Mobileye

First Quarter 2023 Earnings Call

C O R P O R A T E P A R T I C I P A N T S

Amnon Shashua, *President, Chief Executive Officer*

Anat Heller, *Chief Financial Officer*

Dan Galves, *Chief Communications Officer*

C O N F E R E N C E C A L L P A R T I C I P A N T S

Luke Junk*, Baird*

Dan Levy, *Barclays*

Emmanuel Rosner, *Deutsche Bank*

Itay Michaeli, *Citi*

Joshua Buchalter, *TD Cowen*

Antoine Chkaiban, *New Street Research*

Samik Chatterjee, *JP Morgan*

Mark Delaney, *Goldman Sachs*

Vijay Rakesh, *Mizuho*

Adam Jonas*, Morgan Stanley*

Tom Narayan, *RBC Capital Markets*

Shreyas Patil, *Wolfe Research*

P R E S E N T A T I O N

Operator

Greetings and welcome to the Mobileye's First Quarter 2023 Earnings Call.

At this time, all participants are in a listen-only mode. A brief question-and-answer session will follow the formal presentation.

(Operator Instructions)

As a reminder, this conference is being recorded.

It is now my pleasure to introduce your host, Dan Galves, Chief Communications Officer. Please, you may begin.

Dan Galves

Hello and welcome to Mobileye's first quarter 2023 earnings conference call for the period ending April 1, 2023.

Please note that today's discussion contains forward-looking statements based on the business environment as we currently see it. Such statements involve risks and uncertainties. Please refer to the accompanying press release which includes additional information on the specific factors that could cause actual results to differ materially.

Additionally, on this call we will refer to both GAAP and non-GAAP figures. A reconciliation of GAAP to non-GAAP financial measures is provided in our posted earnings release.

Joining us on the call today are Professor Amnon Shashua, Mobileye's CEO and President, and Anat Heller, Mobileye's CFO.

Thanks, and now I'll turn the call over to Amnon.

Amnon Shashua

Hello everyone and thank you for joining our earnings call. I'm going to focus my comments on three areas. I will briefly discuss the quarter we just completed, expand on the business development progress on our advanced portfolio, and then address an adjustment to our full year guidance.

In what is still a volatile macro environment, our business performed well in Q1. Revenue was up 16% year-over-year against an industry production backdrop of around 6% year-over-year growth. EyeQ-related revenue was up 11% year-over-year and the 25,000 SuperVision units we delivered more than doubled off a low base. Average system price continues to rise, up 6% year-over-year to $54.

Operating income of $124 million was a bit higher than we expected and cash flow continues to be very robust. We generated over $170 million of operating cash flow and capital expenditures were $26 million. Anat will provide more details on this quarter.

On the new business side, the opportunities in front of us are very large across all product lines. At a high level, the pipeline of opportunities we are pursuing in 2023 is already higher than the $6.7 billion of projected future business we generated from design wins in 2022, and we are expecting more opportunities to present themselves as the year progresses. Significantly, more than half of the revenue opportunity we are pursuing is for our advanced products, like cloud-enhanced driving assist, SuperVision and Chauffeur, which carry much higher content per vehicle than our base driving assist products.

On cloud-enhanced ADAS, where we add the REM map features to a basic front-facing camera system, we have one customer in production today and a second that will launch this year. Volumes are still relatively low but are expected to ramp up quickly as the technology is offered on more and more cars as new vehicles launch. We see very positive signs in this business based on the following. First, each of the two customers so far have recently decided to offer cloud-enhanced ADAS on a bigger percentage of their vehicle portfolio, adding new platforms incremental to the original plan. Second, Euro NCAP has added cloud-based safety services to their criteria for 2026 safety ratings. This indicates regulatory support for the types of safety features that high definition rapidly refreshing maps can provide, and we believe we have a major competitive advantage in that area. Third, the economics of the business will driver higher average system prices. We generate higher upfront pricing on the system on chip and the recurring software revenue, which is very high margin, is expected to generate at least double the upfront revenue and represent more than $1 billion of potential revenue from just these two OEMs through 2030.

Moving onto SuperVision, we have a large number of serious discussions ongoing, as well as development activities. Regarding the premium European OEM we mentioned on our January call, funding from the OEM for serious production development work began earlier in Q1 and the form elimination and contract signing is now down to formalities. Additional brands of this group are expected to adopt SuperVision as the carryover technology on shared platforms. We are also engaged in the concept development phase, including funding from the customer with a U.S.-based OEM that is expected to conclude with a design win in the second half of this year.

SuperVision's combination of high performance and reasonable cost is gaining traction across the globe, including emerging markets. We see promising opportunities for design wins with several OEMs based in China and India. There is a large pipeline of interest with OEMs beyond the ones I just mentioned. We believe that continued over-the-air software delivery of features to Zeekr, announcement of design wins, and near term expansion of SuperVision into Europe with Zeekr 001 and Polestar 4 will lead to continued momentum.

On Chauffeur, we are in the midst of concept development and testing phases with two global OEMs for the Chauffeur product line. These should be concluded by late summer and early fourth quarter 2023 respectively, likely followed by announcement of design wins. Finally on our Mobileye Drive self-driving system platform, we continue to expect to generate first day revenue in this business in 2023. More importantly, we are focused on putting the pieces together to scale this business starting in 2025. This requires purpose built platforms that are pre-engineered to integrate our full stack self driving system and can be validated and homologated for volume deployment. Previously announced activities with HOLON and Schaeffler are continuing and we have added a third platform builder from a leading European supplier of light commercial vehicles. We have already outfitted 30 of their vehicles with our system to be used for validation and testing activities in Europe and in Israel, and we'll have more details to share soon.

Turning to the outlook, we are reducing our revenue and adjusted operating income guidance for the full year by 6.5% at the midpoint. This is purely related to lower SuperVision expectations in China. Most of our anticipated SuperVision volumes in 2023 come from a single model from our initial OEM customer for SuperVision. This naturally introduces volatility in our projections during the early stages of deployment for this particular product, in comparison to our broader business which is diversified over about 50 OEMs and hundreds of models across all geographies. We saw the upside of this in 2022, where volumes ended much higher than expectations and overall SuperVision revenues drove 11 points of total Company revenue growth on less than 0.5% of the volume. We are seeing the downside of this customer concentration volatility now but we are confident it has no impact on the potential for this business to be transformative as it scales over the next several years and bridges to even higher value systems, like Chauffeur and Drive. Even after the reduction, we still expect volume growth for SuperVision this year and we are fully focused on our clear path to product and regional diversification which will reduce volatility over time.

As far as diversification, a second vehicle, the Zeekr 009 launched during the first quarter and will ramp up over the course of the year. We have three more vehicles launching from other Geely-related brands in the second half of 2023 and early 2024. This includes the recently announced Polestar 4, which will launch in China in Q4 and globally in the first half of 2024. Finally, Zeekr 001, the first SuperVision vehicle that launched in November 2021 will enter Europe later this year.

Specifically to the Polestar win, this is more important than simply another car on the road with SuperVision. This is a customer that moves quickly. By the end of 2023, they plan to have launched three compelling electric vehicles in only a bit more than two years. Polestar 4 will be the first SuperVision-equipped vehicle to sell in all three major regions, which we expect will result in further traction with other OEMs. Finally, this is a really conquest win as their first two vehicles used an internal OEM developed Level 2-plus system on a processor from one of our main competitors. Overall, we feel great about the business as we look to the balance of 2023 and beyond.

I now turn it over to Anat to go through the results and outlook in more detail.

Anat Heller

Thank you, Amnon, and thanks for joining the call everyone. Before I begin, please be aware that all my comments on profitability will refer to non-GAAP measurements. The primary exclusion in Mobileye's non-GAAP numbers is amortization of intangible assets, which is mainly related to Intel's acquisition of Mobileye in 2017. We also exclude stock-based compensation.

Starting with Q1, revenue was up 15% year-over-year with both EyeQ and SuperVision volumes modestly better than expected. Gross margins were as expected. As we noted last quarter, the reduction in Q1 versus Q4 is related to the pricing pass through of the cost increase on the EyeQ chip that took place at the beginning of 2023. The dynamic here is that we are passing this cost increase through to our Tier 1 customer without any margin. This keeps gross profit per unit the same but dilutes the percentage margin.

Operating expenses were up 26% year-over-year, in line with our expectations, for approximately 30% growth for the full year. In terms of cash flow, there was nothing unusual to report. We did build some inventory of EyeQ chips which is consistent with our desire to rebuild the buffer that we had to draw down during the supply chain crisis. Capital expenditures in the quarter were consistent with our view that CapEx should be roughly similar this year versus 2022.

Turning to 2023 guidance, in terms of EyeQ related volume and revenue, our expectations at the midpoint are the same but we have tightened the range a bit on the low and high end. As you are probably all aware, general auto volumes have been a bit better than expected in North America and Europe but worse than expected in China. Our core EyeQ business is very diverse and balanced by region, therefore the outlook is consistent with where we expected to be for this year. We still believe our forecasts are supported by only about 1% global production growth and four to five points of ADAS adoption growth, very reasonable assumptions.

In terms of the quarterly cadence, based on the latest indications from Tier 1s, we have seen some movement of volumes out of Q2 and into the second half of the year. We expect Q2 EyeQ volumes to be flat to up modestly versus Q1. Regarding SuperVision, as Amnon noted, we are reducing annual volumes, which is the driver of the lower 2023 revenue and operating income guidance. Our original guidance was based on SuperVision volumes that were a conservative view of the purchase orders we had from our main customer, and that forecast was consistent with the Q4 run rate plus volume from the additional launches that Amnon mentioned earlier, but due to a number of headwinds in China that have led to significant reductions in market EV volumes compared to Q4 run rates, including with Zeekr, we are reducing expectations to levels consistent with current market dynamics.

In terms of cadence, sell-out volumes in Q1 which were somewhat lower were shipments have left some SuperVision inventory in the system, so we are assuming lower volume in Q2 versus Q1. Second half volume expectations for SuperVision is about two-thirds of the full year with Mobileye, our customers and the supply chain all aligned behind this forecast.

A couple additional points on guidance. For Q2, we expect revenue to be down slightly from Q1 as the sequentially lower SuperVision volumes more than offset modest growth in EyeQ sequentially. We still see average system price up in 2023 versus 2022 but lower than expected SuperVision volumes will make the increase more modest than originally expected. We are still assuming operating expenses are up about 30% year-over-year in 2023. We expect OpEx to grow sequentially over the course for the year but for the uptick in Q2 to be fairly modest, with larger increases for Q3 and Q4.

R&D expense growth is elevated this year with meaningful investments happening to prepare for productization and ramp-up of our many next generation products. We are investing in many areas: SuperVision and Chauffeur launch and integration teams, the sixth and seventh generation of EyeQ, pre-production samples of imaging radar and FMCW LiDAR components, and finally several facilities around the world to support headcount growth.

We continue to believe that OpEx growth will come down closer to historical levels of 20% growth in 2024. That should enable us to begin generating substantial operating leverage as the core business continues to grow and our advanced products become a more meaningful portion of revenue.

Thank you, and we will now take your questions.

Operator

Thank you.

(Operator instructions)

Our first question comes from Chris McNally with Evercore ISI.

Chris McNally

Thanks so much, team. Just want to jump in and parse through the SuperVision, on what happened, and I know you're at the mercy of customer schedules. Just a quick review, from our calcs, I think you were talking about 175,000 to 200,000 SuperVision for the year. It looks like that number is down, I don't know, 80,000 to 100,000, and since we know that Zeekr is the majority of this year, what I really wanted to try to figure out, given that they had the second half production schedule because of the component shortages, maybe you can just add a little bit of light on whether it was: one, sales, meaning are they looking at the Q1 sales that have been weak thus far and reducing the full year schedule; or two, and this wasn't brought up but is there also a potential for production issues, meaning, the second half ramp that they were expecting, the ECU component shortages, that that's a bigger problem and that's also going to reduce the sales in the second half? If you can just talk about whether it's purely sell through or if there's also a ramp issue in second half.

Amnon Shashua

Hello Chris. No, it's purely sales. Although we shipped in Q1 a higher number of SuperVision units than we expected - we expected 20,000, we shipped 24,000, but in terms of car production, they produced less, and what has happened is the reissue of the purchase order we received. At the end of 2022, we received a purchase order which was compliant with the Q4 run rate of 2022, so it looked very optimistic, and they issued a purchase order and then a material change in the Chinese market caused them to reissue the purchase order and to lower it significantly, and therefore it’s our obligation to reflect that in our guidance.

I would say that if we look at the past few weeks, the run rate—there are indications that the run rate is coming back to the Q4 run rate, but it's too volatile to make any substantial change of guidance upwards, so we are sticking to the conservative guidance change, and there is some upside to it but we need to wait and see how the Chinese market reacts in the next few months.

Dan Galves

Chris, just to clarify one thing, your view of the reduction was very close to the numbers, but the starting point was higher. If you remember, we said that we would more than double volumes this year from around 95,000 last year, so it was a little bit of a higher starting point. Just wanted to clarify that.

Chris McNally

Perfect, it makes a lot of sense. Then obviously, just because I think for the rest of the year, we're all obviously going to be somewhat focused on Zeekr volumes more so that we can think about the trajectory into 2024. Can you talk about the actual cadence, because Zeekr, obviously new company but has multiple products launching right now. It's mostly the one, but the 009, the 3DX are launching towards the end of the year. Do you still feel pretty good about that trajectory into the numbers that you were thinking about for ‘24 and ’25? Because obviously I think the capacity side ramps pretty significantly from the end of the year onwards, the ECU shortage, etc.

Amnon Shashua

Yes, so we're talking about Zeekr 009, we're talking about Polestar 4, there's additional OEMs in the Geely Group - it's all on track, so there's no reason to change guidance for 2024 on those new platforms. As long as Zeekr comes—Zeekr 001 comes back to the Q4 run rate, which as I said before there are indications that they are coming back to that run rate, I still stick to the 2024 guidance.

Chris McNally

Okay, that's great. If I just sneak one on the upside to SuperVision, it was nice to see you talk about potentially the seventh SuperVision win coming at some point, getting the full nomination this year. The premium German OEM that you talk about in the release, is that still—and you're working on SuperVision and Chauffeur, is that still thought that that could actually have production volumes for SuperVision in ’24 or is it unclear whether that would be ‘24 or ‘25 launch? Thanks so much.

Amnon Shashua

We didn't say German, we said EU, and it's really imminent. We already received NREs, purchase orders for serious development in the first quarter, and the formal nomination is really imminent, it's down to formalities. This would be SOP of 2025, so it's not going to affect 2024 volumes.

Dan Galves

Yes, and that's not a change—we've always said 2025 for that program.

Thanks, Chris. Next question please, Priscilla?

Chris McNally

Thank you.

Operator

Our next question comes from Luke Junk with Baird.

Luke Junk

Good morning, thanks for taking the questions. First question, I just want to understand the bottom line impacts of the change in SuperVision revenue and guidance, thinking mainly in terms of mix impacts to gross margin, if there's any launch cost-related considerations as it relates to R&D or similar.

Anat Heller

Regarding our margin, so we maintained the operating margin that we had in our previous guidance. This is because of two things. One is the fact that SuperVision is lowering the mix, so the gross margin is a bit higher, and also some savings around the OpEx but not material.

Luke Junk

Okay, great. Thank you for that.

Then second, can you discuss the scalability dynamics of cloud-enhanced ADAS, and particularly the comment in the press release that the technology is being expanded, and you mentioned in your prepared remarks as well two additional vehicle platforms with the first two customers beyond the original plan? How quickly can you do that? Should demand continue to track higher in terms of the engineering requirements and just the logistical considerations of ramping cloud-enhanced ADAS?

Amnon Shashua

The scalability of REM or the cloud-enhanced ADAS is almost immediate - it's basically software, it's all cloud-based. We have today four customers that are in the launch phases. Two of them are big and material - this is why we mentioned this north of $1 billion of potential revenue from those two customers throughout this decade. This is the first time that we are mentioning revenue from REM, so this is material from our perspective. Scalability of REM is immediate. There's no issue of logistics.

Dan Galves

I’d just follow up on one thing, Luke, is that the way our programs typically work is the system is targeted to a specific launch vehicle that is timed with the cadence that the OEM has, right, so a new vehicle coming out, it gets the new ADAS system and then it spreads to another vehicle and another vehicle based on the product cadence.

What's happening here is the customers have decided to expand cloud-enhanced ADAS to more vehicles, so maybe—I'm just making up numbers here, maybe you would have six or seven vehicles over a two or three-year program, or two or three-year launch period that would get the technology. They've added other vehicles to the plan as well, so that's really what's happening here.

Luke Junk

Okay, great. Thank you for that. I will leave it there.

Dan Galves

Thank you, Luke. Next question, please.

Operator

Our next question comes from Dan Levy with Barclays.

Dan Levy

Hi, good afternoon to you. Thank you.

First, wanted to just start—as we think about the go-forward modeling of SuperVision, is it fair to say that at least for the foreseeable future, just given the limited model concentration, that there might be some volatility in the results? Said differently, what's the timing for this to be maybe a bit more diversified in the different model sources and for there to be a little less quarterly volatility? It sounds like you have to wait for the European automaker win to come in, in ‘25. I know you talked about another western OEM, so it might still be a couple more years. Is that a fair assessment?

Amnon Shashua

I think 2024 should be better in terms of the volatility. It will still be volatile, more volatile compared to our normal EyeQ business, which is over 50 different OEMs and hundreds of car models, so things balanced out there. Twenty-twenty-four, we will have close to six different car brands compared to one car brand that we had so far, so this should ease up a bit of volatility.

It will be not only China, but global. Polestar 4 is global, it's not only the Chinese market. 2025 should be even better because then we will have additional OEMs, western OEMs launching. It's not only the EU car maker. We are in the final stages of additional OEMs, global OEMs, so I think 2025 will be even better from a volatility perspective, but still not at the volatility of our normal EyeQ business. I think things will taper out in 2026 in terms of volatility.

Dan Levy

Just on this, can you remind us that the models that you have, are you standard fit on those models or is there a take rate assumption that needs to be made?

Amnon Shashua

Zeekr 001 is a standard fit. Every car being produced comes with the SuperVision, and I think all the others are also standard fit.

Dan Galves

Polestar is …

Amnon Shashua

Polestar 4 is also standard fit. I think Zeekr 009 is also standard fit. I think all the launches we are having so far, 2023, 2024, are all standard fit.

Dan Galves

Yes, it may not stay that way forever, right, with every brand, but so far that's the way it's been sold.

Dan Levy

Okay, thank you. Then just as a follow-up, I know that part of the SuperVision value proposition is there is a software component and a bit more of a hardware component, and that's how you get these elevated ASPs. Maybe you can just provide us with an update on where discussions are with automakers on software-only solutions which would maybe produce some of the ASP but have richer margins, versus combined software-hardware. Are you still seeing uptake to have the full domain controller included in your offerings?

Amnon Shashua

We are agnostic to it - that means that the margins on the hardware are very, very small. It's not something that is really material to us. All the examples we gave so far, we are providing the ECU. There are a number of opportunities that we are pursuing, which is what you call software-only - just the EyeQ and the software because it comes with additional functions driven by the OEM, so we are really agnostic to it. There will be opportunities with the software-only, so higher margins, lower revenue, of course.

Dan Levy

Understood, thank you.

Dan Galves

Thank you, Dan. Next question, please.

Operator

Our next question comes from Emmanuel Rosner with Deutsche Bank.

Emmanuel Rosner

Thank you so much.

First, I was hoping if you could just put a final point on this SuperVision outlook for this year and perhaps what's embedded or unchanged for next year, just so we can get a better assessment of the ongoing volatility risk and what's basically currently in the guidance. Are you able to just quantify what is the volume assumption at this point for 2023 and the unchanged one for 2024? In terms of what's happening on the ground, to what extent do you feel it is essentially a little bit of a softening on the EV market versus maybe competitive pressure, like essentially Tesla cutting prices and so on?

Dan Galves

I think we're not going to go through the cadence of forecasts. We provided a forecast during CES and Amnon already addressed our views on 2024, so I think like we said, we’re not changing any of those forecasts. Assuming that Zeekr 001 can get back to the Q4 run rate, things look good, but —it was prudent for us to reduce expectations this year to where volumes have been seen so far.

What was your second question again?

Amnon Shashua

About the EV market in general in China.

Dan Galves

Okay, yes. The EV market in general in China, are you asking about what's been the environment so far this year?

Emmanuel Rosner

Yes, I'm just curious to what extent do you have color around some of the dynamics which are pressuring the schedule you're getting from your customers? Does it seem to be broader EV demand dynamics versus market share pressure?

Dan Galves

Yes. Yes, I understand. Definitely. Wholesale is—so I think China is always hard to figure out because you're getting various levels of data. Usually what you see in the headlines is wholesale data, so shipments from factories to dealers or you can get production data, and what ultimately really matters is how many cars were actually purchased by consumers, and that's the data that's most difficult to get.

If you look at the overall market in China during Q1, it was down 8%. EVs were a little bit better but not much, but if you look at the market sequentially, EVs lost share in Q1 versus Q4 and were down more than 30% sequentially. What you don't see from those headline numbers is that the gap between sell-in to dealers and sell-out to consumers widened to what looked to be record levels in Q1. I think it's well known that the major EV player dropped prices significantly early in Q1. We had some subsidies that were reduced, and general economic weakness, that's what we really attributed to the very weak volumes in Q1.

The good thing is that market conditions improved somewhat in March and look to be improving further in April. This is consistent what we're being told by Zeekr, that their retail order flows improved a lot since mid-March, so things seem to be getting better and we're encouraged by that, but it was more effective for us to reduce the expectations to where we saw the sell-out during Q1.

Emmanuel Rosner

Great, I appreciate the color.

Then second topic, can you just remind us the pricing and unit economics for cloud-enhanced ADAS, and just put a finer point around the expected progression of revenues for you?

Amnon Shashua

The cloud-enhanced ADAS doubles the ASP that we get for cars on the EyeQ, so it's a few tens of dollars per car per year on the cloud-enhanced software, and we are up to—as we mentioned in the earnings script, with two customers, north of $1 billion projected revenue until the end of this decade.

Dan Galves

You have to make some assumptions on how long you get the licensing revenue, and in some cases that's based on whether the customer pays for it, whether the end user pays for it for a long period of time, but we think that it at least doubles the revenue per unit on the vehicle. The licensing revenue would result in twice as much as we get for the upfront cost for the EyeQ. A billion dollars is just—that's just representing the licensing revenue.

Emmanuel Rosner

Perfect, thank you so much.

Dan Galves

Thanks, Emmanuel. Next question, please.

Operator

Our next question comes from it Itay Michaeli with Citi.

Itay Michaeli

Great, thank you. Hi everybody. Just two SuperVision questions for me.

First, just to clarify on the outlook for the year, so are you effectively extrapolating the software Q1 demand and the purchase orders for the rest of the year, or are you getting some incremental visibility from your customer about what production schedules should look like for the rest of the year? Just trying to get a bit—just want to clarify exactly on the latest forecast.

Amnon Shashua

I think the guidance change is not based on forecast, it's based on reissuing the purchase orders we got from Zeekr, so this is purely reissuing of purchase orders. When we look at the run rate in the past few weeks, there are indications that we're getting back to the run rate of Q4, which was a very good volume, and so things look more optimistic than they looked two or three weeks ago. But again, we need to be prudent. There was a reissue of purchase orders to a number slightly higher than what we are guiding, and we feel it's better now to be prudent and hope for the upside down the road.

Itay Michaeli

That's very helpful, and then just a follow up on SuperVision. Can you update us on what the ODD looks like? I know there was some OTA updates that you were expecting to implement this year, maybe just where we stand on those.

Amnon Shashua

We have continuous OTAs with Zeekr. This week there's going to be another major OTA, where they're out of the fleet of more than 100,000 vehicles, there are a few hundred with full capability with the navigate on pilot, which they call NZP. In June, there's going to be another OTA in which the entire fleet is going to be activated with NZP.

In the meantime, the existing software suite has been tested by insurance agencies and has received the highest score. To receive the highest scores ever recorded in driving assist ranking by the Chinese Insurance Automotive Safety Index - that's equivalent to the American IHS - so things look good in terms of the quality of the driving assist that is being launched and being deployed, and really soon full NOP would be activated for the entire fleet, including REM, including everything. Right now, it's a few hundred of vehicles, lead customers.

Itay Michaeli

Perfect, that's very helpful. Thank you.

Dan Galves

Thanks, Itay. Next question, Priscilla, please.

Operator

Our next question comes from Joshua Buchalter with TD Cowen.

Joshua Buchalter

Hey guys, thanks for taking my question.

I'm sorry to keep drilling down on the SuperVision near term issue, but I did want to clarify. It sounds like the math that we were working with before was you're essentially cutting SuperVision volume outlook for this year by the equal amount that shipped last year. I just want be precise, is this essentially all sell-in to the Zeekr 001 due to low demand? It's just surprising, given it was supposed to be supply constrained in the first half, that there would be that material of a cut to volumes already this early in the year. Thank you.

Dan Galves

Yes, so I think that—I can try to take this one. I think the purchase order that we received from the customer, the forecast that we had from the customer …

Amnon Shashua

The purchase order.

Dan Galves

… yes, the purchase order assumed that the Q4 run rates of volume, which was 150,000 on a run rate basis, would continue through this year, and then it contemplated more launches of additional vehicles coming in the second half. The rate, in line or a bit worse than the rest of the market, in China came down by about 50% in Q1. As Amnon said, there's been encouraging signs that it's moving back towards that Q4 run rate, which would be positive, but based on the selling rate that we saw in Q1, the purchase order was reduced to the level that we're assuming right now.

It did contemplate new launch vehicles which are still on track, but I think that the market conditions in China are worse than expected, so really it didn't have anything to do with the supply constraint. It was just a matter of what was the rate that they were selling vehicles, and that's really the bottom line.

Joshua Buchalter

Okay, but the launches of the non-Zeekr 001 are still on track? That was the crux of the question.

Dan Galves

That's right.

Joshua Buchalter

Okay, and then for my follow-up …

Dan Galves

Yes, they are.

Joshua Buchalter

Then for my follow up, you called out that the Polestar 4 has essentially switched to Mobileye, versus a prior generation with a competitor. Can you talk about differences in the vehicles and why they went with the SuperVision solution on the 4 versus the competitor on the 3? Thank you.

Amnon Shashua

Well, I can speculate, but it's not my role to speculate why they shifted from one technology to another. I think SuperVision has been proving itself considerably and this could be the reason why they switched.

Dan Galves

I think also they're connected with Zeekr, they're Geely-related, and the Zeekr launched in—primarily in late '21 and early '22, and that was the right cadence to see what it was doing and to fit to this Polestar 4.

I'd also point out that the Polestar 4 is a significantly lower price vehicle than the 3, so it points to the affordability as well as the performance of SuperVision.

Joshua Buchalter

Got it, thank you.

Dan Galves

Thanks, Josh.

Operator

Our next question comes from Antoine Chkaiban with New Street Research.

Antoine Chkaiban

Yes, hi. Thanks a lot for taking our questions.

I'd like to follow up on the comment regarding additional momentum that you're meeting in your cloud-enhanced business compared to the original plan. I had estimated around 700,000 units in 2022 based on the number of data points that you had provided on your REM install base, and I was forecasting that about doubling in 2023. Does today's announcements mean that there could be upside to that number? Anything you can tell us, and whether I'm in the right ballpark would be very useful. Thank you.

Dan Galves

We haven't really disclosed any forecast for cloud-enhanced ADAS, Antoine, per year, so we can't really answer that question. All we can say is the customers are clearly seeing value there, because they're choosing to add it to more platforms than the original plan accounted for.

Antoine Chkaiban

Okay, thank you very much. Maybe as a follow-up, maybe on your comment around recurring software licensing revenues that you expect will represent approximately double the upfront price of the EyeQ, what kind of take rate is baked into that assumption?

Amnon Shashua

No, we're talking about doubling the price of the EyeQ per car that adopt cloud-enhanced ADAS, so what—the figure that we gave of about one—north of $1 billion assumes the take rate that we receive from our customers.

Dan Galves

From the customers, and also we assume—because some of this requires the end user to continue to pay on an annual basis after the first three years, let's say, and we're assuming an average of four years for anyone who has the technology. The current customers are—it's covered for three years and then the customer has to start paying, so we're assuming a four-year weighted average that we would continue to get the licensing. That's what goes into the $1 billion.

Antoine Chkaiban

Perfect, thank you.

Dan Galves

Thanks, Antoine. Next question, please.

Operator

Our next question comes from Samik Chatterjee with JP Morgan.

Samik Chatterjee

Hi, thanks for taking my questions. A couple quick ones.

Maybe if I can start with the business dynamics excluding China, because it seems like most of the reduction in the guide, or almost all of it is from the China market weakness, but maybe if you can talk through the dynamics of the business excluding that. Particularly you mentioned North America production coming in better, which we've seen, but you also, I think, mentioned some movement of orders from 2Q into the back half. Not sure which geography that was meant for, but if we take the China piece aside, China weakness aside, what are the underlying drivers? Would we have seen upside for the full year, or any color there what you're seeing in terms of just the business dynamics? Then I have a follow up, thank you.

Amnon Shashua

Rest of the world, we don't see any change. We are in continuous contact with our customers, the Tier 1s, about trying to balance out from a quarter to quarter, but the yearly commitment is unchanged and according to the same guidance that we gave back in January.

Samik Chatterjee

Okay, great. Then just on SuperVision, just digging into the pace of wins here - I mean, with some of the new wins that you have in the pipeline, are these still being discussed as standard fits or where you would be sold as an option, and is the business model where the consumer pays for it after a period of time, is that at all a hurdle in OEMs adopting SuperVision quickly? What would probably, in your mind, get SuperVision to be adopted faster, OEMs to transition faster to SuperVision as a solution? Thank you.

Amnon Shashua

Right now, the growth that we see is in the number of OEMs in which we have serious engagement to adopt SuperVision, and we're not focusing on whether it's going to be optional or standard fit. But I would say so far all the opportunities that we are discussing are all standard fit, but again, it's not mandatory. There could be opportunities where it's optional and not standard fit. It depends basically on the premium level of the vehicle. The higher the premium level of the vehicle, the more likely is SuperVision to be standard fit.

Samik Chatterjee

Thank you.

Dan Galves

Thank you, Samik.

Operator

Our next question comes from Mark Delaney with Goldman Sachs.

Mark Delaney

Yes, thank you very much for taking the questions.

The press release comments on the potential nomination with a U.S.-based OEM for SuperVision in the second half of this year. What do you think would have to happen for that nomination to be completed, and if successful, when do you think serious production may begin?

Amnon Shashua

We are in serious engagement of a concept phase with significant testing that are going very well, so we are hopeful and optimistic that it will conclude in a nomination towards the second half of the year.

Dan Galves

Then the SOP is late '25.

Amnon Shashua

The SOP is '25 - yes, late '25.

Mark Delaney

Okay, that's helpful, thanks.

Then you commented, if I heard correctly, about the timing for EyeQ shipments and some that may have been in 2Q pushing into the second half. Could you elaborate a little bit more on what might be happening there? Is that more due to global production schedules, is that also some of the China issues you've been referring to? Any more context on that topic will be helpful, thanks.

Anat Heller

Yes, so it's probably something to do about their inventory level and considerations versus demand, and this is the information that we have, so they shifted part of their volume - it's not very significant - to the second half of the year.

Amnon Shashua

Yes, but the commitments we have from our Tier 1s is on a yearly basis, not a quarterly basis. But we are in a very good discussions and trying to balance their commitment from quarter to quarter rather than lumping it into one or two quarters towards the end of the year. We managed quite successfully to reach a point in which the change in second quarter is really minimal.

Mark Delaney

Thank you.

Operator

Our next question comes from Vijay Rakesh with Mizuho.

Vijay Rakesh

Yes, hi Professor Amnon and Anat. Just on the SuperVision side, I know you mentioned Zeekr and Polestar are standard fit, but can you talk to what your thoughts are on the competition? Are you seeing any impact from Horizon or any of those guys getting in on the autonomous side, or are they more still on perception level two? Any thoughts on that?

Amnon Shashua

I think the Horizon Robotics and others are more on the level two. I haven't seen the level of SuperVision there, but there is competition. Competition are having a hard time with the high definition maps. They come to see the value of crowd-sourced map making, to the point where they are starting to talk about Mapless solutions as an advantage rather than admitting that they hit a wall in terms of ability to build the high definition maps. This only strengthens our position as a company that has been working for years in making efficient use of crowd-sourced data to create map data that allows us to get a high meantime between failures in our perception systems. I believe that looking at the response I get from the OEMs and the opportunities we're pursuing now with OEMs, that we are in a very good competitive position.

Vijay Rakesh

Got it, and then as you look at 2024, I saw you maintained the guide, but when you look at SuperVision at 300,000 units, I think you mentioned six OEMs, do you expect the ramp for the additional four OEMs or five OEMs in 2024 to start in the first half, or how do you see that spread out? Thanks.

Amnon Shashua

Well, guidance for 2024 is intact. It's assuming that Zeekr 001 goes back to the Q4 of last year run rate. The guidance for 2024 seems intact, and as I said before, we see good signs that they are coming back to their Q4 run rate. At this point in time we feel confident in the 2024 guidance for SuperVision, but we need to wait and see what happens in the Chinese market.

Dan Galves

Yes, and the customer launches are set. The customer launches are set, so we have a second Geely brand launching a vehicle in the third quarter, then we have Polestar 4 in Q4 this year, then we have another Geely-related brand launching a car in the first quarter of 2024, so that's really what's in place right now and that's what supports the outlook.

Vijay Rakesh

Got it, thanks a lot.

Dan Galves

Thanks, Vijay.

Operator

Our next question comes from Adam Jonas with Morgan Stanley.

Adam Jonas

Hey everybody. Just first question, can you confirm that SuperVision is not on any ICE platforms? I think our assumption for folks on this call would be that, given it would be coincide with all-new architectures and software architectures, that SuperVision would be basically 100% the EV platform. I just wanted to confirm that.

Amnon Shashua

Yes, yes. So far, it's on EV platforms. There's no reason why it cannot be on an ICE platform …

Adam Jones

Of course.

Anon Shashua

… but so far all the opportunities we have are EVs.

Dan Galves

But we haven't discussed at all about the western OEMs that we feel good about booking, yes.

Adam Jonas

Understood. Just as a follow up, sometimes—I think auto analysts on this call are used to seeing things that start in China and then could spread to other regions, and I'm referring specifically to Tesla's price cuts and willingness to maybe run the business for a loss - maybe even a cash loss, who knows? - for competitive reasons. You've addressed this in different ways that you're not seeing any sign right now, but just thinking beyond what your OEM customers would tell you in a production schedule, which of course can change based on what the consumer wants ultimately as the arbiter of what goes into the car and the numbers, what gives you confidence that what's going on in China doesn't spread to Europe and the U.S. in the EV market? Thanks.

Amnon Shashua

I'll tell you, I see a silver lining in the Tesla approach, because the Tesla approach says that they want to make all their money from FSD, from autopilot, so this shows that the value proposition of SuperVision is only increasing. If you can flip the argument, the fact that you'll not be able to make money from the car, you'll make money only from the sophistication of the SuperVision, would push more car brands to adopt the SuperVision, so I'm not sure that the Tesla strategy right now goes against our interests or goes against our revenue pipeline going forward.

Adam Jonas

Okay, Amnon, thanks.

Dan Galves

Thanks, Adam.

Operator

Our next question comes from Tom Narayan with RBC Capital Markets.

Tom Narayan

Hi, yes. Thanks for taking the question. Sorry, I've got one more on the SuperVision guidance.

I know you said the Polestar 4 is not going to be in the Chinese market in 2024, but the other ones that, Dan, I think you just went through them in China, you mentioned Zeekr is tracking better in recent weeks. Could you comment on how those other ones have been faring in recent weeks, or how they have been relative to the softness that you're seeing?

Dan Galves

Yes, there's only one other vehicle that SuperVision is shipping on right now, which is the 009, which is really just in ramp mode. I think it launched sometime in February, so we've seen progressively better volumes there. But that's a higher price vehicle, that won't be as big of a seller as Zeekr 001, so, yes.

I think what—I dug into these numbers, as you can imagine, pretty deeply, and we saw pretty consistent significant sequential reductions in vehicle models, not ones that have SuperVision but across the board in Q1, and then you've started to see an uptick in volumes over the last month into April. That's what it's looking like so we will see what happens. We're not really assuming that continues, but encouraging signs.

Tom Narayan

Okay, and if there is a further market deterioration in China in 2024, would—is a lever that you would play cutting SuperVision pricing or would that—is that not something that would happen?

Amnon Shashua

Yes, I think the value of SuperVision as a cash generation for car selling would only increase in this price war, so there's no reason to reduce pricing of something that is going to be the most important element in the value proposition of a car.

Dan Galves

Yes, we don't think that the weakness has anything to do with the pricing of our technology. In fact, I think we would assume that as the features expand through over-the-air updates, like Amnon was talking about, that the demand for—that that would be incremental, that would lead to incremental demand for the cars that they're on, so that would be encouraging as well.

Tom Narayan

Okay, and then my last one is we have the European OEM SOP for 2025, the U.S. OEM nomination. I think folks would benefit from understanding the scope of the conversations you're having on SuperVision with other OEMs, just maybe to give a sense of—I don't know if you could say how many folks you're talking to, just a breadth of the scope of the kind of conversations that you're having.

Amnon Shashua

We are in serious engagement in Japan, we are in serious engagement in India and there are more EU engagements, so I believe that throughout the 2023, there'll be more serious nominations.

Dan Galves

Thanks, Tom. Priscilla, this is going to be our last question, please.

Operator

Our last question comes from Shreyas Patil with Wolfe Research.

Shreyas Patil

Hey, thanks so much for taking my question. I thought maybe just I could pivot back to the base ADAS business, specifically as we're thinking about 20—as we're looking at the exit from '23 into '24. It does look like you have a couple of important launches coming, including with Toyota, and then, as you mentioned, some of the additional wins with your cloud-enhanced customers. Just wondering if you can help us think about the incremental uplift that we could be looking at into next year from those wins. Thanks.

Amnon Shashua

(Inaudible), what have we given them?

Dan Galves

Yes, we haven't disclosed. I think the question is around, do we see—I think 2023 is—the climate economically is challenging. I think the Tier 1s are uncertain and want to really take a close look at volumes.

We do see 2024 as an important year as cloud-enhanced ADAS continues to ramp, as adoption rates of ADAS continue to climb. I think we mentioned in the press release that the safety protocols in the EU are starting to include some waiting for cloud-based safety services, which is right in the sweet spot of cloud-enhanced ADAS, so we're really encouraged about the future into 2024, and of course more models, more diversification of the SuperVision business, these should all be benefits.

Shreyas Patil

Okay, great. Then just quickly on—I'm thinking with regards to SuperVision and your conversations with OEMs, maybe if you can help us dimension the number of OEMs that you're having conversations with, and to what extent is the EyeQ kit really helping you in terms of making inroads? Obviously we know a number of automakers are looking to take a larger role in the software development of the ADAS system.

Amnon Shashua

We are engaged now with about five different OEMs. Two of them, EyeQ kit is an enabler for the discussion. With the other three, it's a black box closed solution.

Shreyas Patil

Okay, great.

Dan Galves

Thank you, Shreyas.

Amnon Shashua

Thank you.

Dan Galves

Okay, thanks, everyone, for joining our earnings call. We will talk to you next quarter. Thanks very much.

Operator

This concludes today’s teleconference. You may disconnect your lines at this time. Thank you for your participation.