UxS CASE STUDY: SAVING LIVES IN SEARCH & RESCURE THROUGH GEOLOCATION OF CELLPHONE SIGNALS

- **Lifeseeker** is an airborne phone location system, a technology capable of finding missing people through their **mobile phone geolocation** – even in areas with no network coverage.
- This technology **turns mobile phones into emergency beacons** that can lead the rescue team to the missing person's exact location.

It's the worst case scenario - it was a great day skiing, until it very definitely was not. You're lost, in the dark, and nobody saw you leave the ski lodge this morning. How will you ever be found?

This is a common issue in ski areas and national parks, and a major problem - unless the rescue team uses Lifeseeker, a system designed by Centum Research & Technology[1]. Their system can locate lost skiers based solely on pings from a cellphone, even if no cell service is present. Using airborne platforms to triangulate locations of lost skiers, Lifeseeker has saved over a hundred lives since introduction.

The core of the RF sensing on board is the Epiq **Sidekiq M.2** transceiver. which is tiny, and at **30 mm x 42 mm x 4 mm** and weighing **6g** is a key enabler for the small airborne pod. However, the card is capable of providing **real-time direction finding data** to the rest of the system scanning the common cellular bands. It does this with fast scanning over a very broad frequency range of between **70 MHz to 6 GHz** on **two phase coherent channels**. It has instantaneous bandwidth available up to 50 MHz. The RF front-end is coupled with an **FPGA** which runs Epiq's **Libsidekiq** firmware library. This is designed to be consistent across all of Epiq's Small Form Factor (SFF) products to allow reuse of customer code independent of hardware used while still leaving plenty of room for custom application firmware in the FPGA. The M.2 consumes a little over **2 W**, another key enabler for UxS use on even small platforms. The card is shown in ***Figure 4*** on the next page greatly magnified.

Figure 1: The Lifeseeker pod with easy to use geolocation software

Figure 2: Lifeseeker UAS with sensor pod attached

"The partnership with Epiq Solutions has been instrumental in enhancing our Lifeseeker product. Through Epiq's innovative technology, we experienced significant advancements in select Lifeseeker systems. Their invaluable contributions have empowered us to redefine search and rescue operations, ensuring our ongoing commitment to saving lives."
David Casasnovas Fernández
COO, CENTUM.

More of the story can be found on our website[2]. The Sidekiq M.2 is just one of a range of powerful SFF and open architecture modular solutions designed for unmanned systems (UxS). **Contact us** for more details or visit **our website**.

REFERENCES

1 Centum's website: https://www.centum-rt.com/product/lifeseeker/
2 The full case study this is based upon can be found here: https://epiqsolutions.com/case-studies/building-the-game-changer-in-rescue-operations

Figure 3: Over 100 hundred lives have been saved using the Lifeseeker system.

Figure 4: Sidekiq M.2 SDR

ABOUT EPIQ

Epiq Solutions develops cutting edge tools for engineering teams and government-focused organizations requiring situational awareness and detailed insight into their RF environments in order to identify and act against wireless threats.

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