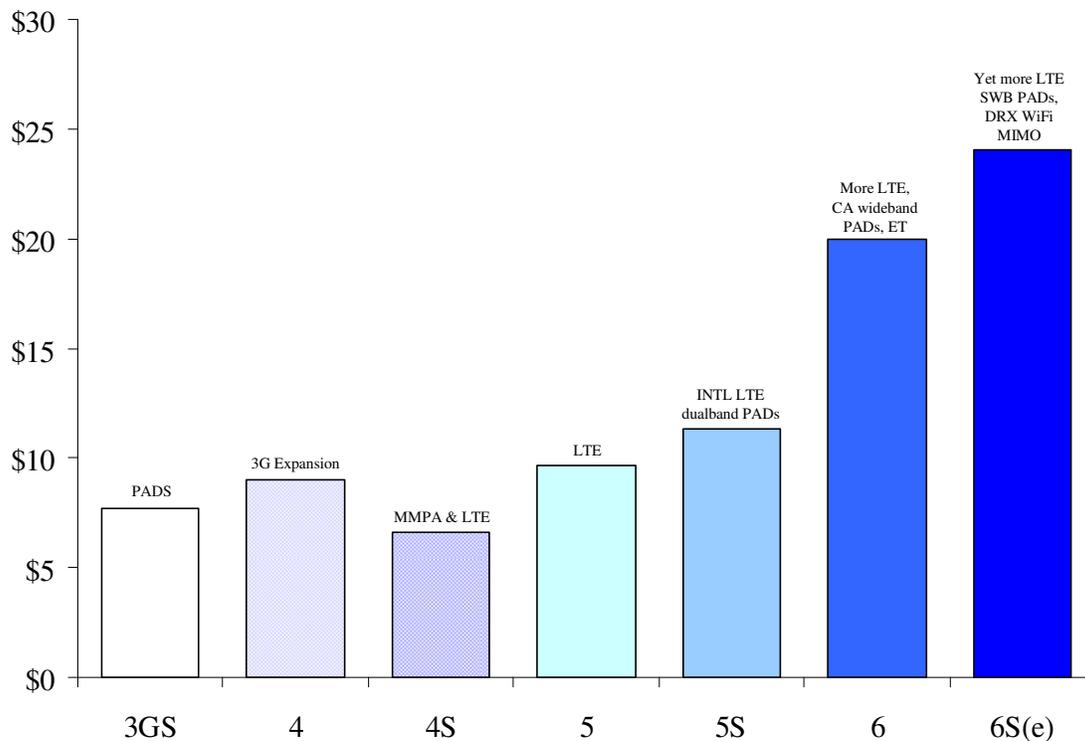


iPhone 6S: Teardown analysis

Higher content driven by more LTE, MIMO, and diversity receive.

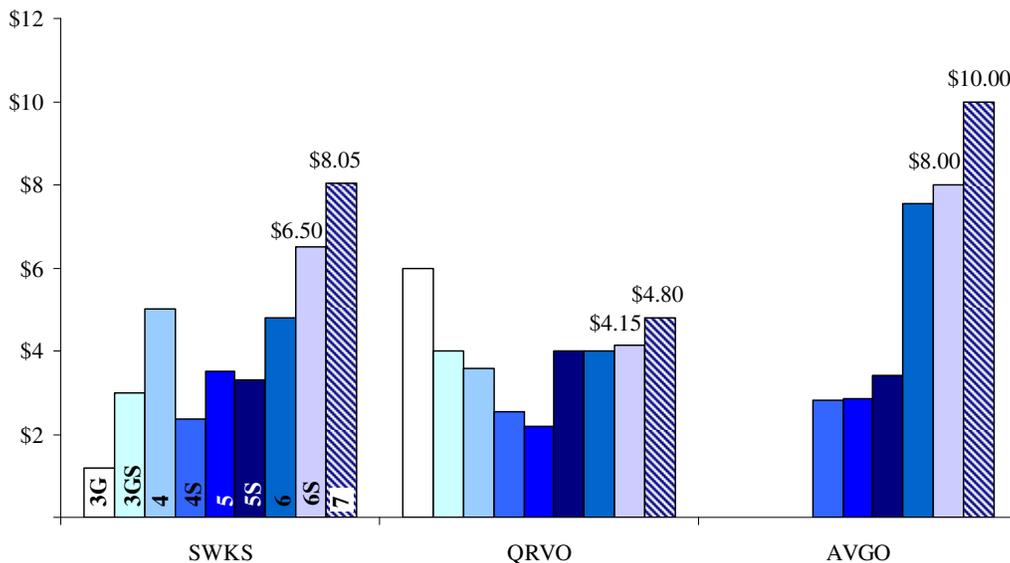
Total RF content up ~25% y/y for iPhone 6S. The teardown photos published last night confirm our forecast of a higher overall RF content from an increase in the number of LTE bands, a move to MIMO in the Wi-Fi section and larger, more complex diversity receive modules. The final word on how much all of this is worth will have to wait until the quarterly reports but discussions throughout 2015 suggest total additional spending will be in the \$4.00 range, bringing iPhone 6S to about \$24 in total RF content. We expect a similar increase in next year's phone (iPhone 7) on higher band count and the addition of multiplexing filters to handle three-band carrier aggregation. Before the decade is out, total spending on RF could rise as high as \$40 per phone as Apple keeps layering on LTE bands and carrier aggregation requirements get more complex. The LTE standard was allocated with close to 50 bands, of which only less than 30 have been enabled. This will probably result in three to five new bands every year. Carrier aggregation will probably be one of the largest drivers for spending, initially on more bands and greater complexity in receive mode as more operators employ it and then followed by a big increases when transmit-mode CA is implemented in 2017.

iPhone Content History



Teardown confirms our forecast that Skyworks' content is up 20%-30% y/y. Photos of both the iPhone 6S and iPhone 6S+ show several Skyworks components, including a large PAD. We believe this part is the combination of the ultra-low and low-band PADs on last year's phone given its size and the fact the photos show one less PAD this year than last. It is clear Skyworks has this part in both the 6 and the 6+ models, so sellside speculations of a share loss to Murata here are incorrect. Our guesstimate on the breakdown of every part in every package will have to be modified too but only on the margins. The EDGE amplifier we believed would be split between the low-band and mid-band PADs looks to be its own discrete component supplied by Skyworks, just like in past years. This is a slight content increase from our forecast, given we believed the EDGE part would be split with the low-band in the Skyworks PAD and the high band in the Avago part. We also stand corrected on the breakout of the diversity receive channel where it appears Apple is using one large module instead of two and swapping between Skyworks on the 6+ and Murata on the 6. We believe our ASP assumption of about \$2.00 still holds as does our belief that Skyworks would take the majority of the Wi-Fi power amplifiers in both 2.4GHz and 5GHz for this MIMO (double the content) configuration. All-in, the teardown photos give us even more confidence in our prediction that Skyworks is the big winner on iPhone 6S and will see a 20%-30% y/y increase in revenue from Apple on flat units and about \$6.00 - \$6.50 in blended content.

iPhone Supplier Content by Model



Avago and Qorvo generally flat. In-line with what we predicted on last week's iPhone 6S investor call, content for both Avago and Qorvo appear to be relatively flat y/y. We believe blended content for Avago will be \$7.50 - \$8.00 (in-line with iPhone 6) and about \$4.00 - \$4.30 for Qorvo. The precise y/y change in revenue from Apple can't be known until the companies report their earnings because the mix between 6 and 6+ and overall demand have yet to be determined. But data from the photos agrees with our forecast of Avago taking most of the high-band and BAW-related components with the exception of it sharing the ultra-high band PAD with Qorvo. The teardown also confirms our assumption that Qorvo and Murata would share the antenna switch module, unlike last year when Qorvo had 100% of that slot. Qorvo also continues its reign as king of the antenna tuner business by taking both tuners again this year. The company has been the sole supplier of these parts to Apple largely because the designs are highly iterative, requiring very close collaboration with the handset OEM, which makes it exceedingly difficult for late entrants. We expect Qorvo is combining its incumbency in antenna tuning with its lead switching to nudge the 2017 iPhone design towards a front-end architecture that favors its solution. This could allow the company to land significant BAW filter content in that phone as Apple struggles to solve the increasingly difficult problems of advanced carrier aggregation. It's much too early for content predictions for iPhone 7S but our initial assessment is that the odds are better than they've been in several years for a coup by Qorvo.

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