**B1, plotted against the spectral emission characteristics of a cold cathode tungsten backlighting structure, employable within the LCD panel assembly of the present invention;

[0128] **FIG. 7A** is a chromaticity diagram for an actual LCD panel assembly constructed in accordance with **FIGS. 2 through 5**C using the CLC-based spectral filtering structure specified by the spectral reflection and transmission characteristics shown in **FIGS. 6A through 6J**, indicating the color coordinates (CC) of a sample pixel structure on the panel at C, and the color coordinates of the light source employed therein at B for which the CC of the pixel structure is calculated, for purposes of computing the color purity of the pixel structures in LCD panel assembly;

[0129] **FIG. 7B** is a chromaticity diagram for an actual LCD panel assembly constructed in accordance with **FIGS. 2 through 5**C using the CLC-based spectral filtering structure specified by the spectral reflection and transmission characteristics shown in **FIGS. 6A through 6J**, indicating the computed color gamut of each of the pixel structures in LCD panel assembly, plotted against the color gamut achieved by the pixels of a conventional LCD panel employing an absorptive-type spectral filtering structure;

[0130] **FIG. 7C** is a schematic representation of the extinction ratio characteristics, plotted as function of wavelength, for each pixel structure in the actual LCD panel assembly constructed in accordance with **FIGS. 2 through 5**C using the CLC-based spectral filtering structure specified by the spectral reflection and transmission characteristics shown in **FIGS. 6A through 6J**;

[0131] **FIG. 7**D1 is a chromaticity diagram for an actual LCD panel assembly constructed in accordance with **FIGS. 2 through 5**C using the CLC-based spectral filtering structure specified by the characteristics shown in **FIGS. 6A through 6J**, and an absorptive-type Jenmar film diffuser mounted on the spatial-intensity modulation panel of the assembly, in order to simulate the expected improvement in angular performance of the LCD panel assembly for spectral components in the blue-band, when the light condensing (i.e. quasi-collimating) film is installed between the light diffusing layer associated with the backlighting panel and the broad-band CLC-based reflective polarizer, and the light diffusing layer is mounted upon the broad-band analyzer of the spatial-intensity modulation panel, as indicated in **FIGS. 2 through 2**B;

[0132] **FIG. 7**D2 is a chromaticity diagram for an actual LCD panel assembly constructed in accordance with **FIGS. 2 through 5**C using the CLC-based spectral filtering structure specified by the characteristics shown in **FIGS. 6A through 6J**, and an absorptive-type Jenmar film diffuser mounted on the spatial-intensity modulation panel of the assembly, in order to simulate the expected improvement in angular performance of the LCD panel assembly for spectral components in the green-band, when the light condensing (i.e. quasi-collimating) film is installed between the light diffusing layer associated with the backlighting panel and the broad-band CLC-based reflective polarizer, and the light diffusing layer is mounted upon the broad-band analyzer of the spatial-intensity modulation panel, as indicated in **FIGS. 2 through 2**B;

[0133] **FIG. 7**D3 is a chromaticity diagram for an actual LCD panel assembly constructed in accordance with **FIGS. 2 through 5**C using the CLC-based spectral filtering structure specified by the characteristics shown in **FIGS. 6A through 6J**, and an absorptive-type Jenmar film diffuser mounted on the spatial-intensity modulation panel of the assembly, in order to simulate the expected improvement in angular performance of the LCD panel assembly for spectral components in the red-band, when the light condensing (i.e. quasi-collimating) film is installed between the light diffusing layer associated with the backlighting panel and the broad-band CLC-based reflective polarizer, and the light diffusing layer is mounted upon the broad-band analyzer of the spatial-intensity modulation panel, as indicated in **FIGS. 2 through 2**B;

[0134] **FIG. 8A** is a schematic representation illustrating a first method of fabricating the two-layer CLC-based spectral filtering structure shown in **FIGS. 5 through 5**B2;

[0135] **FIG. 8B** is a schematic representation final structure produced when using the first method of spectral filter fabricating illustrated in **FIG. 8A**;

[0136] **FIG. 8C** is a schematic representation illustrating a second alternative method of fabricating the CLC-based spectral filtering structure shown in **FIG. 2**, wherein the subpixel structures of each pixel structure therein are arranged in a 3×1 array, and the order of the subpixel structures in neighboring pixel structures are periodically reversed to enable manufacturer of CLC layers having double-sized color-band reflection regions;

[0137] **FIG. 8**D1 is a perspective schematic representation of a second illustrative embodiment of the CLC-based spectral filtering structure shown in **FIG. 2**, wherein the subpixel structures of each pixel structure therein are arranged in a 2×2 array;

[0138] **FIG. 8**D2 is a schematic representation of one pixel structure in the first (i.e. bottom) CLC layer of the CLC-based spectral filtering structure of **FIG. 8**D1, showing the 2-D spatial layout of the individual subpixel structures contained therein;

[0139] **FIG. 8**D3 is a schematic representation of one pixel structure in the second (i.e. top) CLC layer of the CLC-based spectral filtering structure of **FIG. 8**D1, showing the 2-D spatial layout of the individual subpixel structures contained therein;

[0140] **FIG. 8**D4 is a schematic representation of light output from the subpixel structures contained in one pixel structure in the CLC-based spectral filtering structure of **FIG. 8**D1;

[0141] **FIGS. 9A through 9B**, taken together, set forth a flow chart illustrating the steps involved when manufacturing the two-layer CLC-based spectral filter of **FIG. 5**;