zontal. Different results are obtained by different experimenters due in part to different experimental conditions and assumptions. However, all the results show that the human visual contrast sensitivity, as a function of spatial frequency, varies in a curve. The curve has the normalized sensitivity and is based on the data obtained by several experimenters. In most experimental results the spatial frequency is expressed in terms of cycles per degree of a subject's field of view. This unit is translated to cycles per inch (cpi) at a normal viewing distance of 12 inches. The peaks of the curves from different experimenters range from about 10 cycles per inch to 50 cycles per inch with an average of about 20 cycles per inch. The sensitivity drops rapidly at frequencies away from the peak frequency.

[0011] Reference throughout this specification will now be made to the present invention as applying to video screens for a multilayer display system. However, it should be appreciated by those skilled in the art that other types of displays using one or more screens may be used in conjunction with the invention.

[0012] All references, including any patents or patent applications cited in this specification are hereby incorporated by reference. No admission is made that any reference constitutes prior art. The discussion of the references states what their authors assert, and the applicants reserve the right to challenge the accuracy and pertinency of the cited documents. It will be clearly understood that, although a number of prior art publications are referred to herein, this reference does not constitute an admission that any of these documents form part of the common general knowledge in the art, in New Zealand or in any other country.

[0013] It is acknowledged that the term 'comprise' may, under varying jurisdictions, be attributed with either an exclusive or an inclusive meaning. For the purpose of this specification, and unless otherwise noted, the term 'comprise' shall have an inclusive meaning—i.e. that it will be taken to mean an inclusion of not only the listed components it directly references, but also other non-specified components or elements. This rationale will also be used when the term 'comprised' or 'comprising ' is used in relation to one or more steps in a method or process.

[0014] It is an object of the present invention to address the foregoing problems or at least to provide the public with a useful choice.

[0015] Further aspects and advantages of the present invention will become apparent from the ensuing description which is given by way of example only.

DISCLOSURE OF INVENTION

[0016] Accordingly, in a first aspect the invention may broadly be said to consist in a multi layer display device comprising at least two display layers at least in part overlapping in which at least one of said display layers has a dissimilar configuration to the other display layer(s) such that moiré interference is reduced.

[0017] The term "dissimilar configuration" as used here-in should be interpreted to mean any different arrangement at the component and/or sub-component level such as for example, a variation in pixel pattern, the use of a different technology, or the re-arrangement of sub-pixels such as colour filters.

[0018] The term "display layer" as used here-in should be interpreted to mean any device for displaying images which may include (without limitation) LCD, OLED, Projection Display Devices; however the technology employed needs to allow the images displayed on rear layer(s) be viewable though overlapping areas of front layer(s). As such at the least all but the rear layer will need to be transparent (at least in part) or transmissive to light (at least in part). In the case where a backlighting system is the sole source of light to illuminate images the rear most layer will also need to be transparent (at least in part) or transmissive to light (at least in part).

[0019] Preferably the dissimilarity in configuration between the at least two display layers is that they are different display technologies. Alternatively they may be the same display technology for example (without limitation) LCDs but with dissimilarities in their components for example (without limitation) at the pixel and/or sub-pixel level.

[0020] Generally, the greater the dissimilarity between the configuration of the at least two display layers that have dissimilar configurations; the less moiré interference will be experienced when those display layers are overlapped.

[0021] Accordingly, in a further aspect the invention may broadly be said to consist in a multi layer display device comprising at least two display layers which have tessellated pixel patterns and which are at least in part overlapping in which at least one of said display layers has a dissimilar pixel pattern to the other display layer(s) such that moiré interference is reduced.

[0022] The term "pixel pattern" as used here-in should be interpreted to mean the arrangement of the pixels on a display layer.

[0023] The term "tessellated pixel pattern" as used here-in should be interpreted to mean any regular pixel pattern which is repeated over the display layer. By way of example (and without limitation) a simple tessellated pixel pattern would be a checker-board arrangement of square pixels. A more complicated example would be (without limitation) a hexagonally shaped pixel. However the pixels tessellated together need not be the same shape and may be any combination of like and unlike pixels tessellated together.

[0024] Preferably the dissimilarity in pixel pattern between the at least two display layers is that on each layer the pixels that are tessellated are different in shape to the pixels that are tessellated on other display layer(s).

[0025] Generally, the greater the dissimilarity or the lesser the "correlation" between the pixel patterns on the at least two display layers that have dissimilar pixel patterns; the less moiré interference will be experienced when those display layers are overlapped.

[0026] The term correlation as used here-in is used to measure the degree at which two or more signals are related. For example a correlation co-efficient of 1 would be two identical patterns and a co-efficient of 0 would be two completely unlike patterns.

[0027] Accordingly, in a further aspect the invention may broadly be said to consist in a multi layer display device comprising at least two display layers which have tessellated pixel patterns and which are at least in part overlapping in