

Q3 2019 Earnings Call

Company Participants

- Alexander H. Rogers, Executive Vice President and President, Qualcomm Technology Licensing
- Cristiano R. Amon, President
- David Wise, Senior Vice President, Treasurer and Interim Chief Financial Officer
- Donald J. Rosenberg, Executive Vice President, General Counsel and Corporate Secretary
- Mauricio Lopez-Hodoyan, Vice President of Investor Relations
- Steve Mollenkopf, Chief Executive Officer

Other Participants

- Blayne Curtis, Analyst
- Chris Caso, Analyst
- James Faucette, Analyst
- Matt Ramsay, Analyst
- Mitch Steves, Analyst
- Rod Hall, Analyst
- Ross Seymore, Analyst
- Samik Chatterjee, Analyst
- Stacy Rasgon, Analyst
- Tal Liani, Analyst

Presentation

Operator

Ladies and gentlemen, thank you for standing by. Welcome to the Qualcomm Third Quarter Fiscal 2019 Earnings Conference Call.

(Operator Instructions) As a reminder, this conference is being recorded July 31, 2019. The playback number for today's call is 877-660-6853. International callers please dial 201-612-7415. The playback reservation number is 13692366.

I would now like to turn the call over to Mauricio Lopez-Hodoyan, Vice President of Investor Relations. Mr. Lopez-Hodoyan, please go ahead.

Mauricio Lopez-Hodoyan {BIO 20932685 <GO>}

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Thank you, and good afternoon, everyone. Today's call will include prepared remarks by Steve Mollenkopf, and Dave Wise. In addition, Cristiano Amon, Alex Rogers, and Don Rosenberg will join the question-and-answer session. You can access our earnings release and the slide presentation that accompany this call on our Investor Relations website.

In addition, this call is being webcast on qualcomm.com, and a replay will be available on our website later today. During the call, we will use non-GAAP financial measures as defined in Regulation G, and you can find the related reconciliations to GAAP on our website. We will also make forward-looking statements, including projections and estimates of future event, business or industry trends or business or financial results. Actual events or results could differ materially from those projected in our forward-looking statements. Please refer to our SEC filings, including our most recent 10-K which contain important factors that could cause actual results to differ materially from the forward-looking statements.

And now the comments from Qualcomm's Chief Executive Officer, Steve Mollenkopf.

Steve Mollenkopf {BIO 16172191 <GO>}

Thank you, Mauricio, and good afternoon, everyone. Thanks for joining us today. We executed well this quarter against challenging industry conditions. Despite weakening demand for our 4G solutions, fiscal third quarter non-GAAP earnings of \$0.80 per share was at the high end of our guidance range, driven by improved product margins, lower R&D and SG&A, and a lower tax rate.

In QTL, following the District Court's ruling, our licensees continue to perform under their agreements. In parallel, at the 9th Circuit Court of Appeals, we are pursuing a partial stay and appealing the ruling. Of note what the statement of interest of the Department of Justice in support of our stay motion, stating the Qualcomm is likely to succeed on the merits in the appeal.

The Huawei export ban along with the pivot from 4G to 5G, which accelerated over the past couple of months has contributed to industry conditions, particularly in China that we expect will create headwinds in our next two fiscal quarters. As a result of the export ban, Huawei shifted their emphasis to building market share in the domestic China market where we do not see the corresponding benefit in product or licensing revenue. In addition, our customers in the China market are working through their existing 4G inventory and de-emphasizing their second half 2019 4G launches as they shift their priorities to their 5G launches in early 2020. As a result, we do not expect the typical seasonal benefits given these unique market dynamics.

Bye the first calendar quarter of 2020, we anticipate reaching the inflection point, as our financial results begin to reflect the benefits of our substantial efforts over the years to bring 5G to the market worldwide. Let me walk you through the dynamics of 5G rollouts. 5G network rollouts are progressing at a much faster rate when compared to 4G. We expect over 20 operators to launch 5G service and over 20 OEMs to have 5G devices in the first 12 months after the first commercial launch. This compares to four operators and

three OEMs with the launch of 4G. With the major difference being that China is launching 5G in the first year.

In China, 5G commercial service was officially approved in early June and our current estimate is that by the end of this year, the three operators will deploy roughly 100,000 5G base stations, which to put in context is the equivalent of the scale of the entire network of a large U.S. wireless operator. And in the U.S., 5G is being deployed across sub-6 and millimeter wave for nationwide coverage. Verizon has noted that they expect three quarters of the phones they are launching next year will be 5G. AT&T announced that they are on track for a nationwide 5G coverage in mid-year 2020. And we expect the proposed T-Mobile, Sprint merger to result in an accelerated nationwide 5G rollout. I would add that we expect the millimeter wave to be a mandatory requirement at all major carriers in the United States.

Also helping to drive this accelerated transition to 5G is dynamic spectrum sharing, which enables carriers to dynamically repurpose 4G spectrum for 5G use. DSS is a game changer for the carriers and will result in a much more rapid proliferation of 5G, than we have seen in prior G transitions. Before I talk about our products, I would like to remind you of our contribution to develop the fundamental elements of 5G, including innovations that enable massive MIMO, millimeter wave, security and the deployment of 5G technologies in networks across broad spectrum allocations.

This early work has resulted in a valuable IP portfolio and provided us with early insight into what products need to be developed and commercialized at scale. This will continue as 5G expands beyond Release 15, and the feature sets continue to evolve. Today, we are the only chipset vendor that has 5G system level solutions, spanning both sub-6 gigahertz and millimeter wave bands. This is key to global deployments. Our 5G system level solutions span baseband, transceiver, RF front-end and antenna elements as the components are tightly coupled together for best-in-class performance, spanning multiple KPIs, including power area and modem benchmarks.

Let me now give you an update on our OEM traction. All of the major Android OEMs have announced 5G devices for this year and as volume ramps in early 2020, device offerings will expand beyond premium tier devices. As an example, China Mobile plans to drive 5G devices to price points under a U.S. dollar equivalent of \$300 by the end of 2020, representing about 40% of the Chinese smartphone segment by price band.

Our Chinese customers have recently made product portfolio decisions consistent with that carrier objective to drive 5G into lower price bands. On the product side, our 5G design wins have doubled since our last earnings call. We now have over 150 5G designs launched or in development using our 5G chipsets. In addition to core chipsets, virtually all our 5G design wins are powered by our complete RF front-end solutions for 5G sub-6 and our millimeter wave. We are the only company today delivering an end-to-end comprehensive modem 2 antenna solution. The complexity of 5G and the value of innovative solutions enables us to expand our ASPs significantly from 4G.

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Turning to more detail on our legal matters. On July 8, we filed our motion for a partial stay with the 9th Circuit Court of Appeals. And as you may have seen, the Department of Justice on behalf of the United States filed a statement of interest that supports our request. We cannot predict the exact timing, but we expect the Court of Appeals to rule in our stay motion in the near future.

In the meantime as can be seen from our results this quarter, licensees continue to perform under their agreements, consistent with our view that the District Court decision does not nullify the existing license agreements. On our appeal on the merits of the FTC matter, the 9th Circuit Court of Appeals granted the request for an expedited briefing schedule. We expect briefing to be complete by the end of the calendar year, and the court has said it will schedule the case for oral argument on the next available hearing date after briefing is completed. With regards to Huawei, we continue to pursue a negotiated resolution of the dispute focused on a final agreement.

Turning to QCT, on July 15, we announced our Qualcomm Snapdragon 855+ mobile platform, providing about 1 billion mobile gamers a leading flagship option for pro-like gaming devices.

Expanding on our China relationships, we are pleased to announce a strategic cooperation with Tencent to deliver premium 5G and gaming experiences to consumers and developers in China and other regions. This cooperation includes joint efforts on Snapdragon based mobile gaming devices, Snapdragon elite gaming, cloud gaming, AR, VR, and always connected PCs. We continue to execute on our growth opportunities across automotive, AR, VR, connectivity, and networking and IoT. In compute we are on track to see the first of Snapdragon 8cx based designs to launch in the second half of calendar year 2019.

In summary, while near-term demand trends are not surprisingly soft as the entire market and industry transitions to 5G, we are very excited with our design wins and growth in device content as 5G ramps, particularly in 2020. Put simply, our position at the center of developing this incredible technology represents a large opportunity for our stockholders.

I would now like to turn the call over to Dave.

David Wise {BIO 21006539 <GO>}

Thank you, Steve, and good afternoon, everyone. We delivered third quarter GAAP revenues of \$9.6 billion, which included \$4.7 billion related to the settlement with Apple and its contract manufacturers. GAAP EPS was negatively impacted by a \$2.5 billion non-cash charge to income tax expense due to a write-off of a deferred tax asset resulting from recently issued U.S. tax regulations.

Our non-GAAP revenues were \$4.9 billion, despite top line softness. Non-GAAP EPS was \$0.80 at the high end of our guidance range due to better QCT gross margins, lower combined R&D and SG&A expenses, and a better than expected tax rate.

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During the quarter, SG&A expenses benefited from a faster than expected reduction in excess litigation expense. QCT delivered revenues of \$3.6 billion on 156 million MSM shipments, below the midpoint of our guidance range given a larger than expected impact from market weakness. QCT's EBT margin was 14%, in line with our guidance, reflecting improvements in both gross margin and lower operating expenses.

QTL's third quarter revenues of \$1.3 billion came in slightly above the midpoint of our guidance range, and included both current period Apple royalties, and the last \$150 million interim payment from Huawei. Our third quarter QTL results reflect the view that post the ruling in the FTC case, our licensing agreements remain enforceable and our licensees are expected to perform under their agreements, which they have done to date. QTL's EBT margin was 70% above the high end of our guidance range on lower operating expenses due to a faster than anticipated reduction in excess litigation expense.

Turning to our outlook, as Steve mentioned, as we look forward over the next couple of quarters, our business is being impacted by several factors in advance of the transition to 5G in early calendar 2020. We see continued weakness in China demand, Huawei gain share inside China, and our Chinese OEMs managing their inventory ahead of 5G. We are lowering our estimates for global 3G, 4G, 5G device shipments in calendar 2019 by 100 million units to a range of 1.7 billion to 1.8 billion. We now expect handset shipments to be down mid-single digits year-over-year. In China, through the June quarter while device shipments from handset makers into the carriers and retailers was down only 5%, the device sell-through from carriers and retailers to consumers was more pronounced, down approximately 20% year-over-year, reflecting in part a pause by consumers ahead of 5G and an uncertain macroenvironment.

As a result, we have seen a meaningful build in channel inventory during the first half of calendar year 2019. Over the next two quarters, we expect a significant impact on device shipments as sell-in and sell-through growth rates realign and channel inventory levels are drawn down in China. In other regions, including North America and Europe, we are seeing lengthening handset replacement rates impacting the unit volumes, as well as some softness in India and in non-handset devices.

Further, as a result of the trade dispute, our business has been impacted by a shift in OEM share towards Huawei as they increase their focus on domestic China sales and to a lesser extent by the loss of direct sales to Huawei affected by the trade ban. Lastly, we are seeing our Chinese OEMs respond to these factors by pulling back on new 4G device orders and managing their inventory in advance of the transition to 5G in early calendar 2020.

Turning to our fiscal fourth quarter guidance, we expect revenues to be in the range of \$4.3 billion to \$5.1 billion and non-GAAP earnings per share of \$0.65 to \$0.75. For QCT, we estimate MSM shipments to be in the range of 140 million to 160 million units, down 4% sequentially at the midpoint. Historically, we have seen mid-teens percentage growth in MSM shipments from our third to fourth fiscal quarter, reflecting normal seasonal strength in the latter part of the year as OEMs build for the upcoming holiday seasons. The estimated lower MSM shipments in our fourth quarter are being impacted by the factors I've just described.

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The China related weakness is particularly impactful to QCT revenues due to our leading position with Chinese OEMs in the premium and high tiers. We estimate QCT's EBT margin for the fourth fiscal quarter will be 13% to 15%, flat sequentially at the midpoint. We estimate QTL revenues will be in the range of \$1 billion to \$1.2 billion, with EBT margins of 62% to 66%, down sequentially versus the third quarter.

Our fourth quarter forecast does not include any revenues from Huawei with the last interim \$150 million payment recognized in the third quarter. Similarly to QCT, QTL is not seeing the typical seasonal uptick in our fourth fiscal quarter, reflecting weaker device shipments.

We expect non-GAAP combined R&D and SG&A expense to be down 1% to 3% sequentially, reflecting the absence of the catch-up in employee bonus expense that occurred in our third quarter, offset by an increase in R&D spend. We plan to remain disciplined around cost management and expect operating expenses to increase slightly from our fourth quarter run rate as revenues ramp through fiscal 2020. We estimate our fourth quarter GAAP tax rate to be 16% and our non-GAAP tax rate to be 13%. We believe the 13% rate is a good proxy for both our GAAP and non-GAAP tax rates going forward.

As an update on our share repurchase activity, as of today, we have completed approximately 90% of the ASRs at an average price of approximately \$64 per share. As a reminder, we expect to complete the ASRs in early September. We are estimating 1.21 billion weighted average shares outstanding for the fourth fiscal quarter, and expect to exit the fiscal year with approximately 1.16 billion shares outstanding post the completion of the ASRs. Looking beyond the quarter, we expect these market headwinds impacting our business to continue through the remainder of the calendar year and expect our revenues and earnings in our fiscal first quarter of 2020 will be in a range similar to our fourth quarter forecast.

We are optimistic that 5G will be a catalyst to market improvement, with broad rollouts of 5G networks globally, including the U.S., China, Europe, Korea, Japan and Australia. We expect 5G device volumes to ramp more meaningfully in early calendar 2020 with new flagship device launches from global and Chinese OEMs supporting 5G.

In QCT, as we transition to 5G, our addressable dollar content opportunity per device is up to 1.5 times greater than a comparable 4G device, giving greater chipset complexity and our ability to capture 5G RF front end content. We remain confident in the incremental \$2 of EPS related to the longer term contribution from the agreements signed with Apple as product shipments ramp. And one final comment, we will be hosting an Analyst and Investor Day in New York on November 19, this year. Please stay tuned for further details. Thank you.

I will now turn the call back over to Mauricio.

Mauricio Lopez-Hodoyan {BIO 20932685 <GO>}

Thank you, Dave. Operator, we are now ready for questions.

Questions And Answers

Operator

Thank you. (Operator Instructions) Our first question comes from James Faucette with Morgan Stanley. Please proceed with your question.

Q - James Faucette {BIO 3580933 <GO>}

Great. Thank you very much. I wanted to ask, you mentioned that a couple of different forces that are impacting demand for QCT right now, both Huawei's more internal focus on China, as well as pause in demand ahead of 5G. Can you talk a little bit about how that is impacting not only in unit volumes, but the pricing and mix currently? And then how you're looking at the impact on at least qualitatively your anticipation for 5G volumes, et cetera next year, especially since we seem to be coming off of a lower base?

And then as a follow-up, can you just talk a little bit more and give a little more color on how you may be handling any requests for renegotiation per the FTC ruling? And kind of what the road map is that you've laid out for those licensees in terms of treating those requests and dealing with compliance in the interim? Thank you.

A - David Wise {BIO 21006539 <GO>}

Sure. This is Dave. Let me start and Cristiano will jump in. So if you think about the dynamics in the market, we called down the market a 100 million units. A meaningful portion of that is related to China, where we're seeing softness. We referenced in the comments the sell-through market to consumers being down 20% year-over-year through the first half of calendar '19, and our selling down 5%. So we see the back half of the year a convergence of those growth rates, so the selling rates coming down more aggressively in the back half of the year. That in the back half of the year is compounded by some run-off of channel inventory that's been built up over the first half as well. And so some pronounced impacts on really Q3 with respect to the channel inventory run off.

And so we think that the market dynamics in the market units sort of fall out a little bit in Q3 and then, hitting our Q4 and our fiscal Q1, as those dynamics play out. And the way to think about how that impacts the business is as first, if you think about QCT, we typically would see on from a seasonal perspective, maybe a 15% to 17% increase in MSM shipments as we move from Q3 to Q4. I mean obviously we guided down 4%, so if you think about jumping off from 156 million MSMs in Q3, that gap from what we would normally expect to see is about 35 million units. About two thirds of that is market related with China being being a meaningful component of that.

I would point out that a lot of the China dynamics and certainly the things related to pause before 5G are more sort of premium and high tier dynamics that are more impactful from a revenue perspective for us. And the other third would be really share shifts -- those OEM share shifts towards Huawei, away from some of our OEMs, as well as a little bit of share loss at the low-tier, but that's not really sort of financially impactful. So that's, I think the way to think about the impacts on the next quarter or two here.

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A - Cristiano R. Amon {BIO 3259554 <GO>}

Jim, this is Cristiano. Just to add some additional color. So building what Dave had said, if you remember I think China got authorization to launch 5G back in June. So -- and -- so there was a lot of uncertainty, whether they will launch or not given the environment, they did launch. And what we've seen to some counterintuitive but actually building confidence on the 5G transition is we had some of the OEMs cancel some of their 4G launches, and moving the portfolio towards 5G designs. We've seen a lot of requests for pulling in and we see they're preparing for the 5G ramp at the next selling season. And one, we do have this, I will say one-time impact as Huawei demand got suddenly reduced in Europe, there we saw an increased focus of Huawei in China, and that kind of change the OEM mix.

But the general sentiment and that's what we're seeing in the activity is to drive as fast as possible to the 5G ramp as we believe this inventory on the premium and high -- in the channel, and we're seeing 5G ramping across multiple tiers as Steve said, even at the price points at \$300 and above.

A - Alexander H. Rogers {BIO 19966795 <GO>}

Jim, this is Alex. On the second part of your questions, how are we handling request for renegotiations. As you may have seen, we have -- had a number of requests for renegotiations come in. We've also had license agreements that were in the process of renegotiation recently. And with respect to those requests, we're ensuring essentially what we call a FRAND process that the licensee has an opportunity to drive to a fair reasonable and non-discriminatory result in any license agreement that's ultimately reached. And so, we're engaging as we always do very thoroughly with licensees to try to get to a process that recognizes the value of our portfolio, we think -- which we think is very, very good as 5G ramps.

Operator

Thank you. The next question comes from the line of Chris Caso with Raymond James. Please proceed with your question.

Q - Chris Caso {BIO 4815032 <GO>}

Yes. Thank you. I guess first question is on the sell-through versus the sell-in expectations over the next couple of quarters, and understand what you guys said on on the revenue expectations for you that take into account some of the inventory adjustment that's going on. What are your expectations for sell-through, does it stay at this sort of down 20% year-on-year rate as we get into the 5G transition out there at the beginning of next year? What's embedded in the guidance?

A - Steve Mollenkopf {BIO 16172191 <GO>}

Yes. Essentially what's in our guide is we're not expecting the sell-through to remain low through the rest of the calendar year, reflecting, as we said, sort of -- some of the macro environment, but also really -- some of the pause before 5G ramps more meaningfully next year. So we expect that to remain low and then the sell-in to start to converge

towards that over the remainder of the year. And then that's just as we said compounded by the fact that there's been some channel inventory build -- built in the first half that will bleed off, that's more of a Q3 probably factor.

Q - Chris Caso {BIO 4815032 <GO>}

Okay, that's helpful. Thank you. As a follow-up, I guess we understand that you're hoping to get a stay in the FTC ruling. Could you lay out for us what the contingency plans are in the event that the stay is not granted? What are the steps that would need to be taken, and what would be the financial impact of having to take those steps before appeal is finally decided?

A - Donald J. Rosenberg {BIO 7569439 <GO>}

Hi, Chris. This Don Rosenberg. So, as you know we are smack in the middle of the Court of Appeals reviewing our motion for a stay. So we're limited in what we can say about that. But I should point out, I don't think it's missed your eyes that it's fairly widespread consensus that Judge -- Koh's order is erroneous in many, many respects. And the fact that the United States Justice Department through the -- with the support of the Department of Defense and Department of Energy have filed a brief statement of interest rather in support of our motion to stay in which among other things they objected both to the remedy, but also indicating that they think we're going to be successful on the merits.

In addition, the Court of Appeals has expedited their review of our appeal on the merits. And so I think we are very encouraged by this kind of support. We think as I said that there is a widespread view that our chances are very good. So we're kind of at the point where we want to wait for that decision on the stay, and then proceed from there.

A - Alexander H. Rogers {BIO 19966795 <GO>}

This is Alex. So I'll just add very quickly. One of the I think fundamental points that can be missed is that the current agreements are valid and enforceable even the FTC has waited and said that the agreements are not nullified, and so that's very important. In addition, we have a couple of what I would call anchor agreements that are very good agreements that we're quite happy with and that's Samsung, and they've recently signed Apple agreement. And as I said, our IP position is very, very strong through 4G and ramping into 5G.

Operator

Thank you. Our next question comes from the line of Blayne Curtis with Barclays. Please proceed with your question.

Q - Blayne Curtis {BIO 15302785 <GO>}

Hey, guys, thanks for taking my question. I was wondering if you could comment on Apple's purchase Intel's modem. And then as you think longer here, it sounds like Huawei, you're focusing more on post this ban or attempt to ban here, focusing more internal on their modem. I know you shipped to a portion of that, so I'm kind of just curious then any view on how this Apple purchase effects \$2 you guys talked about. And

then if you can just comment on Huawei and if they gain share and do more in-sourcing, the opportunities for you as you go into 5G?

A - Steve Mollenkopf {BIO 16172191 <GO>}

Blayne, this is Steve. I'll handle the first one and Chris, John I think is going to jump in on the Huawei question. I would say in terms of the recent news flow, this really -- I think that was pretty highly anticipated. It was clearly anticipated in the agreement that we did. Remember, we did two agreements, a patent license agreement, as well as a product agreement -- multi-year product agreement. We don't see anything changing in terms of our ability to deliver on those agreements and we think it still remains a pretty competitive or at least attractive competitive dynamic for us, when you look at the industry and our roadmap versus others, even after those agreements expire.

And I think very clearly the answer to your question, we don't see any impact to the \$2 number that we have put out there.

A - Cristiano R. Amon {BIO 3259554 <GO>}

Hi. This is Cristiano. So on the Huawei, Huawei has and has been now a number of years that they're premium in high tier has been focused on their own silicon. I think our shipments to Huawei always like in the mid to low-tier. But I would look at the Huawei focus on China a little different. I think it creates an opportunity for our customer base coming out of China companies like Vivo, Oppo, OnePlus and Xiaomi outside China, especially in Europe, that's accretive to us, especially on the 5G transition, and we look that opportunity as probably permanent, not one time. I think the interest on the European carriers have been very high.

And when some data came out that were very pleased and show since that we're kind of generations ahead on our 5G chip, I think the latest report show that the Huawei modem is at least 50% bigger in area than the first generation QCT. And I think we had compete with many other companies throughout the years, and we're optimistic about the lead we have on 5G. And hopefully that will drive a good transition for us, with our customers in China, including competing with Huawei domestic China as well.

Operator

Thank you. Our next question comes from the line of Samik Chatterjee with J.P. Morgan. Please proceed with your question.

Q - Samik Chatterjee {BIO 15496543 <GO>}

Hi. Thanks for taking the question. I just wanted to start off with kind of question on 5G. You're clearly excited about your position in 5G. But as you kind of think about the impact on the smartphone industry, you're expecting volumes to improve, but lowering the cost of the solution also is probably going to be a big driver. So how are you seeing kind of progress on that front?

And just as a follow-up, I think you mentioned kind of 20 operators you expect to launch 5G. Can you just help us think about the mix of sub-6 versus millimeter wave? And you mentioned you would expect millimeter wave to be mandatory kind of what's driving your view there given what we hear is the infrastructure is not really ready to support millimeter wave in most geographies yet? Thanks.

A - Steve Mollenkopf {BIO 16172191 <GO>}

Samik, this is Steve. Maybe I'll take the first one and Cristiano will jump in a bit on the RF components. I would say, look at 5G roll out in general has a higher intensity and a more global nature than what we saw even in 4G, so the pressure that we are getting to accelerate, not only the premium tier but also higher tier devices is pretty immense. If you were to look China Mobile came out with a data point that said essentially RMB2,000 device is roughly \$300 phone that will be where they're going to target the 5G line next year, pretty substantial by the end of the year that is -- that pretty substantial move.

I would expect at the beginning of the year, which is what we're really focused on right now, you'll start to see that line be somewhere close to the RMB3,000, so roughly 400 -- \$430 price point. That's pretty significant actually. And it's anticipated in our roadmap in terms of our integration. You may have seen us and remember that we have talked about how we have been moving four -- our 5G into an integrated roadmap even more quickly than we did in 4G.

Now, two things happen to us that I think are beneficial in addition to just the good dynamics that happen when you have transitions in technology. One is, because the complexity of 5G goes up, the ASP of the baseband we tend to have an attractive move just from the ASP of the baseband alone tier-to-tier, so 4G same tier to 5G same tier. The ASP of the baseband is good for us.

Secondly, we see a strong opportunity in the RF to grow the content of the device, as you know, we've had strong traction there in part because of the importance of wrapping the system design around the antenna. You will see consistent with the design that I mentioned or the feature that I mentioned dynamic spectrum sharing, you will see an opportunity to extend those 5G RF design opportunities into the legacy 4G bands as they are effectively dynamically re-farmed with that feature. So we see a continued roadmap for us to continue -- to grow, content per device. And that's why we've been investing so heavily to put that in place. It's in place now and the real activity for us is how quickly can we get this to ramp and can we do it worldwide. So we're pleased with that, I would say the dynamics. And we have a lot of visibility into that. We've a lot of confidence that we think -- that we're going to be able to do it.

A - Cristiano R. Amon {BIO 3259554 <GO>}

Hi. So Christian. Just to answer your question about sub-6 and millimeter wave mix. So millimeter wave right now is a requirement across all the main carriers in United States. I think we saw phones again launch of millimeter wave. And in 2020 we'll see that in Korea, in Japan. So if you look at the developed economies, I think the Japan market, Korea market, and the States market require millimeter wave. There will be no high attach in terms of the total 5G volumes. But it's not stopping there so Europe that is launching with

sub-6. Millimeter wave has been already auctioned in Italy. And it is now likely to get a license in the UK as well. So 5G has really been designed for the combination of sub-6 and millimeter wave, and we are optimistic about millimeter wave attach increasing.

One other thing to mention is sub-6 in general, we will see in '20 a lot of reforming on existing spectrum because of the dynamics spectrum sharing technology. So that also create opportunities for us to expand our RF front end that today is focused on 5G, these new sub-6 band and millimeter wave to also add the reform band. So -- and that's how we think about the RF.

Operator

Thank you. Our next question comes from the line of Tal Liani with Bank of America. Please proceed with your question.

Q - Tal Liani {BIO 1643846 <GO>}

Hi guys. When you say that there is a slowdown in 4G versus 5G, is it only China specific or can you give the global context of this comment? It's just hard for me to believe that there is any slowdown in Europe or the U.S. because of 5G, so I want to understand it.

Second, can you comment on relationship with Apple post the acquisition of Intel's modem business by Apple? How do you view it and what's -- where do you see yourself kind of in the future playing with Apple kind of how do you work with Apple, given that they're going to have a modem asset in-house? Thanks.

A - David Wise {BIO 21006539 <GO>}

Hi. This is Dave. I'll start. So let me start with China. So we are seeing a pause or a slowing in terms of 4G orders in advance of 5G in China. Really there is a number of -- as we referenced, a number of dynamics going on in China right now. There is sort of a realignment of the selling towards the lower sell-through growth rate, so some compression on growth rates in the back half of the year. The channel inventory is being drawn down. And so headwinds for the OEMs in terms of the market in China in the back half of the year.

And then what we're seeing is an element of the softness in the sell through market really being attributable to more high premium tier segments of the market pausing before 5G. So we are seeing that -- some of that pause before 5G in a desire by some of our OEMs to try to accelerate efforts to bring 5G into the market. So seeing that there. And outside of China, we referenced lengthening replacement rates in developed markets like the U.S. and Europe, and so we think a little bit at play there as well in terms of some pause, again sort of the higher tiers in advance of 5G.

A - Steve Mollenkopf {BIO 16172191 <GO>}

And Tal, this is Steve. With respect to Apple, I think the relationship is quite good. What really characterizes it now is the 100% of the intensity is how do we get products out together. Very natural I think for both companies. We, and I think both sides, really

anticipated that there would be some announcement like you've seen, but it hasn't changed the way in which we moved forward. We're used to that. And the real effort is how do we get products out together and I think that's very healthy relationship.

Operator

Thank you. Our next question comes from the line of Ross Seymore with Deutsche Bank. Please proceed with your question.

Q - Ross Seymore {BIO 20902787 <GO>}

Hi, guys. I want to talk about the 5G side, you're clearly excited about the first half of next calendar year. Can you talk a little bit through, do you think it's going to be more of a unit demand environment where that's really going to rise, or is it going to be more of a substitution effect there, and people on the sell side and buy side should more or less focus on that 1.5 times increasing content that you talked about, Steve?

A - Steve Mollenkopf {BIO 16172191 <GO>}

Yes, Ross. I think as we look out over the next year and the transition to 5G, we don't really look at it in terms of being a unit growth story where the market units increase. What we really see is in a flat market, the transition over to 5G creating an opportunity for us by the fact that our monetization per phone is going up as Steve referenced, as we see higher ASPs associated with complexity, as well as the capture of 5G RF front end content. And so it's really more about that as a growth driver for us as we head into the first calendar quarter next year and on into the rest of fiscal '20.

A - Cristiano R. Amon {BIO 3259554 <GO>}

Ross, this is Cristiano. I'd like to add the following. And when you look at the first half, just the launch of the 5G by the operators and how unlimited data plan starts to move to the 5G devices, you'll see that replacement, and with that you do see this 1.5 times factor coming in as we grow content and RF front end. Over time, it's hard to make predictions, but we've seen that with every different a transition. As some of the new service such as video or gaming or streaming gaming starts to become more popular and device form factor changes for a larger screen, you could see the market growing faster than single-digit. But we're not making that assumption for 2020.

Q - Ross Seymore {BIO 20902787 <GO>}

That's helpful. I guess as my follow-up question sticking with China theme in general, can you give us an idea whether it's your QCT revenues or the MSMs, any sort of even rough estimate about the percentage of those that are associated with China, because the year-over-year growth rates you're talking about or declines in this instance are quite acute. I know in the September quarter you had 14 weeks last year and some of things have changed, and you walked through the inventory dynamics. But even if I adjust for those, it seems like you're down a better part of 15%, 20% year-over-year.

So to the extent China is such a larger exposure for you, can you just talk about how big is it? And is there anything that you can do to help mitigate these sorts of booms and busts

as we go into that first half of 2020, when the count -- the 5G ramp could lead to the same sort of volatility?

A - David Wise {BIO 21006539 <GO>}

Yes. A quick comment on year-over-year. So if you take a look at where we are year-over-year, there's a couple of things -- a couple of factors that affect the decrease or the reduced level of revenues. One, I would remind you that last year, that was significantly more in Apple in our business versus the current quarters. So that's a meaningful portion of the decrease in revenues on a year-over-year basis.

We also had some low-end share loss over the last year that had some contribution to the reduction as well. But Apple a big part of it in terms of QCT. Yes. On the QTL side, just to highlight it, in the year ago quarter, we had \$500 million from Huawei compared to \$150 million in the current quarter. So overall, that contributes to the comparison also.

A - Steve Mollenkopf {BIO 16172191 <GO>}

And I would just add one. This is Steve. I'd just add one. I think you have an unusual event here, which was the reaction of Huawei to the ban and how it retrenched into China. And I think that was a very unusual share shift that obviously we got impacted probably more than other folks just because the tiers and the OEMs that were impacted are ones that we tend to monetize. We think that gets back in a more normal position kind of snaps back the other way with the launch of 5G. And hopefully, wouldn't have a one-time event like that, but it should be more stable post that big ramp with 5G.

Operator

Thank you. The next question comes from the line of Matt Ramsay with Cowen. Please proceed with your question.

Q - Matt Ramsay {BIO 17978411 <GO>}

Yes. Thank you very much. Good afternoon. A couple of additional questions on China, one from each side of the business. I know Steve or Cristiano, I know, you've talked a little bit about the Huawei retrenchment and the impact on QCT units. It's been topical that obviously China after the Huawei entity list stuff and other factors has maybe focused more as a country on indigenous development. Have there been any movements for high silicon to supply any other OEMs in China, or for OEMs broadly to source from China? And then on the QTL side, since Judge Koh's ruling, any change in compliance with Chinese OEMs outside of Huawei that we should note? Thank you.

A - Steve Mollenkopf {BIO 16172191 <GO>}

Thanks for the question. Look, I think the way to think about it, Huawei had a sudden change in their phone landscape, especially what happened at Europe. I think there was a drastic reduction in demand, and I think that causes them to be very focused on China, because that's the place they could be focused on. I think the big picture answer to your question is, China has many initiatives. And the initiative of China is not only about China domestic market, but also all the Chinese mobile system grow outside China. And what

we have seen, it's a our relationship with China remains a very healthy and is expanding. And in addition to the relationship with Vivo, Oppo and OnePlus as they range in Europe, we recently signed an agreement with Tencent talking about content in 5G use case development. And I expect that the relationship between QCT and China in the 5G era will continue to be healthy because we help the expansion outside China, and that's how we look at. We don't see any signs today that, that dynamic is changing.

A - Alexander H. Rogers {BIO 19966795 <GO>}

And then -- this is Alex. On the QTL side, there was as we referenced one incident that would have affected the compliance and we engaged very rapidly on that, took it very seriously. But as you can see as of we ended the reporting here, we've got good compliance.

Operator

Thank you. Our next question comes from the line of Stacy Rasgon with Bernstein Research. Please proceed with your question.

Q - Stacy Rasgon {BIO 16423886 <GO>}

Hi, guys, thanks for taking my question. I wanted to ask about the QCT trajectory. So I know you're talking about inventory plus and some of the weakness in everything else. But at the same time, if I look at your forward guidance on chipsets, I mean you've been missing for the last several quarters, so why all of a sudden is it inventories in a pause in front of the 5G versus just a continuation of the trend that we've already been seeing for the last three or four quarters?

And for my follow-up, I just want to know, do you guys think 5G overall is accretive to licensing revenues? I mean, you lowered the rate when you included it you have the ASPs cap, it doesn't sound like you're looking for incremental unit growth for the market for 5G. So how do we think about 5G's impact on the run rate of royalty revenues given the Board [ph] is today? Thank you.

A - Steve Mollenkopf {BIO 16172191 <GO>}

Hey, Stacy. Yes. So with respect to the QCT side, first of all, I would make the comment that stepping back over the course of this year, I think with the recent 100 million unit reduction, we've seen a sort of a continuing erosion in the handset market over the course of this year. So this has been something that has been a headwind for the business I think for the last several quarters. And so I think that's been a dynamic that has been impacting MSM units, as well as sort of the overall business.

I think what we saw this -- what we're seeing now is maybe a little more pronounced growth impacts on the back half of the year as again we go back to the sort of sell-through rates remaining down in China, and the sell-through -- sell-in rates really not yet aligned with that. So realignment there and the fact that they weren't aligned in the first half resulting in some channel inventory build. So really more market dynamics in terms of pressure on units. As we said a little bit of share loss at the low end, not financially

significant. And then the more I would say unique situation was Huawei really entrenching and focusing on the domestic China market, and really putting their attention there in grabbing a significant share. So that -- a little bit more of a unique situation to what we're seeing right now. But I would say a lot of it is really attributable to the market headwinds that we've been frankly seeing all year long.

And then QTL, with respect to how to think about that as a 5G, as an upside, a lot of the agreements we signed are for 4G -- 3G, 4G, 5G, and so really we look at it as just a continuation and extending of the monetization of the of the handset market as it evolves from 4G to 5G, just like we did from 3G to 4G.

Operator

Thank you. Our next question comes from the line of Mitch Steves with RBC Capital Markets. Please proceed with your question.

Q - Mitch Steves {BIO 19155169 <GO>}

Hey, guys, thanks for taking my questions. Just had a quick one just kind of turning back to like kind of ASP as expected if we're going to ramp 5G faster, so I guess two parts. So first, does this mean that essentially we're going to see kind of a bigger pause in smartphones shipments, and then that's an increased demand for the kind of 5G shipments out in 2020? And then secondly, if that's not the case, what should we think about as a kind of normalized unit base for the smartphone industry at this point?

A - Steve Mollenkopf {BIO 16172191 <GO>}

Yes. So in our comments, when we talked about the 100 million unit reduction, we kind of gave a sense it's 1.7 billion and 1.8 billion units in total. We indicated that now translates into a handset market being down sort of mid-single digits year-over-year. And so if you look -- if you step back over the last number of years, it's been relatively flat handset market, so down a little bit as we see some of this pause and some of the macro environment impacts affecting us. So we don't really see any sort of changes in the overall unit market beyond the comments that we made.

Q - Mitch Steves {BIO 19155169 <GO>}

Again -- yes, just to clarify a real quick, (inaudible) asking the question, I was referring more to 2020. So essentially, if people are pulling down the numbers for this year, does that mean essentially '20 should be up like 7% or 8% to kind of offset those being a more of a down year, or is that too early to call that?

A - David Wise {BIO 21006539 <GO>}

Yes. Probably too early for us to call what we'll see in '20. But I think we would expect to as we said see an inflection beginning in the first calendar, so it'll be our second fiscal quarter with 5G launches happening more significantly in China, as well as other flagship device launches at Mobile World Congress, and things like that. And then sort of building over the course of the year as we think about moving towards really more flagship launches happening in the fourth fiscal quarter.

Operator

Thank you. Our next question comes from the line of Rod Hall with Goldman Sachs. Please proceed with your question.

Q - Rod Hall {BIO 20453923 <GO>}

Yes. Thanks for squeezing me in, guys. Just a couple of things. I wanted to ask kind of deviate from all the demand stuff and just ask you if you could update us on the CFO search, what the status of that is? And then I also want to come back to just the demand stuff, just to clarify what your -- what information you're acting on? So are you seeing -- did you see deterioration of demand through the quarter? Could you just kind of talk to us about what sort of data points you've seen here, and how they came to you? Did it -- did things weaken toward the end of the quarter or they just remained weak or kind of give us some idea what trajectory look like to you? Thank you.

A - Steve Mollenkopf {BIO 16172191 <GO>}

Rod, hi. It's Steve. We continue to look; nothing to announce right now, but we'll keep you updated.

A - David Wise {BIO 21006539 <GO>}

Then with respect to the -- sort of how things have unfolded I guess more recently. So one, I think we track like the (inaudible) report. I mean, we track that like probably a lot of others in terms of watching -- what's happening with the sell through. And so we've seen that continued to be down even through the June quarter with really no significant movement away from that trend. And then we'll look at that relative to kind of where we see handset demand coming in with respect to sort of our own data points around the markets.

And so we look at it from that standpoint. We look at our demand profile is coming in from customers in QCT, and factor that into the mix as well, and that's where we've seen some of the pullback that we talked about with respect to 4G units.

A - Cristiano R. Amon {BIO 3259554 <GO>}

Yes. This is a Cristiano. Like we -- I think, I've mentioned this before, we saw some phone model cancellations, which is -- on the 4G second half launch. So that's an indication. It's -- they wanted to accelerate the 5G. And that's a unusual metric having the phone model cancellation on the 4G side.

Operator

Thank you. Ladies and gentlemen, that concludes today's question-and-answer session. Mr. Mollenkopf, do you have anything further to add before adjourning the call?

A - Steve Mollenkopf {BIO 16172191 <GO>}

Well, thank you. I just thank everyone for joining us today. And maybe just to the employees of Qualcomm, thank you for the good quarter. We have a lot of work ahead to launch 5G. It's a big opportunity for the Company and look forward to the next several quarters, and a lot of work to do. But I think a great opportunity for us. Thank you.

Operator

Thank you. Ladies and gentlemen, this concludes today's conference call. You may now disconnect.

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