

Exploration of Electromagnetic Interferences on GPS Reception in PDA Phone

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Abstract

Recently, personal digital assistant (PDA) as a wireless platform is requested to install multi functions, such as GPS, Bluetooth, and camera. In the meantime, the platform is requested to be small size, light weight, and low power consumption. The sensitivity is by no means affected by the digital and analog functions. The deteriorations are from conductive and coupling noises. In this study, the sensitivities in GPS and 2G/3G are investigated. The sources are identified step by step by turning on each application function. It is found that in GPS the key factors are from digital functions of camera and SD card. Both are allocated near the GPS antenna, but the solutions are different. The SD card, which is outside the metal closure, generates the conductive noises. As for the camera, it resides in the metal closure. Many steps are utilized to enhance the grounding and bypassing. The leakage from slit during molding is also avoided. After the solutions, the results are improved as shown in Table I. Same phenomena are also found in the reception of 2G/3G operation. It will be discussed in the conference.

Keyword : GPS, PDA, EMI, Electromagnetic Interference