

LCD-TV 내부의 비접촉식 온도측정법 개발

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Development of Non-contact Measurement for Temperature Inside LCD-TV

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Key Words: LCD-TV, Infrared camera(적외선카메라), Non-contact measurement(비접촉식 측정), Multiple regression(다변수회귀법)

Abstract : In these days, demand of a LCD-TV is remarkably increasing with development of the LCD technology. However, there are thermal problems for improvement of efficiency for the LCD-TV. Thus, this research analyzed thermal problems such as convection and conduction heat transfer characteristics in the LCD-TV using an infrared (IR) camera. Also, the results of front side of the LCD panel using the IR camera have been compared with the results of backside of the LCD panel using T-type thermocouples. The equations have been derived for the temperature distribution of the backside of the LCD panel by a multiple regression method including variables for ambient temperature, humidity and temperature differences between front and back panel of the LCD-TV.

전자장치 냉각을 위한 콘 형상 모세관을 이용한 모세관 펌프 루프

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Capillary Pumped Loop (CPL) with Cone Shaped Capillary Structure for Cooling Electronic Device

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Key Words: Capillary pumped loop(모세관펌프루프), Cone shaped capillary(콘 형상 모세관), Electronic device cooling(전자장치 냉각)

Abstract : A capillary pumped loop (CPL) was developed using cone shaped capillary structure for cooling electronic device. Cone shaped capillary structure was constructed by sand blast with 32 m-diameter Al₂O₃ nano particles. The CPL fabricated was tested under various conditions such as different relative heights, fill ratios and heat fluxes. The operation conditions of CPL were varied depending on relative height, fill ratio and heat flux. With an allowable temperature of 55 C on the evaporator surfaces, the CPL can handle a heat flux of about 0.8 W/cm². Steady state operation condition was achieved within 10 minute.