

The Reliability Improvement of Drive Characteristic Evaluation for Large Size Touch Panel

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Recently, a study on the touch panel is progressive in various fields, but it has been mainly focused on the structure and fabrication of the sensor. The various touch panels must meet the requirements associated with the displays and UI. In addition, research and development must be carried out taking into account the commercialization. For this reasons, it is important to correctly understand the operating characteristics of touch sensor.

Among the factors of operating characteristic evaluation, a SNR and response time is a particular important for large scale touch panel. Even though the SNR isn't a good indicator of system performance in the presence of noise, it is important to have a solid understanding of SNR and how it's calculated, as well as its impact on system performance. Noise coupled from the display, which can be either an LCD or AMOLED, to the touch sensor is trending higher as advances in touch screen manufacturing allow for thinner substrates between the display and the touch sensor. Without analog display synchronization, LCD-generated noise typically becomes spiky. Noise generated by USB chargers is also spiky in nature. On top of that, it's the most variable, since the construction and the components in the ac-dc converter differ for every device. The response rate should be start by establishing the concept. The response is composed by scanning time and latency time.

In this paper, a new evaluation tool was proposed in order to promote the objective operation evaluation of a large size touch panel. The SNR was measured by function generator signal as like display noise. The noise of the surface vibration and the noise of external electric device were removed by used the ground. Response of touch sensor was verified by a scanning period and evaluated by oscilloscope. Touch module was measured by sum display reaction time and the capacitance change of the sensor reaction.



Fig. 1. The evaluation of SNR and response time

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