

シーリングライトカバーを用いたダジックアース投影の有用性

-Usefulness of Dagik Earth Projection using Room Light Cover-

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ABSTRACT

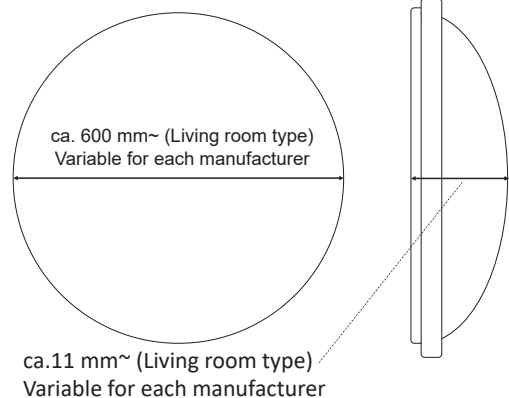
The Dagik Earth Project has been developing and exploring hemispherical materials targeted for 3D projection. To obtain the hemispherical material, such material condition has been sought as spherical white and opaque, more speedy and easy to be used in setting and putting into a storage, and can be obtained and used anywhere and by anyone. In this research, we discovered that a ceiling light cover is suitable as a material to solve all the above conditions. Using this material, this research team has been currently conducting demonstration experiments at schools and museums. In this presentation we will announce the usefulness of Dagik Earth projection using a ceiling light cover. In addition, as future prospects, we plan to post more practical data on the usefulness of this Dagik Earth and to post it as a report or research outcome into the paper.



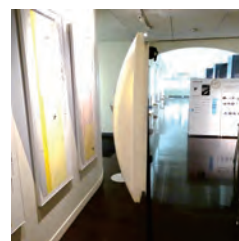
CONCLUSION

1. The ceiling light cover has a hemispherical shape, and it can illuminate the earth in a spherical shape. It is also opaque and white, and it is possible to project a planet.
2. The ceiling light cover can be purchased from an appliance stores. In addition, it is lightweight, has good portability, and has extremely high convenience.
3. The back of the ceiling light cover can be hung with a hook, and it can be installed anywhere; on a blackboard, whiteboard, tripod, and so on.
4. Based on the above reasons, it can be fully utilized not only in informal education but also in formal education. The value as a teaching material using Dagik Earth is high enough.

The Ceiling Light Cover for Dagik Earth



Front



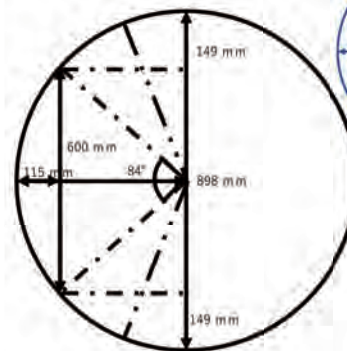
Side



Back

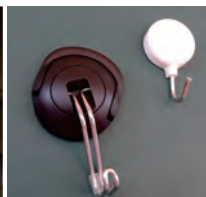
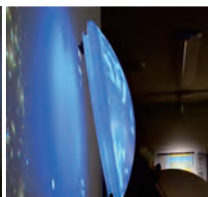
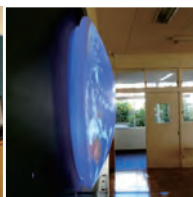
- ✓ The ceiling light cover forms a circular and curved surface.
- ✓ It can be installed in various places, it's lightweight.
- ✓ Even if someone drops it, it will not cause serious injury (* Caution: Plastic crack).
- ✓ The ceiling light cover can be purchased at a commercial electric store. It costs about 3000 to 4000 yen.

Both at All times and All places Using the Dagik Earth!!



For Formal Education

For Informal Education



Just Hang the Dagik Earth!

It can be installed by using magnet hook, tripod / monopod.

«Styrofoam sphere»

Shadows appear when projecting on this material. It is obtained from the ratio of the arc length of the display range to the arc length of the sphere. The arc length is calculated by the Newton-Raphson method. Chord length and height are known. $L = r * \theta$, $d = 2 * r * \sin(\theta / 2)$, $h = r * (1 - \cos(\theta / 2))$ Display angle = approximately 134° . The sphere reproducibility is 75.6% ($134^\circ / 180^\circ$).

«New Material»

Chord length and height are known. $L = r * \theta$, $d = 2 * r * \sin(\theta / 2)$, $h = r * (1 - \cos(\theta / 2))$ Display angle = approximately 84° . Reproducibility of sphere = 46.6% Styrofoam spheres shall be 1. The new material is 0.61. This calculation was made by Calculation free software (WEB browser version) by CASIO COMPUTER CO., LTD.. <https://keisan.casio.jp/has10/SpecExec.cgi?id=user/2006/1329041462>

Acknowledgments

Performance: Dagik Earth using Ceiling Light Cover
 The Shizuoka junior high school attached to Shizuoka University
 Shimizu No. 7 junior high school
 Museum of Natural and Environmental History, Shizuoka
 · Citizen Science Lectures
 · Special Exhibitions and Special Lectures
 Shizuoka University
 University of Yamanashi
 Earth Science Week Japan

