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Qamcom Partnership Moves Arbe's Imaging Radar Closer to Market

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by **David E. Zoia** | Dave.Zoia@informa.com

Executive Summary

The deal gets the Israeli developer's high-resolution radar into the commercial-vehicle sector, including an emerging market for autonomous ground vehicles.



COMMERCIAL VEHICLES, AUTONOMOUS GROUND VEHICLES MARKETS QAMCOM WILL PURSUE WITH ARBE'S IMAGING RADAR.

Everyone already in the radar game – and a number of developers new to the sector – are nearing production of new-generation imaging radars that promise to enhance the performance, reliability and safety of more advanced driver assistance systems and upcoming Level 4 autonomous-vehicle technology.

Resembling a camera as much as a traditional radar, these advanced imaging devices deliver high-resolution mapping of a vehicle's surroundings, detecting and more accurately classifying objects. Unlike today's radars that mainly just track the vehicle directly ahead, imaging radars can detect objects in three dimensions along a wider field of view and distinguish an upcoming overpass or tunnel from a solid obstacle, such as a large truck blocking the road.

Founded in 2015, Israel-based Arbe is one of the newcomers to the field, and its technology arguably is leading the pack.

While traditional radars generally offer up to 12 frequency channels to communicate data, Arbe's scalable chipset can deliver up to 2,300 channels. Compared with other new imaging radars nearing the market, that 2,300-channel capability dwarfs most – if not all – competitors.

That has Arbe confident it will grab a significant chunk of the imaging radar market expected to emerge in a big way in the next few years.

We've covered Arbe's technology in earlier stories, so we won't dwell too much on its advantages here.

Ram Machness, vice president-product and customer success, likes to say the developer has taken radar technology "two steps forward," and in doing so will greatly enhance data accuracy and reduce the number of false positives that plague radar performance today.

He points to the 2018 fatal accident in Phoenix involving an autonomous vehicle undergoing testing by Uber and a pedestrian. An investigation determined the car's radar had detected the pedestrian six seconds before the collision, he says, but the signal – judged to be a false positive by the vehicle's operating system – was ignored.

"Six seconds is enough time to stop the car, to move to another lane or to alert the (test car's safety) driver," Machness adds. "So why didn't it do any of this? Well, if you listen to the radar every time it tells us there's an obstacle in front, the car wouldn't move at all. And that's true with common radars."

Arbe's high-definition imaging radar and potential 2,300 channels would provide more reliable data, virtually eliminating false positives and ensuring safety systems function as designed, Machness says.

What is new in recent weeks is Arbe's January partnership deal with Qamcom and its progress toward getting the new-generation radar technology into production.

Qamcom is a Sweden-based technology specialist-application company experienced in radar, and its partnership with Arbe makes it a primary Tier 1 supplier of Arbe's radar to the sectors outside the light-vehicle market. Qamcom will be Arbe's main point of entry to commercial-vehicle, heavy-machinery applications and aerial vehicles, as well as autonomous ground vehicles (including those pod-like vehicles being used for last-mile delivery of pizza, groceries and other goods to consumers) that are rapidly growing in demand in China, Europe and the U.S.

"This market is booming right now," Machness says of AGVs. "There are many (business) activities (under way) – and many real engagements with specific (companies) that are looking to launch those (delivery) pods. And they're looking to integrate imaging radar technology, because they have a very difficult environment to work in."

Arbe forecasts demand for such applications will reach millions of units annually.

"I'm not talking about hypothetical volumes, I'm talking about companies – very famous names – that have specific plans to launch in specific cities, and they know the quantities of pods that they want to launch in each city already," Machness says.

Although he acknowledges all other radar manufacturers and a handful of newcomers will compete in that space, Machness believes Arbe is in a "very, very good place to capture the majority of this market. Wherever there's (demand) for high-imaging radar, we are in a very good position."

In terms of light vehicles, Arbe believes applications will begin to reach volume levels in retail vehicles in the 2024-2026 timeframe. Similar tie-ups to the Qamcom deal will be made with Tier 1 suppliers on the LV side, though Arbe has not revealed any partnerships to date.

Machness says he expects about three or four imaging radars will find their way onto vehicles with Level 2-plus or beyond ADAS technology but says one OEM is considering using up to seven of the sensors on a large SUV due in 2025.

First installations are expected by late 2022, and Machness says costs for entry-level units – offering five times the performance of today's technology – will be on par with current radar sensors. The top-end 2,300-channel radar will be priced in line with 192-channel competitors on the way, he says.

“(Customers) are pushing us to get (in production) as soon as possible,” Machness says. “If we had our chipset already in production, we could sell it in 2021. So definitely, (output will be under way) in second half of 2022, and then volumes (reached) in 2023.”

The ramp up to high volumes will be “pretty fast in terms of the number of customers and the volumes per customer,” he adds. “But if you're talking about tens of millions (of units), that would come with the (applications on) private cars. That's where you'll see the really high volumes of 10 million and up. And that's 2024.”