



Akoustis Technologies, Inc.

Second Quarter 2020 Investor Update Call

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

Tom Sepenzis, *Vice President, Corporate Development and Investor Relations*

Jeff Shealy, *Founder and Chief Executive Officer*

Ken Boller, *Interim Chief Financial Officer*

Dave Aichele, *Vice President, Business Development*

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

Cody Acree, *Loop Capital Markets*

Anthony Stoss, *Craig Hallum Capital Group*

Rick Schafer, *Oppenheimer*

Suji Desilva, *ROTH Capital Partners*

Matt Farrell, *Piper Sandler*

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

Operator

Good day, ladies and gentlemen, and welcome to the Akoustis Technologies Business Update Conference Call.

As a reminder, this conference call is being recorded. At the conclusion of the Company's presentation, Akoustis' Management will take questions. To ask a question, please press star, one on your telephone keypad to be placed into queue. A replay of the call will be available on the Investor section—Relations section of the Akoustis website.

I'll now turn the call over to Tom Sepenzis.

Tom Sepenzis, *Vice President, Corporate Development and Investor Relations*

Thank you, Operator, and good morning to everyone on the call. Welcome to Akoustis' Second Quarter Fiscal 2020 Business Update Conference Call.

We are joined today by our Founder and CEO, Jeff Shealy, Interim CFO, Ken Boller, and Executive Vice President of Business Development, Dave Aichele.

Before we begin, please note that today's presentation includes forward-looking statements about our business outlook. All statements other than statements of historical facts included during this conference call, including statements regarding our strategies, operations, costs, plans, and objectives, including the timing and prospects of product development and customer orders, our expectations regarding achieving design wins from current and future customers, the possibility of entering into collaborative or partnering relationships and guidance regarding expected revenue for the current fiscal quarter, are forward-looking statements.

Such forward-looking statements are predictions based on the Company's expectations as of today and are subject to numerous risks and uncertainties. The Company and our Management team assume no obligations to update any forward-looking statements made on today's call. Our SEC filings mention important factors that could cause actual results to differ materially. Please refer to our latest Form 10-K filed with the SEC to get a better understanding of those risks and uncertainties.

In addition, our presentation today will also refer to certain Non-GAAP financial measures. A reconciliation of these measures to the most directly comparable GAAP measures is presented in our Earnings Call Highlight Release available in the Investors Section of akoustis.com.

I would now like to turn the call over to Jeff Shealy, Founder and CEO of Akoustis.

Jeff Shealy, *Founder and Chief Executive Officer*

Thank you, Tom, and welcome everyone to our 2020 second fiscal quarter business update call. I'm happy to report that this morning we announced our first commercial volume order from a tier-1 customer for 5G network infrastructure in the sub-6 GHz spectrum for small-cell base station application.

We are starting pre-production shipments this quarter and expect to initiate commercial ramp for this filter beginning in the June quarter. Today's announcement marks an enormous milestone in commercial achievement for Akoustis. I think it is worth noting that we were able to progress from design kickoff to a commercial order inside of six months, truly a testament to the extent of how far we've progressed in our IDM business model leveraging our patented XBAW filter technology.

I'm also pleased to report that we achieved every critical milestone we previously laid out for the December 2019 calendar quarter. We have organized today's call to give you both a progress report and targeted milestones on each of our four main filter market segments boasting 5G network infrastructure, 5 GHz hi-band WiFi, Descent, and 5G mobile handsets.

In addition, our Interim CFO, Ken Boller, will provide an update on our financial results. Finally, I will highlight our expectations and milestones beyond the December quarter.

First, I would like to start with our achievements in the 5G Network Infrastructure Segment where high power handling capability, low insertion loss, and high out-of-band rejection are critical product performance features. Such high performance delivered in a small form factor, as well as our existing RF Filter Portfolio above 3 GHz where 5G is being deployed worldwide, ideally positions Akoustis to be an early leader in high performance BAW filters for the 5G network.

Today we have multiple customers and multiple segments of 5G network infrastructure including two tier-1 customers. As I previously mentioned, today we announced our first volume commercial order for 5G small cell network infrastructure filter applications. Today's announcement is a significant achievement for Akoustis as it marks the first volume commercial order the Company has received for its proprietary and patented XBAW RF filters in the infrastructure market.

The orders from our second tier-1 network infrastructure customer for high frequency BAW filters targeting the 5G network band n77 in the Asia market. We expect to begin shipping preproduction RF

filters this quarter, ramp commercial production in the 2020 June quarter, and see a multi-year runway with significant revenue.

In addition to the 5G network band n77 filter, we also have developed and sampled the 5G network filter for band n79 for the same tier-1 customer. Importantly, we expect a second volume order from this customer for 5G network filters by the end of June, 2020.

With respect to our first tier-1 5G network customer, we recently received a second development order for high-performance, high-frequency XBAW filters for the 5G network. Akoustis was chosen to develop micro acoustic XBAW filters for this customer given our ability to provide an ultra-small form factor solution while satisfying the challenges of difficult RF specifications and delivering high-power handling.

At this stage, these filters are expected to ramp into production beginning around mid-calendar 2020. This customer continues to evolve its platform so we believe we are now more closely aligned with performance characteristics that can work within its 5G architecture.

Another 5G network infrastructure opportunity that we did not discuss in the December quarter milestone is the Citizens Broadband Radio Service or CBRS infrastructure market. Last week we announced we have completed development and design lock of our first 3.6 GHz CBRS infrastructure filter.

This coming June, the FTC will begin to auction new CBRS Spectrum known as Priority Access Licenses, or PALs, that operate between 3.55 and 3.7 GHz. The CBRS band will provide cellular carriers new and additional sub-6 GHz spectrum and can be a key enabler for making 5G deployments possible by providing last-mile data service and improved coverage of individual networks.

The good news for Akoustis is that the utilization of CBRS bands within the 5G network will likely require a significant amount of high frequency filters to deal with a multitude of coexistent issues. To our knowledge, Akoustis is the only supplier providing BAW filters for this application, and we are receiving positive feedback on the performance and size of our XBAW filters.

Given the current lack of microfilter solutions that can target this high frequency spectrum, CBRS represents another new first-to-market green-filled RF BAW filter opportunity for Akoustis.

In December, we sampled filters to three potential CBRS customers, and expect that number to double over the course of calendar 2020.

In conclusion, the number of opportunities we are seeing in 5G network infrastructure are expanding and we expect many carriers will begin deploying sub-6 GHz networks throughout calendar 2020. We believe that 5G network infrastructure filtering needs played right into our sweet spot and that our current 5G infrastructure customers will deliver Akoustis significant revenue growth over the next 12 months.

I would now like to discuss our opportunities emerging in our WiFi business. Today Akoustis continues to have the first and only tandem 5 GHz WiFi BAW micro coexistence filter solution. Specifically we now offer both a 5.2 GHz and 5.6 GHz microfilter solution for the tri-band WiFi CP Market which we expect will grow into a high volume market with the goal of delivering significant revenue growth over the next 12 months and beyond.

In the first half of calendar 2019, we introduced the world's first 5.2 GHz BAW WiFi coexistence filter operating in a U-NII 1 plus 2A band. By June of 2019, we had sampled our 5.2 GHz filter to over 15 potential customers including SoC makers, RF frontend makers, OEMs, ODMs and distributors.

In July of last year, we introduced the world's first 5.6 GHz WiFi coexistence filter with wide bandwidth covering the entire 345 megahertz U-NII 2C+3 band. This 5.6 GHz filter specification is extremely challenging as it simultaneously requires high frequency operation, wide bandwidth and high rejection

performance, enabling simultaneous 5 GHz dual band operation. Our ability to meet this difficult specification is a testament to our patented XBAW technology.

From a supply chain standpoint, we have been able to significantly reduce the time to market for our 5.6 GHz as it leverages the same high volume packaging as our 5.2 GHz filter solution.

In the December quarter, we delivered on several important milestones. We were able to complete the internal qualification of our 5.2 GHz filter product and lock in the design in process for the 5.6 GHz filter, enabling us to accelerate shipments of preproduction 5.2 GHz and 5.6 GHz WiFi coexistence filter solution to multiple customers.

We are now shipping preproduction filters and tracking multiple active engagements with OEM (inaudible) including tier-1 Enterprise Class WiFi OEM, two reference design partners/SOC makers, two distribution partners, and one channel partner. Our team has done an excellent job filling our sales funnel and we are now in the advanced stages of the sales cycle with several customers and expect one or more production design wins over the coming months.

We remain on track to commence commercial production for WiFi customers in the second half of 2020.

Moving on to the defense segment, the transition to high-volume packaging in our defense products in early calendar 2019 led to the successful ramp of our 3.8 GHz filter for the defense market during the June quarter. We filled three open orders in the June quarter for our 3.8 GHz filters, receiving positive feedback from our customer. We have received additional orders and expect our customer to utilize the filter in multiple new design over the coming quarter.

Since the successful delivery of our 3.8 GHz filter, our customer awarded Akoustis with a follow-on order to develop five additional S-Band filters for new Phased Array Radar Systems. Each of these five new filters operate within the 2-to-4 GHz spectrum. Our team did an excellent job and, as we announced in early January, delivered all five of the new S-Band filters on time and in under six months. We still expect to enter production with our customer with these new S-Band filters in calendar 2020.

Finally, in the handset market, we secured our first 5G mobile customer engagement in June of 2019 with a tier-1 customer who contracted us to develop an XBAW filter in the sub-6 GHz frequency band for 5G mobile handsets. We delivered our first 5G mobile filter sample to the customer in just two months, and given the performance of that filter, our customer responded early in the September quarter with a new order to develop two additional 5G filters in the ultra high-band frequency sector. For clarity, all three filters target the performance and form factor necessary for 5G handsets.

We successfully delivered the two additional 5G filters to the customer in the December quarter. That customer is currently evaluating our filter for use in future 5G platforms. The dialog remains active with this customer, and we look forward to discussing our progress in the coming months.

The mobile handset market is our largest potential BAW filter market opportunity by both unit volume and revenue. It is worth noting that our XBAW filters have already been evaluated by several select top tier-1 and tier-2 mobile handset OEMs. But, as I have stated previously many times, Akoustis does not intend to enter the tier-1 handset market without a partner, at least in the foreseeable future.

However, we believe with the ongoing 500% capacity expansion of our New York fab, that we will have the wherewithal to enter the handset market servicing a tier-2 handset OEM without a partner.

We recently had another very important achievement as we completed our first wafer-level-packaging, or WLP, demonstrator. In December, shipped WLP samples to a multi-billion-dollar tier-1 mobile device OEM. This initial demonstrator leverages Akoustis' existing 5.2-GHz WiFi filter technology that is

approximately 260 times smaller than the existing dielectric resonator filters used primarily in infrastructure applications.

Once completed, this new package will enable us to deliver filters with the form factor required for mobile wireless devices, giving the Company the opportunity to compete in several large markets including mobile 5G handsets, tablets and laptops, amongst other devices.

Now, I would like to turn the call over to Ken to go through select financial highlights.

Ken Boller, *Interim Chief Financial Officer*

Thank you, Jeff. For the December quarter, we reported revenue of \$518,000, in line with prior guidance. As anticipated, total revenue was flat quarter-over-quarter despite rapid filter revenue growth as we experienced the expected fall off in non-core MEMS-related revenue. Importantly, XBAW filter-related revenue grew sequentially 83% quarter-over-quarter. Currently, we have concluded nearly all non-core MEMS foundry related business to allow our future capacity to be dedicated to our XBAW filter product line at our fab in Canandaigua, New York.

I'm happy to report that during Q2, we successfully raised over \$32 million net in cash from the issuance of common stock which will be used to fund operations and capacity expansion. Having a healthy balance sheet gives our customers greater comfort that we can support their needs now and into the future.

On a GAAP basis, operating loss was \$7.9 million for the December quarter, mainly driven by labor costs of \$4.8 million, depreciation of \$0.7 million and other one-time GAAP expenses and operational costs totaling \$2.4 million. As a result, our GAAP net loss per share was \$0.30.

On a non-GAAP basis, operating loss was \$6.3 million and non-GAAP net loss per share was \$0.21. Our cap ex spend for Q2 was \$2.6 million compared to \$1.6 million for the prior quarter, primarily related to the targeted 500% expansion in our New York fab. Cash use and operating activities and cap ex in Q2 was \$8.8 million. We exited the quarter with \$46.4 million of cash on the balance sheet that was after successfully raising the net \$32.2 million mentioned earlier.

Now, I will provide guidance for the March quarter. We believe revenue will remain relatively flat on a sequential basis as we continue to grow our product portfolio ahead of production ramp we expect in the second half of Calendar Year 2020, the 5G network of infrastructure, WiFi's EPE, and defense filters. Foundry revenue will have no impact on the model going forward as we have reached end-of-life with our former customers in preparation for internal growth in our facility.

I will now turn the call back over to Jeff to discuss our forward outlook.

Jeff Shealy, *Founder and Chief Executive Officer*

Thank you, Ken. We continue to have success achieving our target milestones across each of our market segments. I will begin with our new target milestones for the 5G network infrastructure market. Our target milestones for the March quarter include receiving our first volume order for small cell base station filters which we announced this morning. Additionally, we expect this same customer to deliver a second volume infrastructure order by the end of the June quarter. And, finally, we expect to deliver our design (inaudible) BAW filter to our first tier-1 infrastructure customer by the end of the June quarter to support a volume ramp in the second half of calendar 2020.

I will now move on to the WiFi market. In our WiFi business, we expect to receive our first design win by the end of the June quarter. We also expect to deliver our first WiFi 60 filter sample by the end of June. WiFi 60 is a new developing standard which utilizes wider spectrum up to 7.1 GHz and aligns well with our wideband XBAW performance at high frequency.

We believe that we have the opportunity to extend our early lead in high frequency BAW filtering for WiFi by becoming one of the first companies to deliver WiFi-60 microfilters.

Moving now to our defense business, we shipped samples of five new S-Band filters in the 2-to-4 GHz spectrum for our customer in the December quarter. Our customer is currently evaluating the filters and we expect they will go into production in the current calendar year.

Our December, 2019 target milestones include winning a purchase order for filters that address a new market opportunity which we were unable to complete by the end of the December quarter. However, we expect to announce that order during the current quarter.

And, finally, in the 5G mobile market, we continue to march toward entry into our largest potential market by unit volume and revenue. We will continue to refine our new WLP demonstrator as well as work toward a partnership that could help us enter the tier-1 handset market. We do expect to receive a follow-on order from our current customer in the first half of calendar 2020 as the relationship continues to progress.

In conclusion, we are working diligently to achieve each of our stated objectives. We will update you on our execution against these objectives each quarter going forward. As we discussed in our previous conference call, in order to support our current engagements and emerging sales opportunities, we continue investing to increase manufacturing capacity by 500% over the next 12 months to produce hundreds of millions of XBAW filters per year. Beyond our current expansion, the Company will be positioned to scale our current New York wafer fab to produce up to 5 billion XBAW filters per year when fully equipped by working with a Tier-1 partner or through longer-term organic growth.

I would like to thank those who have joined us today on this call. We continue to build the Company on the philosophy of four solid pillars, including: strong management and technical staff; strong intellectual property which currently includes 29 issued and licensed patents and 54 patents pending; large and growing markets with limited historical competition in the high-band and ultra high-band spectrum; and our qualified manufacturing operation which is expanding to address high-growth opportunities in our target end markets.

We are now positioned favorably to penetrate the WiFi market with the world's first tandem 5.2 and 5.6 GHz ultra high-band BAW filter solutions. Additionally, we continue to progress on our 5G engagements with global leaders in both network infrastructure and mobile handset markets, providing our Company with strong growth opportunities in high performance coexistence BAW RF filters.

Today's announcement of our first volume order for a key 5G infrastructure filter is supporting evidence that we are positioned to benefit from 5G growth.

Before ending my remarks, I would like to take the opportunity to congratulate Dave Aichele on his recent promotion to Executive Vice President. Dave is an important voice across our organization, and I look forward to continuing our partnership aligned with the rest of our senior management to grow our company.

Finally, I'm thankful to our employees for their hard work and dedication in calendar 2019 and our Shareholders who continue to support the Company.

With that, I would like to open the call for questions from the investment community. Operator, please go ahead with the first question.

Operator

Thank you. The first question comes from the line of Cody Acree with Loop Capital,

Cody Acree, Loop Capital

Thanks for taking my questions, and congrats on the progress. Dave, specifically, congrats on the promotion. I know, Jeff, you run through these things all kind of as you try to segment it as best you can. But can you walk us through just a summary of your expected timeline to revenue production throughout 2020 across the various segments? I know there's a lot of preproduction shipments and a lot of samples, but just can you remove all that and just say here is what we expect to (inaudible) revenue during these quarters.

Jeff Shealy, Founder and Chief Executive Officer

Okay. Good morning Cody and thank you for the comments. Specifically in terms of, as you stated in your comments, we do have a lot of—there's a lot of samples going out, there's a lot of preproduction units going out. We announced this volume order. Specifically in terms of how we see our production ramping, I'll make a few comments and I'll ask Dave to kind of fill in anything I may have missed.

But, I think I'd be looking at it—in the current quarter we're going to be continuing to shift our preproduction unit. We announced this morning an open order in the small cell infrastructure. There'll be shipments of small cell infrastructure going out this quarter. We continue with supporting WiFi opportunities. We mentioned in the prepared comments of what that funnel looks like in a wide range.

In terms of production specifically, I would be looking for Q2 ramp and infrastructure, and I'd be looking for Q3 ramp in the WiFi CPE market. Those would be—that's how we see those ramps starting to come on.

Dave Aichele, Vice President, Business Development

And, Cody, it's Dave. I guess just commenting on that, to what Jeff said, we've got good line of sight of when (inaudible) programs in the WiFi market and we're actually starting to see forecasts. As you know, that we really start shipping a product at the end of the—in the middle of the Q4 timeframe that they start designing in so that the transition from design activity to production release—we're starting to see line-of-sight of that, so we're going to track that. I agree with Jeff's comment, with the WiFi side is probably going to start ramping in the Q3 timeframe.

With regard to infrastructure, yes, that activity will continue to get pulled into that, and you know the—yes, the expectation is that the adoption and the qualification design win and production ramp with the infrastructure primarily in the China market will happen fairly quickly. We're positioned to support that. We've been able to do these design spins rapidly based on the models and the fast cycle times through our factory and the supply chain that we've established. So, we're well-positioned to support that.

Cody Acree, Loop Capital

Great. Thank you for the details. Can you just touch on the WiFi announcement? Does this now put you in the sampling position or preproduction position with all of the major consumer and enterprise WiFi OEMs, or are there still targets out there you're looking for?

Dave Aichele, Vice President, Business Development

Yes. Specifically I'm not sure which announcement you're referring to, but we did add a fifth opportunity in WiFi that was with a new enterprise class customer. What I would characterize the activity now is we're taking in additional opportunities in the sales funnel. I think most—maybe more importantly to share is that we're currently building inventory to support ramps, to make sure we've got plenty of parts on hand.

We did that, and we mentioned briefly in the prepared comments we've got a, we've got a channel partner that's also—that also has inventory and has qualified their products for their customers. So we see a secondary effect, on to many effect with that customer through their relationship.

So, I think WiFi, we're ready to go. We're building inventory and supporting applications needs with customers as they come up. So, please follow up if you have another question on that.

Cody Acree, *Loop Capital*

Thank you, guys.

Jeff Shealy, *Founder and Chief Executive Officer*

Thanks, Cody.

Dave Aichele, *Vice President, Business Development*

Thank you, Cody.

Operator

Our next question is from the line of Anthony Stoss with Craig Hallum. Please proceed with your question.

Anthony Stoss, *Craig Hallum Capital Group*

Good morning, guys. My congrats as well as today's press release. Can you maybe give us a range after both filters are in volume production, the size of the opportunity do you think it is with this customer? Also, piggybacking on that, your other 5G (inaudible) MIMO infrastructure customer. Jeff, I think you mentioned volume production in the second half of 2020. Can you also kind of size that opportunity and what you think, or how that's going to play out here? Then lastly, maybe for Dave, how many different customers do you think you'll be live by the end of 2020 with volume production?

Jeff Shealy, *Founder and Chief Executive Officer*

Okay. So with—so, I'll first touch on small cell infrastructure which I think that was the first part of your question. We have a primary customer that is—that's currently working with us on two bands. These are two frequencies in the ultra high-band spectrum. The types of volumes that we expect in that market would start—if you look on early, early months would be in the—on the order, 10,000 filters per month in kind of the pre-production phase that we've been describing. Then that would ramp into the 50,000 to 100,000 filters per month with that customer, and that is per band.

There are two bands. We've actually shipped that particular customer both bands, and they are moving forward more rapidly with one of the two bands versus the other. But, we see activity on both fronts. So, supporting their deployment.

With regard to the tier-1 customer, we're going to be extremely cautious given customer sensitivities and competitive sensitivities with details. I do think that what we indicated in the prepared comments is that we expect that tier-1 customer to begin ramping production in the second half of the Calendar Year. Our objectives internally here is to have the product, the final product, ready, and be prepared to ramp up for that, and that's what we're internally supporting.

In terms of number of customers, going forward I'm going to let Dave touch on that one.

Dave Aichele, *Vice President, Business Development*

Hi, Tony. So with respect to 5G on the different customers, number of customers, the strategy has been, at least in the infrastructure side of the small cells, to focus on one tier/one customer who is a dominant player in that market. The intent is, is that once they get their architecture defined, that we will start sampling to a number of smaller customers. So we're right at that stage right now. These other smaller customers are tier-2 player set support that market network deployment. So, I would say within the next two quarters that we should have up to about five customers with those two bands because they're all supporting that same market.

In addition to—we're starting to sample these bands to other markets as well in Europe that uses the same 3.5 GHz band. They don't use the n79 4.9 GHz band. That one's primarily supporting the China market. So, we should have a multiple number of customers that are engaged at different levels from pre-production/production over the next six to nine months.

I think the volumes that Jeff mentioned may not be as large as those other customers, but they'll aggregate on top of each one.

Anthony Stoss, *Craig Hallum Capital Group*

As a follow-up, Dave, you mentioned you have line-of-sight or a little bit more clarity in terms of design wins on the WiFi side, and now that things are are similarly getting locked out for the second half of 2020, can you help us understand maybe the size of the funnel, the number of customers, the number of designs you think that might be locked down by the end of 2020?

Also, either Jeff or Dave, if you can help us understand the size of the inventory you're building right now in addition to the channel for these WiFi launches at the back half of the year and what kind of cap ex do you think you need to spend for the remainder of the year to get ready for 2021? Thanks.

Dave Aichele, *Vice President, Business Development*

Yes, okay. I'll take the first part of that, Tony. On the WiFi side, what we have announced is, funnel aside that we're tracking right now, and those are the ones that are closer that we've got better visibility and line-of-sight. As you can imagine, there's more in the funnel than that that we'll be able to update the market as we get better visibility.

(Inaudible) though that we are engaged with, those one we expect over targeting to try to lock down all. But some of them, because of outside influences, we may not be able to get 100%. But, it's a good mix of enterprise and retail, and the volume range in hundreds of thousands to more than the millions of units per year, and the architecture configuration assistance, again, we're the only one out there supplying a tandem 5.2 and 5.6 WiFi, so we pretty much pick up 100%. It's not the shared design win. It could range from two per system buy band to four per system buy band. It just depends on the end customer's architecture.

So, we're excited about this transition to design wins and production ramp, and I think what we've guided in the past is when we secure the design win and obviously start seeing the release on volume orders, we'll update the market. The good thing is, is that we're already working with the ODM's in building the system, so we're shifting the preproduction volumes right now.

Jeff Shealy, *Founder and Chief Executive Officer*

Yes, Tony, I'm going to add to that not only are we prepared to support the current deployment in the (inaudible) 5 GHz WiFi, there's a lot of talk in the industry about WiFi 60. I'm going to just take up a moment to discuss that.

What effectively that architecture does is take the same high frequency bands. In one of the bands they combined two existing frequencies. In the other they've got a very wide band architecture which need to be supported by filters. So, I think it would be complimentary to just mention that we expect to have product offering in that area. So, as WiFi 6 transitions to 6E, that we're not concerned about that transition because we fully expect to have product available in that market moving forward.

In terms of inventory, we are—in terms of the volumes of inventory, what we want to make sure is that we have—we certainly have the ability to build the order, but as a new supplier to these customers, the worse thing we can do is let them down. So, we're making sure that we're putting some inventory on the shelf. I'm not going to comment on the exact numbers, but making sure we have on the order of a quarter worth of inventory available to us, certainly at the chip level. We don't have to commit to packaging but that just protects us if there's any surge in demand.

In terms of the cap ex, I'll let Ken touch on that.

Ken Boller, *Interim Chief Financial Officer*

Right, Tony. In the past we've given guidance on the cap ex spend and as far as how we are progressing towards our 500% capacity expansion, we have about 10 million to 13 million more dollars to go on that project to be spent in the next 9 to 12 months. A lot of that just depending on lead time for equipment and which is—tends to be pretty lumpy with—it's probably a little more front-end loaded, but we expect \$10 million to \$13 million in the next 9 to 12 months.

Jeff Shealy, *Founder and Chief Executive Officer*

That cap ex would be ready to support our business, our expected business in 2021.

Anthony Stoss, *Craig Hallum Capital Group*

Thanks, guys. Best of luck.

Jeff Shealy, *Founder and Chief Executive Officer*

Thank you, guys.

Operator

The next question is from the line of Rick Schafer with Oppenheimer. Please proceed with your question.

Rick Schafer, *Oppenheimer*

Yes. Sorry, guys. My phone was on mute. I apologize. To all, my congratulations, particularly on the infrastructure win. I just wanted to follow up quickly on that and just kind of get a sense of—I know we've talked a lot about that already with the two tier-1s, and I know we talked about some of the tier-2s feathering in later. But, I think in the past you've said you're engaged with all five of the top five tier-1s. So, I just was kind of curious if we get any update on where we stand with the other three tier-1s.

Jeff Shealy, *Founder and Chief Executive Officer*

Yes, I'm going to make a clarifying statement and then I'll let Dave comment. I actually looked—I think what we've identified is that the tier-1 consists of five major OEMs. I do not believe we have stated that we have engagements with all five. What I think—and contrary to that, we've taken a rifle-shooting approach to really focus on a key customer in each segment and work with them on specifications in producing products and make—and refining those products to where we can get in the market.

We take great care in selecting which ones of those customers to make sure that we're on the forefront of the deployment, particularly in this 5G.

In terms of the characterization of kind of how we see this, the tier-1 and how we're engaging the Tier-1, let me let Dave touch on that.

Dave Aichele, *Vice President, Business Development*

Yes. So with regard to that, Rick, we've got—we are talking to the whole market, and it's similar to what we've done on the WiFi side. Jeff's correct. It's a laser focus because we are pushing frequency and bandwidth and power handling, so we want to make sure that we can deliver robust solutions. Also we align with the customers that will work with us through the design phase and the development phase.

So, the good thing is, is we're coming out of that with these two tier-1s that we've identified and worked with. What we'll do is we'll expand that with the other tier-1s. One of them—the other one in China. We're a little bit careful what they've done. Obviously the export restrictions. But, at least we have an open relationship. We're talking to all of them and they recognize the benefit that the XBAW technology. All of it coming down to the ability of these micro-acoustic filters to address network architectural issues that they see as this frequency reductions in size, reduction in cost, reduction in weight that's strictly of interest for the massive MIMO (phon), but also the small cell network.

Jeff Shealy, *Founder and Chief Executive Officer*

Yes, Rick, let me...

Rick Schafer, *Oppenheimer*

Thank you.

Jeff Shealy, *Founder and Chief Executive Officer*

...let me add—I'd like to add to that just for clarity. By rule, we own the filter design, so we do have the ability to sell—there's occasionally exceptions to this rule, but the general rule is we own the filter designs and we have the ability to sell across the entire market. So, we're focused on that, and so I wanted to add that to Dave's comment.

Rick Schafer, *Oppenheimer*

Thanks, Jeff. If I could, I'd like to follow up also on—just looking at your segment, and it sounds to me like, and I could be wrong about this also, but that infrastructure (inaudible) will likely lead growth for you guys this year in terms of revenue ramp. But, is there—I guess, correct me if I'm wrong, number one there. Then, number two, is there a chance that WiFi with the strong ramps, it sounds like you have the back half of the year, could WiFi lead growth for you guys this year? And by the way, is wafer—is WLP—is wafer-level packaging, is that a big deal for WiFi or only for handsets?

Jeff Shealy, *Founder and Chief Executive Officer*

Let me take on this. I think we're getting the timing of Q2 ramp and infrastructure and Q3 ramp and WiFi, but we fully expect both of those segments to ramp this year for the Company.

Regarding the WLP, we've predominantly focused that on the mobile market having that size available. There would be opportunities potentially in the WiFi to integrate something into (inaudible) for an integration play there. So, we're just making sure we've got very competitive package technology for a

wide range of markets, and depending on the alternate customer need. For example, how much power that product has to dissipate. We select a package accordingly. But, we also want to be very competitive with our packaging roadmap, so that's—so in summary, WLP primarily for mobile, but has other integration opportunities in other markets and I'll let Dave comment as well.

Dave Aichele, *Vice President, Business Development*

Yes. I think the comment I'll make on the WLP for WiFi—yes, that 5.2 GHz that we demonstrated was primarily focusing on the mobile market. We don't see a real strong play in the infrastructure side. We're already significantly smaller with our package tandem of WiFi parts. Also there's—again, it's a diastolic resonator (phon) type. But where we see some interest, probably in '20—yes, '21, is WiFi, WLP solutions going into PCs, tablets, particularly to just comment that WiFi's 60 (phon), where you would have a tri-band architecture that's, you know, 2.4 and 5 GHz and full 6 GHz, you know, what's really strict towards this requirement, our solution is one of the—our solution that we're planning to demo first half this year is going to be one of the most attractive solutions out there versus some of the other technologies. There's a play there, but it wouldn't be until 2021.

Rick Schafer, *Oppenheimer*

Got it. Thanks Dave. And, if I could just squeeze one more quick one in. I know you guys are adding like capacity pretty impressively this year. I mean, do you expect to see—and buildings and inventory now, I heard you mention that, Jeff. So, any expected constraints there potentially as you ramp, particularly in the back half of the year where it sounds like the ramps' going to be more aggressive in terms of ramping against your design one? Thanks.

Jeff Shealy, *Founder and Chief Executive Officer*

Thank you, Rick. So, I would call them challenges, and these are just challenges of getting equipment in, getting it qualified, and getting the staffing, the appropriate staffing, in place, which is recruiting and training. Those are, I would think, normal ramping challenges that you have.

In terms of supply chain constraints, we manufacture our own silicon. We don't see that as a constraint. We produce our materials in-house, we manufacture the wafers in-house, we trim the wafers in-house, we do the modeling, and we do the RF design of the circuit in-house. So, we have full control of the levers and—from the raw materials once we start with silicon, full control of the levers that they can qualify that product and ultimately deliver it into the market.

So, they're what I would consider normal course challenges that I just previously mentioned, but no significant constraint. We did—I think it is just worth noting. On the ordering of some of this expansion—as part of the expansion and capacity, we're well-aware—the order link, the order lead times and we've adjusted our behavior to make sure that we have the equipment, the right equipment, in-house ready to go.

So, that's something we're actively working, and it's—as we've previously shared, it's been a two-year project. We're well into the second year of the project and committed to completing it.

One other thing, if I could add. This 500% capacity expansion, we fully expect that that capacity expansion position us to achieve cashflow breakeven and that's part of what we've committed to is to make sure we've got the capacity in the factory to drive our products into market to achieve that financial objective.

Rick Schafer, *Oppenheimer*

Thanks, Jeff.

Jeff Shealy, *Founder and Chief Executive Officer*

Thank you, Rick.

Operator

The next question is from the line of Suji Desilva with ROTH Capital. Please proceed with your question.

Suji Desilva, *ROTH Capital*

Good morning, Jeff, Ken and Dave. Congratulations on the promotion. On the WiFi ramp this year, calendar year, the five customers, is it reasonable to expect that all five of those would be in production by the end of second half '20, or is that not a reasonable expectation?

Dave Aichele, *Vice President, Business Development*

Hi, Suji, it's Dave. Thanks for congrats. Yes, the expectation is if we're able to cure all five design wins, that every one of them would be production ramp in calendar year 2020. Again, different time horizons as to when each one of those will be released. So, those are the ones that we're tracking, and as I commented on earlier, 100% take rate, 100% secure rate, yes, we're shooting for that, but factors outside of our control may change that. But the good thing is, is that the funnel is beyond that and we're tracking those additional customers as well.

So, we're pretty excited about the opportunity and see, obviously, a healthy horizon for both the 5-2 and the 5-6 in addition to all these customers are actively engaged on a technical discussion with the WiFi 6D as well. Depending on how things go with the SEC, yes, that looks like 2021 calendar year will continue with these customers as well.

Suji Desilva, *ROTH Capital*

Okay, great. That clarification helps. I just want to go back to one of the comments you had in the Q&A about shared design wins in these WiFi platforms. Could you just clarify what that means? I'm assuming that your product's very unique in being able to provide the smaller form factor, but is there a share expectation on these platforms I should think of for (inaudible) versus in these hundred thousand or million (inaudible) opportunities. Can you just provide some color there?

Jeff Shealy, *Founder and Chief Executive Officer*

Hey, Suji, it's Jeff, and thanks for the comments. Regarding—I believe the comment regarding share designs wins is—I believe Dave's comment was, we do not expect shared design wins, so we believe that the platforms that utilize these microfilters—we're not going to be sharing any—we're not going to be sharing any volumes for those. So, I think it was the opposite of perhaps what you were thinking.

Suji Desilva, *ROTH Capital*

Oh, great. That helps quantify. And then lastly, a bigger question, bigger picture question for Jeff, for you, Jeff, for asking this. The competitive landscape, there's been talk of some of the competitive filter apps potentially moving around in transactions. I just want to understand your thoughts on that movement, and the potential implications where (inaudible) positive or a negative. Thanks.

Dave Aichele, *Vice President, Business Development*

Okay. I presume your question, it's a little bit coded, but I presume it was regarding a particular asset that may be for sale on the market. From our perspective, the markets that we've chosen to focus on—we have not been directly in line of sight with that—with what that asset produces. So, therefore, I would characterize our strategy as intact regardless of whether a particular asset moves around the industry.

We've been focusing on—we've been hyper-focused on our primary markets which are WiFi and Infrastructure. For us, these are higher ASP opportunities and very favorable for us to ramp our factory around. So, we certainly monitor all activities in our market space, but do not see a scenario which changes—which has been a material—change our strategy and how we're going to market.

We're dealing directly with OEMs. We're dealing direct with OEMs with all of the market segments we're pursuing with the exception of mobile. So, we're going to continue focusing on our product launches, our—this ultra high-band spectrum which is pretty much a green field in the space. We think that's a winning strategy, and focusing on producing the highest performance filters available in the industry. That's not going to change regarding—regardless of where any one particular asset moves around.

Suji Desilva, *ROTH Capital*

So that was the question, Jeff. Thanks. Congrats on the progress again.

Jeff Shealy, *Founder and Chief Executive Officer*

Thank you, Suji.

Operator

Thank you. Our next question is from the line of Matt Farrell of Piper Sandler. Please proceed with your question.

Matt Farrell, *Piper Sandler*

Hey, guys. This is Matt on for Harsh. Congrats on the continued execution. Some of the other mobile players I've been talking about the key of integration and that they had key differentiator 5G mobile. Could you guys kind of provide your thoughts on the need for integration, and how is that shaping your longer term strategy within 5G mobile?

Jeff Shealy, *Founder and Chief Executive Officer*

Hi, Matt. This is Jeff. I'll comment first on that and let Dave make some comments as well. As we said in the preferred comments that we see our strategy survey for the tier-1 that will require a partnership and that partnership addresses the integration which I think you referred to. We happen to be focusing on some of the extremely high performance key pieces that go into that integrated solution, so we think position-wise we build a very key part of that platform. So, that's the tier-1.

I think for the tier-2, we're in direct dialog with customers for tier-2 which may or may not be going to full integration based platforms, particularly in some of the newer higher frequency bands. So, we've prepared ourselves. Have a WLP packaging solution that is size—very size-appropriate for mobile as well as work directly with those OEMs to understand their roadmaps as well.

So it's—tier-1, it's about partnering with a player. Again, I would characterize—so we've been pulled into mobile more as a—more so than our primary strategy of WiFi and infrastructure. So we're maintaining discussions with both the tier-1 OEMs as well as tier-2 OEMs to understand roadmaps and understand where our strategy fits. Dave, (inaudible).

Dave Aichele, *Vice President, Business Development*

Matt, I'll just add a couple of comments. Yes, I think the—you recognized with the work that we're doing with the WLP can be used for integration into our front end, and to Jeff's comments, that's part of the reason that we're doing that development. We recognize, and I think everybody else does, that the wise step (phon), the mobile marketer is our largest market potential.

Also the other reason we're doing the WLP is so that we can do (inaudible) and that would be targeting the tier-2 markets. There is—we've got line-of-sight of designs that are going to be using GLA Diplexer and even potentially discreet in the China market. Part of it is, is that you've got the integration strategy of supporting, yes, the tier-1 and then a subsegment of the tier-2.

But the tier-2 is when a supply chain that can support them and so we're seeing a lot of activity in potential usage of discreet components in some of the phone models out of the China market. What they're particularly looking for now is based on the Network Providers in China are pushing to get better—I guess the co-exist capabilities out of the filters to improve on the phone connections not drop calls and so forth.

So, shifting away from the LLT, LTPP-type filter and ITD filter to a higher performance ball-type filter up at n77 or n79, even WiFi. So, we look at that as being a good opportunity for us in the coming 18 months.

Matt Farrell, *Piper Sandler*

Also thanks for the additional comments. Then maybe can you talk about how conversations with new customers have changed over the years. So, is the (inaudible) becoming more of the—are you having to introduce the company, or are you able to kind of jump right into products and benefits of BAW right away, and has that changed over the last year or so?

Jeff Shealy, *Founder and Chief Executive Officer*

Well, several things. I would characterize, we think in the markets that we're engaging with, we've got adequate introductions, adequate discussions, and adequate relationships with the focus, focused customer base that we feel necessary to not only address the market but understand the market, and so that can include other front-end players, that can include OEMs.

So I don't—we spend far less time introducing the customer. Most of our meetings, if you look back to CES or you look forward to mobile (inaudible), most of our meetings are with established relationships. We're not going in with business cards and hats in hand introducing the company. It's moreso we've done an agenda. We know what the customer's interested in and we're kind of picking up some worthy engagements of sorts.

So, it does vary. I think the conversation for us in WiFi I think it would be appropriate to say they transition from Engineering into Procurement. That's a positive sign. That tells me we're deeper in the sales funnel, staying in the wireless infrastructure. And so, the deeper we get into the organization, the more—the deeper we're getting into the sales funnel with those organizations. Dave, you want to add anything?

Dave Aichele, *Vice President, Business Development*

Yes. I think Jeff captured it. It's an interesting question. I appreciate it, Matt. Yes, and I think Jeff really—the follow-up with his statement is that the (inaudible) community recognizes Akoustis. We've got good relationships across the board in the target market. We're getting deeper with the supply chain. The good thing is, is that having the factory, having the relationships with our (inaudible) which are the assembly partners, and having the ISO certification from the quality organization in place, we're able to get through these onboarding requirements with the OEM. So, we also have established distribution partners that are

well, well-received with these client customers as well to support that. So we're in that transition phase, and the good thing is, is that the brand recognition and the technology has helped us to strengthen these relationships.

Jeff Shealy, *Founder and Chief Executive Officer*

I do think the calling card, whether it's years ago or today pretty much the same. It's about having high performance RF filters and being able to take a customer specification and transition it into an actual functioning solution for them. So, I think those are—you don't need many calling card points when you're opening with, "Here's parts you can get your hands on and here's parts you can design your system." That's the best calling card of all.

Matt Farrell, *Piper Sandler*

Hey, you guys, congrats again on the execution.

Jeff Shealy, *Founder and Chief Executive Officer*

Thanks, Matt.

Matt Farrell, *Piper Sandler*

Thanks, Matt.

Operator

Thank you. We have reached the end of our allotted time for questions today. I will turn the floor back to management for any final remarks.

Jeff Shealy, *Founder and Chief Executive Officer*

Okay, thank you all for your time today. We are progressing towards our objectives for the March quarter and plan to update you on further progress as the quarter moves ahead. We look forward to speaking with you during our next update call to discuss the current quarter's execution against our milestones as well as future expectations. Thanks again.

Operator

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

