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**From:** Seyfi Bazarjani  
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**Subject:** Parker Vision (From Saed Younis)  
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Hi,

I (Saed), am using Seyfi's computer to write this e-mail since I'm in BB at this time for MARS LLDR.

Steve Ciccarelli, Rick Staszewski and myself met with Parker Vision folks in the lab and measured for ourselves the performance of their parts.

Executive Summary: (Details with numbers follow after Summary):  
We are very impressed with the performance! We can make a phone with their parts with higher dynamic range than today's phones. They are 0.35 CMOS parts and we measured their current at 4.8 mA for I and Q. PCS performance is not as good but Steve think he can still make it work. We are pleased with the performance but we also see some difficulties. The first is that without a SAW filter at IF, we need to increase the baseband filtering and/or ADC dynamic range by ~33dB. Also we have to replace the AGC function that was at IF as well and the signal could be too close to the noise floor at baseband. Our group can start on a prototype design to feret out the issues as soon as the business side gives the go ahead. If Parker lets us in on what's inside, I estimate us making a phone call with the devices early this Summer. Mind you that there are a couple of non-trivial system technical issues the we need to solve to make it work. Increasing DR by 33dB being one of them.

The truth is Parker Vision have stumbled on something revolutionary, but they are in no way able to converge on a full solution without our help. They need to undestand that!

Detailed Technical Summary:

The phones we ship today have an accumulative RF chain performace of:  
NF= 7 dB, IIP3 of -7dBm.

We measured their device at 900 MHz and we got:  
NF = 19 dB, IIP3 of +14dBm. We measured this with 2.4mA @ 5V per I and another 2.4mA per Q. Add 10-15mA for LNA's (maybe less with SiGe LNA's) and you are down to baseband in ~20mA.

So with LNA's in front of the Parker Vision part, we can make a phone with overall performance of:

NF = 7 dB, IIP3 of +2 (which is a phone with higher dynamic range than current phones)

This is based on a receiver line-up design that Steve hashed out Quickly on his way to MARS LLDR. We are reasonably confident in these numbers though.