CLAIMS

1. An illumination panel device comprising:

a housing comprising a frame coupled to a rear cover, the frame defining an opening;

a first circuit board comprising a plurality of white light emitters, the first circuit board coupled to the frame such that the plurality of white light emitters are arranged around the opening;

a second circuit board comprising a plurality of multi-colour light emitters, the second circuit board coupled to the frame such that the plurality of multi-colour light emitters are arranged around the opening; and

a light guide having opposite front and back surfaces, the light guide arranged in the opening with the back surface facing the rear cover, wherein the light guide is optically coupled to at least the plurality of white light emitters through peripheral edges of the light guide.

2. The illumination panel device of claim 1, wherein the light guide is configured to receive light from at least the plurality of white light emitters through the peripheral edges and further configured to release the received light through the front and back surfaces.

3. The illumination panel device of claim 1, wherein the frame has a front end and an opposite back end, wherein the opening is smaller at the front end than at the back end.

4. The illumination panel device of claim 3, wherein the light guide is larger than the opening at the front end, such that the light guide is retained within the housing by the front end of the frame.

5. The illumination panel device of claim 1, wherein the frame comprises a plurality of heat dissipation fins extending from an inner edge of the frame adjacent to the opening, to an outer edge of the frame along a perimeter of the frame, the heat dissipation fins configured to conduct heat generated by at least one of the first circuit board and the second circuit board.

6. The illumination panel device of claim 5, wherein the frame comprises gaps between the plurality of heat dissipation fins to facilitate air flow, wherein the heat dissipation fins are configured to transfer the heat generated by at least one of the first circuit board and the second circuit board to air between the heat dissipation fins.

7. The illumination panel device of claim 1, further comprising:

a reflector arranged between the light guide and the rear cover, wherein the reflector is configured to reflect light released from the back surface of the light guide towards the front surface of the light guide.

8. The illumination panel device of claim 1, further comprising:

a primary diffuser arranged adjacent to the light guide in the opening of the frame, wherein the primary diffuser is configured to diffuse light released from the front surface of the light guide.

9. The illumination panel device of claim 1, wherein the first circuit board is arranged on an inner edge of the frame that surrounds the opening, such that the plurality of white light emitters face the peripheral edges of the light guide.

10. The illumination panel device of claim 1, further comprising:

a first controller circuit configured to control the plurality of white light emitters; and

a second controller circuit configured to control the plurality of multi-colour light emitters,

wherein the second controller circuit is configured to individually control each multi-colour light emitter of the plurality of multi-colour light emitters.

11. The illumination panel device of claim 1, wherein the plurality of white light emitters comprises light emitting diodes configured to emit white light.

12. The illumination panel device of claim 1, wherein the plurality of multi-colour light emitters comprises red-green-blue light emitting diodes.

13. The illumination panel device of claim 1, further comprising:

a power source coupled to the rear cover, wherein the power source is configured to supply electrical power to each of the first circuit board and the second circuit board.

14. The illumination panel device of claim 1, further comprising:

an electrical cable connecting the power source to each of the first circuit board and the second circuit board, wherein the electrical cable is arranged between the reflector and the rear cover.

15. The illumination panel device of claim 1, wherein the second circuit board is arranged on an inner edge of the frame, such that the plurality of multi-colour light emitters emit light towards the peripheral edges of the light guide, and wherein the second circuit board is arranged adjacent to the first circuit board on the inner edge of the frame.

16. The illumination panel device of claim 1, wherein the second circuit board is arranged at least substantially perpendicular to the first circuit board, such that the plurality of multi-colour light emitters emit light in a direction away from the rear cover.

17. The illumination panel device of claim 1, wherein the frame comprises at least one groove, wherein the second circuit board is provided in the at least one groove.

18. The illumination panel device of claim 1, further comprising:

a secondary diffuser arranged over the second circuit board, wherein the secondary diffuser is configured to diffuse light emitted by the plurality of multi-colour light emitters.

19. An illumination panel device comprising:

a housing comprising a frame coupled to a rear cover, the frame defining an opening;

a circuit board comprising a row of white light emitters and an adjacent row of multi-colour light emitters,

wherein the circuit board is coupled to the frame such that both the row of white light emitters and the row of multi-colour light emitters are arranged around the opening;

a light guide having opposite front and back surfaces, the light guide arranged in the opening with the back surface facing the rear cover, wherein the light guide is optically coupled to at least the plurality of white light emitters through peripheral edges of the light guide.

20. The illumination panel device of claim 19, wherein the frame comprises a polymer frame member surrounded by a metal frame member, the polymer frame member comprising a plurality of heat dissipation fins configured to conduct heat generated by the circuit board, wherein the polymer frame member further comprises a wall arranged adjacent to the plurality of heat dissipation fins, the wall having a plurality of air venting slots formed therein to facilitate air flow to gaps between the plurality of heat dissipation fins, and wherein the polymer frame member comprises a plurality of stoppers adapted to hold the circuit board against the wall.