Portable Electronic Vents

Mobile Device Accessories Case Study

Waterproof Protection without Compromising Acoustic Quality



Situation

Today's consumers expect mobile devices to function reliably wherever they are — on the beach, on a ski lift riding to the top of a mountain, or hiking through the wilderness. Incipio Technologies, Inc., is a global manufacturer of mobile device accessories that are continually at the forefront of mobile technology. With products sold in over 40,000 retail locations worldwide, Incipio® focuses on offering advanced and protective accessories available at the time of device launches.

Incipio® was designing a new, rugged case for high-end mobile phones that can withstand challenging environments. Since consumers use these phones to enjoy music, connect with family and friends, and search the Internet with verbal commands, the case required openings that allow sound waves from the phone's transducers to be transmitted clearly.

Challenge

First and foremost, Incipio's engineering team knew they needed to develop a slim, stylish case that did not compromise the high-quality audio performance of the mobile phone. However, they also wanted to increase the level of protection that the case provided, both from contaminants and pressure differentials. Therefore, they needed a material that allowed sound waves to pass through easily while providing a protection level that meets the IEC 60529 Ingress Protection IP68 testing protocol. The IP68 level certifies that no dust particulates could enter the case and that it withstood immersion in two meters of water for one hour.

Stemming from Incipio's commitment to offering products at the same time a new mobile device is launched, Incipio required a solution that was easy to integrate into their existing design and would be readily available on a global level. After early testing, the engineering team determined that the product they were currently using would not meet their specifications for the new rugged case.

Solution

Incipio's engineering team tested several global alternatives but found that all of them experienced significant dB loss in acoustic performance. They turned to Gore for assistance in determining the best solution to deliver the sound quality they wanted and the protection level they needed. Application engineers from Gore's United States and Asia Pacific business units worked closely with Incipio's product team throughout the design and development process. Gore's engineering team recommended installing GORE® Acoustic Vents in the case. After testing several prototypes, including the Series GAW325 vent, both teams agreed that developing a customized venting solution would best meet Incipio's need. Engineered with a unique expanded polytetrafluoroethylene (ePTFE) material, the Series GAW325 provides excellent sound quality, with a maximum transmission loss of less than one decibel (1 dB). The structure of ePTFE also repels water, other fluids and particulates, enabling the vent to meet the waterproof protection level of IP68. In addition, GORE® Acoustic Vents are backed by a durable adhesive that makes them easy to install manually or by an automated process.

> *"Outstanding sound quality is everything to us. Gore was able to move the sampling process along quickly and deliver a solution that enabled us to meet our customer's expectations without delaying production."*
> — Carlos Del Toro, Incipio's Director of Product Management

According to Carlos Del Toro, Director of Product Management at Incipio, integrating GORE® Acoustic Vents in the new design enabled them to maintain excellent acoustic performance in a rugged case that passed third-party testing for dust, water, drop, and vibration testing. "Outstanding sound quality is everything to us. Our expectation is that customers will not perceive any degradation of sound when they use our case, and their phone

will be protected. At the same time, we usually only have a month of lead time to develop new products in the mobile device industry. Because of Gore's experience with both acoustics and venting technology, they were able to move the sampling process along quickly and deliver a solution that enabled us to meet our customers' expectations without slowing down production."

Diverse Product Line Engineered for Simple Integration

GORE® Portable Electronic Vents are manufactured in many different sizes and shapes, making it easy to choose the optimal vent to meet the design and performance requirements of your application. The versatility of these vents is apparent in both their range of protection and their ease of installation. For example, these vents

- tolerate temperatures ranging from –40°C to 100°C
- can meet protection standards up to IP68
- simplify installation by adhering easily to a variety of enclosure materials through manual or automated processes



The excellent performance of GORE® Acoustic Vents enables Incipio® accessories to deliver the high level of sound quality their customers expect.

The Gore Advantage

Gore is a technology-driven company focused on product innovation. Well-known for waterproof, breathable GORE-TEX® fabric, the company's products have remained on the forefront of creative solutions because they are engineered specifically for applications that require durable performance and long service life.

For almost thirty years, Gore has delivered innovative venting solutions for everything from high-volume consumer devices to ruggedized industrial or MIL-spec devices. Engineered with high-performance materials and technology, Gore's vents are backed by years of research and testing to help extend product life and enhance reliable performance — all to ensure that they meet the application demands of today's technology.

Headquartered in the United States, Gore employs approximately 10,000 associates in 30 countries worldwide. Learn more at gore.com/portableelectronicvents.



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For additional assistance, please contact a Gore representative.

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