ence, sharpness or blurriness, tonal balance, color balance, etc., associated with MCD **110** and/or the display of graphical objects (e.g., **150**) on MCD **110**.

[0023] Embodiments of the present invention also enable MCD image display adjustment by processing graphical data prior to display on the MCD (e.g., **110**). For example, distortion or image alteration caused by transmitting or viewing graphical objects through interstitial layers (e.g., **140**) and/or display screens (e.g., **130**) of the MCD (e.g., **110**) may be compensated for prior to display. In one embodiment, the graphical data used to display the graphical objects (e.g., **150**) may be modified (e.g., to account for distortion or image alteration of the MCD components) to generate updated graphical data. As such, the graphical objects (e.g., **150**) generated from the updated graphical data may be displayed on MCD **110** (e.g., after passing through optical component **140** and front display screen **130**) with improved optical characteristics (e.g., sharpness, tonal balance, color balance, etc.).

[0024] Accordingly, embodiments can be used to improve the display quality of MCDs, where those MCDs use optical components that introduce a tradeoff between two or more optical characteristics. For example, where optical component **140** comprises a diffuser, a tradeoff between Moiré interference associated with MCD **110** and sharpness of the display of graphical objects **150** is introduced. The attributes and/or positioning of component **140** may be varied to improve image quality with respect to at least one of the optical characteristics (e.g., reducing Moiré interference). Graphical data processing may then be performed to further improve the previously-adjusted optical characteristics and/or improve other optical characteristics (e.g., reduce blurriness, etc.). As such, embodiments enable the use of a wide variety of optical components (e.g., **140**), where the display quality of the MCD (e.g., **110**) may be improved regardless of the number, type, or attributes of the optical component or components used.

[0025] Although FIG. **1** shows optical component **140** disposed between the front and rear display screens (e.g., **120** and **130**), it should be appreciated that optical component **140** may be alternatively positioned (e.g., disposed in front of front display screen **130**) in other embodiments. Additionally, although FIG. **1** shows only one optical component (e.g., **140**), it should be appreciated that MCD **110** may comprise more than one optical component in other embodiments, where each optical component may be placed in front of or behind display screen **120** and/or display screen **130**. As such, graphical data processing may be performed to compensate for optical distortion or blur caused by optical components regardless of the position of the optical component (e.g., **140**, etc.) with respect to display screens (e.g., **120**, **130**, etc.) of the MCD (e.g., **110**).

[0026] Additionally, although FIG. **1** shows two display screens (e.g., **120** and **130**), it should be appreciated that MCD **110** may comprise a larger or smaller number of display screens in other embodiments, where any additional display screens may be positioned behind, between or in front of (or any combination thereof the MCD components (e.g., display screen **120**, display screen **130**, optical component **140**, etc.) depicted in FIG. **1**. As such, in one embodiment, graphical data processing may be performed to compensate for optical distortion or blur caused by a touchscreen or other optical component positioned in front of a single-layer display screen. Further, it should be appreciated that the elements (e.g., **110-160**) depicted in FIG. **1** are not drawn to scale, and thus, may comprise different shapes, sizes, etc. in other embodiments.

[0027] FIG. **2** shows diagram **200** of exemplary effects of multi-component display components on the frequency spectrum of displayed graphical objects in accordance with one embodiment of the present invention. As shown in FIG. **2**, graphical objects **150** displayed by rear display screen **120** of MCD **110** travel along paths **210-230** to observer **160**. More specifically, graphical objects **150** travel along path **210** from rear display screen **120** to optical component **140**, along path **220** from optical component **140** to front display screen **130**, then along path **230** from front display screen **130** to observer **160**. Displayed graphical objects **150** have a respective spatial frequency spectrum in each path segment (e.g., **210-230**) as represented by exemplary frequency spectrum groupings **240** and **250**, where each grouping depicts different effects on the frequency spectrum given different characteristics of the MCD components (e.g., display screen **120**, display screen **130** and optical component **140**) in accordance with different embodiments of the present invention.

[0028] Frequency spectrum grouping **240** may represent an embodiment where an optical component (e.g., **140**) dampens the high frequency components of the displayed graphical objects (e.g., **150**), while the front display screen (e.g., **130**) has little effect on the frequency spectrum. As depicted in FIG. **2**, path **210** may have an associated frequency spectrum (e.g., **242**) with amplified or amplified high frequency components to compensate for dampening or reduction of the high frequency components by optical component **140**. The high frequency components may be amplified by processing the graphical data used to display graphical objects **150** as discussed above with respect to FIG. **1**. As such, when passed through optical component **140**, the amplified high frequency components are dampened (e.g., returning them to their pre-amplified levels) as indicated by substantially-flat frequency spectrum **244** associated with path **220**. Since the front display screen (e.g., **130**) has little effect on the frequency spectrum of the displayed graphical objects (e.g., **150**) in this embodiment, frequency spectrum **244** is maintained upon passing the displayed graphical objects through front display screen **130**. Therefore, path **230** may share an associated frequency spectrum (e.g., **244**) with path **220**.

[0029] Frequency spectrum grouping **250** may represent an optical component (e.g., **140**) and front display screen (e.g., **130**) which dampen the high frequency components of the displayed graphical objects (e.g., **150**). As depicted in FIG. **2**, path **210** may have an associated frequency spectrum (e.g., **252**) with amplified or amplified high frequency components to compensate for dampening of the high frequency components by optical component **140** and front display screen **130**. The high frequency components may be amplified by processing the graphical data used to display graphical objects **150** as discussed above with respect to FIG. **1**. As such, when passed through optical component **140**, the high frequency components are dampened as indicated by frequency spectrum **254** associated with path **220**. Thereafter, the high frequency components are further dampened (e.g., returning them to their normal levels) when passed through front display screen **130** as indicated by substantially-flat frequency spectrum **254** associated with path **230**.

[0030] In one embodiment, optical component **140** may comprise a diffuser (e.g., with a predetermined angular spread distribution, Gaussian profile, etc.) which blurs dis-