

### **AirClic: A Classic Example of Fully-Integrated Product Development Services**

When AirClic, now a fast-growing technology company, was a fledgling startup in need of assistance to design and build the scanner housing for an advanced new mobile tracking system, they were referred to Paramount PDS.

That was five years ago. The original scanner housing was subsequently reengineered for new electronics and then into over-molded enclosures for specially-equipped mobile phones. Today, Paramount is manufacturing the custom-designed injection molded cradles for AirClic's advanced mobile scanning technology as it moves into full-scale sales and distribution, serving upwards of 400 customers worldwide with a real-time link that enables field personnel to be in constant communication with central offices.

AirClic is a classic case study of a fully-integrated design, develop, deliver project, encompassing the full panoply of skills and services that distinguish Paramount PDS from other product development services providers.

After initial discussions of project parameters and expectations, AirClic's design requirements were analyzed by the engineers at Definitive Design, Paramount's design engineering arm. A team headed by Craig Hidalgo, president of Definitive Design, tackled the assignment of designing packaging that would be durable, flexible and functional.

The design criteria called for packaging that would enable convenient access to the mobile phones inside as well as convenience and durability for the users' needs, which would vary widely.

Definitive's engineers responded with a multitude of industrial design concepts for the evaluation of AirClic executives.

The next step was to scan and reverse engineer the enclosure to the shape of mobile phone used in conjunction with the scanner. Then Pro/Engineer's advanced surfacing CAD/CAE software was used to provide mechanical design of the complex organic geometry designed using PC/ABS for the substrate and Santoprene for the over-molded material.

Once a design was selected, several prototyping techniques were deployed for design validation. An SLA (stereolithography) prototype was developed for preliminary engineering check for form and fit internal design evaluation and client review, whereupon mechanical design was refined. Then, a cast urethane prototype was produced precisely simulating the substrate/over-molded design for next-generation product validation.

After extensive testing, a final design was completed and production materials selected to meet the requirements of superior protection characteristics and the capability of providing access to the mobile phone and programmed software scanner insert while keeping the phone and scanner secure.

In the course of testing, the design evolved from its original hard plastic framework into the more-flexible ruggedized Santoprene over-molded phone cradle, and was redesigned for several different mobile phones as the development evolved.

After corroboration of the design functionality and durability in field testing, the AirClic scanner housing went to full-scale manufacturing at TTM Technologies, Paramount's offshore facility. TTM has since manufactured more than 20,000 of the advanced-material enclosures, and AirClic has become a highly-publicized success story as well as a classic example of Paramount's unique capabilities in action.

Close collaboration with the client, imaginative engineering, innovative design and materials—together with exhaustive testing—has resulted in a development providing unparalleled function, and has provided the additional benefit of reduced design time on subsequent product refinements for AirClic.