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Unidentified Analyst

Thanks for joining, so we have next presentation today from one of the leading OLED IP companies, Universal Display. They've got a pretty strong presence in this market right now, growing at a very rapid pace. We have with us today the CFO of the company Sid Rosenblatt.

Sid Rosenblatt

Thank you all for coming for this. I am Sid Rosenblatt. I've been with the company since it was formed. We are an intellectual property company that has developed OLED technology, what we call phosphorescent OLEDs. I am going to give you just a quick ten minute introduction of who we are. We would appreciate if you would read all of our 10-Ks and 10-Qs. We pay our lawyers and accountants a lot of money and it would be nice if somebody read everything that they did.

So we had been working on OLED technology since 1994. We funded research at Princeton University and University of Southern California and thought that funding of research we have developed what we call phosphorescent OLED technology.

A basic platform is power efficiency. OLEDs were originally developed by Kodak Corporation and the conventional OLEDs are what we call fluorescent OLEDs. So today we are an IP technology company. We have more than 3000 patents issued and pending worldwide. We have developed different architectures for the OLED field, in addition to the fact that we have entered to long-term license agreements with major display manufactures, we have a long-term license agreement with Samsung. In addition to that we actually make and sell the emissive materials that go into the devices. Our patents have been issued worldwide on materials.

Actually we are fabulous. We have these OLED materials manufactured for us by PPG Industries. We get them and we device qualify them and then we sell them. We have been working on this technology as I said for 17 years. We have invested almost $250 million and we really have been known as the phosphorescent emission technology. And what phosphorescence does is it gives you a four to one power advantage when you compare us to conventional OLED technology, in addition to a number of other platforms that our patent portfolio covers. Not only do we have the basic patents, that say if you use a phosphorescent emitter and it's defined as essentially converting the way that molecules actually light up and these are layers of film.

So an OLED is a simple device. It is seven to nine layers of film that are sandwiched between glass, and those layers that actually light up are 1:1000 the thickness of a hair. So that technology is one that gives you a very thin device. The benefits of OLEDs are that you get a very thin device. You get a 180 degree viewing angle. You have no distortion when you look at an OLED device off axis. You have a very high contrast ratio. And the key to our technology as I said is our phosphorescent technology, which is the core of our IP. Conventional OLEDs, when you put current into the molecule that lights up, that you actually see, and OLED devices are in all the Galaxy products, I will show you pictures, but there are no light bulbs, there is no back lights,

there is nothing like that. The layers of film themselves light up and show you the colors; all the colors of the rainbow.

The way that these molecules actually work is you put current into them, they go into an excited state, they create energy and then they relax and the energy comes out in the form of either heat or light. Conventional OLEDs, only 25% of that energy is converted into usable light, 75% is wasted as heat. What our process, and what our scientists were able to do is come up with a way of converting that 75% that was wasted as heat, into usable light. That's what our basic patents cover and our materials that we make and sell are these phosphorescent emitters.

In addition to that we have been working in a number of other areas in the entire OLED field, which would include encapsulation technologies. We have patents on what are called transparent or top-emission technology. These layers are so thin that essentially if you use a cathode that is transparent you could see through these when they are turned off. That has some application, Samsung has demonstrated a laptop that you could literally see through that you are working on, but I am not so sure you always want to see what's on the other side of your laptop.

But for lighting applications, you can have transparent glass that can be wall sconces, architectural fixtures and they disappear when they are turned off. But then when they get turned on, you see the light that comes out of them. We have basic patents in flexible displays. We have basic patents that say if you make an OLED on a plastic display, it is covered by our IP and a number of other areas out-coupling which is light enhancement, and in a number of other areas which would include our single layer encapsulation that I will talk about in a second.

But our process that we acquired a large patent portfolio from Fujifilm's in about a year ago. So today we have more than 3000 patents issued and pending worldwide. The market that we're addressing is the OLED market today. It's about $13 billion annually, that's the display side only. It is still dominated today as you can see by the blue by mobile devices, whether it is handsets, whether it's camcorder, screens, things like that. You have seen some demos and I will show you a little bit. These are all of the Galaxy products that are in the marketplace, all the Galaxy S through the Galaxy 4, it is in the Note 3 that's coming out, all of the Samsung's AMOLED products have our technology and our materials in them.

The Samsung Display who is our customer, who sells at the Samsung Electronics also is a merchant of OLED displays. So it sells into Blackberry, Nokia, Motorola and here is some other products that have had it. You see the Galaxy, new Note 3, the Galaxy Gear phone has an AMOLED screen. So you are seeing these in small area in mass production.

There has been demos of 55 inch OLED TVs at CES by both LG and Samsung. We have as I said a long term license agreement with Samsung Display Corporation. We have a license agreement, short-term one with LG. We are negotiating a long-term one. We also have the number of license agreements on the lighting side with a number of Japanese lighting companies and we work almost with every other display company. We've got announced relationships with AOL, Chimei, Sony, a number of others but these are some of the recent products that have been demonstrated that you have seen and you can buy actually, you can go and buy some of these. If you want to spend $9,000 you can probably get all you would like.

Some of the things that we are looking at for the future for OLED technology is, one is: expanding our materials business. Right now we make red materials that are in all the devices, we make green emissive materials. We make green host materials that go into it. In addition to that we are working on next generation reds, greens. We're also working on blue, phosphorus materials for displays. We have white, blue materials that can be used for lighting applications. We are working on a barrier layer system. We have patents in a process that we call a single layer barrier. If you are going to make a flexible display, if you are going to make a display on plastic, you need a barrier layer.

OLEDs are susceptible to be degraded when oxygen and moisture get in the device. So if you are using glass, it's a very good oxygen and moisture barrier. If you are using plastic, it is not. So you need to have coatings that you put on the plastic, so that oxygen and moisture don't get through. Today the process is been used a multi-step or and multi-layer process or the six layers. We are working on a single layer one.

In addition, there has been a lot of talk about when you are going to be able to actually use solution materials and print OLEDs, as opposed to deposit them in vacuum chambers that you are doing today. There is still a lot of work that has to be done in that but we are working and we have made our materials printable, if you can start to use our inkjet printing or nozzle printing technology.

We also are working on a printing technology that actually prints the powders themselves. So instead of putting them into a solution and running them to inkjet printers, we have a process called OBJP where we are actually printing the powders onto the substrates. These are some of the things that we are working on in our labs that we think are really the future of OLED technology and that we continue to expand what we are doing in the OLED field to try to enable this industry to grow as fast as possible.

Essentially what you are seeing is mobile devices moving into tablets and TVs, into flexibles, into lighting and this is something our phosphorescent technology has really enabled OLEDs to take off. There was a number of starts and stops on OLED technology, on conventional OLEDs and I think if it wasn't for the invention of phosphorescence and power efficiency, Samsung talks about the fact that its new product going from just red phosphorus in emitters to red and green phosphorus in emitters gives them a 25% power savings to increase. That's really the key to our technology and I think to some extent is the key to OLEDs actually becoming commercialized.

With that I think I can just answer some of your questions.

Question-and-Answer Session

Unidentified Analyst

Thank you so much. May be we can start off Sid, with some of the near term points that you have made. You guys have talked about increasing your mix of green. As you sort of think about the next four quarters, how should we think about the green, the sales, particularly for red and green segments?

Sid Rosenblatt

Okay, for some of you that don't know, in visual displays you use red, green and blue colors and by mixing those three colors you get all the colors of the rainbow. We have been historically just selling our red phosphorus emitters into the devices that have been made. In the last quarter that we announced, we announced that our green materials or in that quarter our green material sales in that quarter were about $13 million compared to $3.6 million of our red material and we also sell host materials which actually goes into the emissive material to make pixels themselves and that was about $9 million in the quarter.

And the question is what can we expect as we move forward? As we have said on the call, because of the early stage, it's only been one quarter that we have sold these, it's really difficult for us to predict what the actual run rate will be over the next three or four quarters. There is a number of factors that influence what our material sales are and historically our red material, when we first started selling it with the amount that we sold quantity wise has gone down because the customer, Samsung Display has been much more efficient in its material utilization.

A big piece of that had to do with equipment, early on going from large vacuum chambers to the new equipment that's in place today. That was really a step function down in efficiency. And then the next piece of it is, when you decrease the concentration of the material actually in the pixel, what you do is reduce the lifetime. So our red materials is a very robust material, very long lived and they have been modifying the recipe over time to use less and less, without affecting the performance of the device.

With green material, we're not going to see large step function in terms of the material because all these are been made in very efficient vacuum chambers today. Whether we will see a decline in the concentration of the green emissive material that goes into the pixel is something we'll have to see. The life time our green material is not as long as our red material. So I don't think they can reduce it significantly.

The second part is, just from the physics of how you make displays, the green color is much brighter, it's a much friendlier color to your eye and architecturally you always have to put more green emissive material into the device. So we always expect to sell more quantity of green than we do of red.

Unidentified Analyst

And in terms of just the customer adoption, right now we only have Samsung with a long term agreement, and he said you have been working on a long term agreement with LG. What are some of the factors that will drive LG to move forward with this long term agreement and what sort of time frame do you expect that agreement to be signed?

Sid Rosenblatt

Well, we have an agreement with Samsung that runs through 2017, it has a license fee and it has guaranteed minimum material quantities. LG, and to be honest when we signed this agreement

with Samsung we first signed one in 2005 probably three years before they started manufacturing anything and the last one we signed in 2011.

LG has really been working on R&D. They are selling some TVs but these are really pilot TVs today. They have announced they actually have a ceremony in the beginning of August, dedicating one of their lines in their Gen8 facility for OLED manufacturing, which is supposed to come out in the second half of 2014.

We're in active negotiations with them. To some extent they know that they don't have to sign an agreement today because what we have is an agreement today where we build a license fee into each gram of material that we sell them. So to some extent, they are paying us a license fee on materials that end up in waste.

So there is sort of, probably a numerical formula that says once they start buying X amount of material, because they know when they signed a license agreement with us, they will then be able to buy materials at a much lower price it doesn't have a license fee built in, then it would be impetus to sign the agreement. Will it happen in the next six months? May be. We're actively negotiating with them and talking to a number of other customers.

Unidentified Analyst

And just going to a customer list, if you talk, look at some of the Taiwanese customers, where are they in terms of the motivation to sign a long term agreement and where are they in overall manufacturing timeframe for some of the large volume manufacturing?

Sid Rosenblatt

I mean really Samsung is 95% of the industry today; LG is probably the next in terms of capacity that's been announced. AUO has again 4.5 line for mobile devices. AUO also has a TV pilot line. AUO actually made the 55 inch TV that was demonstrated by Sony at CES. It was a 4k 55 inch OLED TV. They have not announced any specific plans of increasing the capacity at this time. They also have a facility in Singapore that they said they were going to convert for OLED use. But neither, there has been no announcement specifically of when they are going to do it. We again with them have a joint development and we have a short term license agreement where we built it in.

We also have on the display side agreement with GMA, we have worked with GMA for a number of years. GMA actually interlocks. They really have not announced any CapEx and they have some of their own financial issues.

So that really is where the OLED Display business is today. Japan has a number of companies. Pioneer has made passive-matrix OLED displays for all of its car stereos for 10 years. We provide them material. We have a joint development agreement with Sony and Sony has demonstrated a TV but it was made by AUO, they have not announced any manufacturing capacity. You'll hear some talk from Japan display wanting to get into the mobile size business, but there has been no announcement yet. So really I think what you will see is Samsung

continuing to grow. They have announced additional CapEx for extending their A2 facility. They have talked about A3 for TVs and for mobile and LG has now served capacity. But I really just think that's where you'll see this industry probably for the next 12 to 18 months.

Unidentified Analyst

So in terms of your expectations for TV contributing to overall revenues, you're looking at some time in say 2014 second half time frame, is that fair assumption?

Sid Rosenblatt

Yes, I mean, that's a fair assumption. LG has said the second half their capacity for this Gen A size glass is about 28,000 substrate starts per month and you can cut that into six 55 inch TVs assuming they yield everything. So that's really the first story, that's fairly large capacity in terms of material, assuming it does happen then. The real question for us in trying to predict what the next four quarters will look like is will it be in the second half of the year, will it be in June, will it be in July, will it be September. They've been working on it. They've made large commitments corporate wide for TVs. Samsung I think is doing the same thing but Samsung has not specifically announced when they plan on putting equipment into their TV line.

Unidentified Analyst

But can you talk about where these companies are in terms of yields? I know that yields have been very low historically. Have you seen any improvement? I know that there are still very low but have you seen any change at all in terms of overall yields for the TV manufacturing line?

Sid Rosenblatt

Well, TV manufacturing, number one we don't make the TVs. It's hard for us to talk about that here. I think they are still very low. I think that because either made in private lines, it's really difficult to even predict what your yields are going to be. I think you have to understand where their issues are on the pilot line and ensure that when they build their volume manufacturing line, they take all of that into account. But we've let things like yields are 10%, 20%, 30% but I honestly don't have any specifics that I can answer.

Unidentified Analyst

And then just going back to the Samsung agreement, you've got step function increase in overall licensed revenues. Can you talk about what kind of expectations you've got baked into agreement for minimum quantities required? Are they also increasing on a step function basis and what happens in a year when Samsung is not be able to fulfill the commitment?

Sid Rosenblatt

Well, our license agreements -- our license fee goes up each year. It was $30 million last year. It's 40 million this year. It goes up each year through 2017. The guaranteed minimum payments

also go up each year. Samsung has met the minimums in each of the years so far and now it's buying these additional -- obviously adding green material to the mix. I don't expect any issues in terms of them not meeting their minimums.

Unidentified Analyst

Okay, the question in the room

Unidentified Analyst

You talked early about a bunch of patents, 3000 or so. Much of those came from Fuji and as well as what you guys have through Princeton and USC. I seem to recall years ago that some of the core phosphorescent patents were supposed to start falling off I think between 2014 and 2017 and I know you guys have developed lot of things since then. Can you maybe walk through what's falling off, what does that mean structurally in terms of competition coming into the market now that these things are basically 30 years old and the technology is fairly well understood at this point?

Sid Rosenblatt

The basic phosphorescent patent which was the invention I talked about are of converting this triplet energy into usable light is 2017 in U.S., 2018 around the rest of the world. In addition to that, the only way that you can do this by using in an iridium complex material in that and then we have what we call L2 compounds. Those patents are 2019-2020. So the architecture patents, the earlier ones are run through 2020-2021.

By acquiring the Fuji IP, we have a number of fundamental areas that we think will still allow us to collect licensees. In addition to the fact that I talked about flexibles, talked about transparent, there is probably multiple patents that are in the devices that Samsung makes.

Separate and distinct from that are our material patents. Every material that we make and sell are separately patented materials and those are very new. The green material that we sell was very young patent. So the way that our license agreement would read is we'd give you a variety of, if you just want phosphorescent light. So we give you the right to put a phosphorus emitter in a device. Now nobody actually can make any phosphorescent emitters today that don't violate our patent. So essentially they're going to buy our materials.

At some point if somebody can invent a phosphorescent emitter that doesn't read on our patents, they can make and sell it. Nobody that we know of can do that. There has been no patents that have been filed that even indicate anybody can and our team is working trying to figure out if we can do it so that we can patent it, which would then extend our ability to license basic rights in addition to the So we really do see our patent portfolio growing and our ability to get license fees doesn't drop off of a cliff in 2017-2018 as we've heard from a number of folks. In addition, we are constantly developing new materials. We're working on next generation, second generation, third generation materials, that will be higher performing materials and again they are patented materials.

Unidentified Analyst

Any other questions? Sid maybe you can talk about the Fujifilm acquisition? I know you have talked about coming up with some sort of a road map for blue. Can you talk about where you are right now in terms of what you've -- you have with the Fuji patents and where you are with the sort of the development on the blue side?

Sid Rosenblatt

In going through the Fuji patent there is a number of areas that are architectural and in material science side and some of the new materials, not specifically blue but stuff that we actually are developing next generation materials that we're actually sampling with customers today are a result of the IP that we acquired from Fuji.

The blue issue, in terms of getting a blue emissive material is, it's a very complicated issue and the emissive field blue, the wavelength is very short, it's a very unstable molecule. LEDs and lasers, the last color to be commercialized were blue. And what we found is there is a number of ways to approach it. We are working on, obviously we've got history of getting a red material that went from 100 hours to now a million hours to half-life. So all of the knowledge base that we have, we are applying to essentially a team that works only on blue.

We have made progress. We have a light blue that needs initial lighting application specifications of 20,000 hours. What we do not have is a deep blue that is that right color for displays and has long enough life time for commercial applications. There has been lots of progress made and as I said to somebody today we also know of 2,000 ways not to do it. But we would like to find the one to do it.

Unidentified Analyst

Just going back to the Samsung manufacturing lines and sort of the plan for the deployment of green across all the lines, where are we right now in terms of how many lines are using the green and where do we think we can go for… **Sid Rosenblatt**

Well right now they are what they call their M4 back-pane, which was designed specifically to work, it was redesigned and it works. It drives our green phosphorescent emitters. You can't just drop a phosphorescent emitter into something that was using florescent before because it would be three times as bright or four times as bright. Anything that uses that M4 design will have our technology in it. They are still making Galaxy S3s in that facility and in A1. Those would only be using our red. We expect as they drop off and quit making some of the older products and move all to the newer versions, whether it's S4, whether it's the Note 3, or that we would expect our green material to be used in them and as they move to the next to next and next generation, they are not going to backwards, they are not going to take it out once it's in because they even announced that SID in the Keynote speech. They expect all three phosphorescent colors to be in their devices. So they understand that the power savings that you get by using phosphorescent is key particularly as the screens get larger and larger and we use them more.

Unidentified Analyst

You mentioned that your manufacturing partner is PPG but more recently you also signed some sort of a manufacturing agreement in Korea. Can you talk about what percentage of your production today comes out of Korea?

Sid Rosenblatt

Sure. Our agreement with PPG, they exclusively make all our materials today. Our emissive material is something we are going to keep that with PPG and they are making our host today. Our host materials are actually sold to one of our partners to Nippon Steel Chemical. We sell our host materials to Nippon Steel, who then in turn sells them to Samsung.

What we are having Duksan Hi-Metal do in Korea is one of the last synthesis steps of our host materials. Essentially host materials, because of the volume, their much larger volume it's 10 to 1, 20 to 1 emitters and we wanted to have a local company work with us and to see how much local content we can have. So they are doing that step. Essentially it's a wash for us. We would either pay PPG to do that step or we are going to pay Duksan to do that step. It's not a savings or an increase cost for us but it does have some local content and our customer would like to have local content, but to be perfectly honest they want local content because they think they can get it cheaper. So that's always a push that we get from the customer.

Unidentified Analyst

Moving on to your balance sheet, I mean can you talk about what is your buyback plan is going forward as you think about the cash on the balance sheet right now and some of, besides the recent acquisition if you have any another thoughts on M&A?

Sid Rosenblatt

Yes we have about $250 million of cash, We have a $50 million authorized buyback program that the Board authorized when the stock was 21 or 22, they felt that at that price the best investment we could have will be buying back our own stock. We have bought back I believe about $10 million or $11 million worth of that at this time. It is essentially a 10b5-1 plan that we don't have discretion and we don't want to be in the market having discretion on it. It really was put in place when the stock was low and they felt that that was the best use of cash.

If there are opportunities, the Fujifilm more than IP portfolio that we had our eye on for long time. It was something, they were working in areas that we really thought had promise and we didn't want to have our folks work in an area that we didn't own. So that was one.

There are not a lot of others portfolios out there like the Fuji portfolio. If something would come up, that's within our expertise and within on the OLED, whether it's in the stack, whether it's outside the inter sub layer, inside the inter sub layer, that would interest us. We're not going to go completely outside of what we do.

Unidentified Analyst

And just one last question. Can you talk about the longer term trends that are on revenue? I know that short showed really nice growth in OLED industry revenues but if you look at some of the dynamics that are impacting your Company revenues, you've got licensees and you've got some inventory related revenues. So can you capitalize 2013 as a year where you had slightly faster revenues within in the OLED industry revenues because of some of these one off items such as inventory build and also new material introduction?

Sid Rosenblatt

I mean we should follow the OLED market. The one thing that's built into that chart that I showed is they show growth, they show essentially mobile short of flatting out mainly, because they see ASPs coming down. And with Samsung our license agreements are fixed. With others it will be royalty based. One thing that it doesn't show is our materials, we quote all of the substrate. So, if you converted that chart into square meters, the chart just continues to go pretty much straight up. Our material business should follow the square meters of class that are quoted. There is obviously pricing breaks and efficiencies that are in there. So our material business, you should look at capacity in the industry and as capacity grows, you will see step increases in our material revenue.

This year was a big increase because green was adopted. So, it's gone from being fairly flat by having the web material, having some increase in capacity but really having green and green host, had this quarter obviously go way above the expectations of the street and what we need is a couple more quarters behind this to know whether that run rate is one that is study, whether there would some erosion or whether it grows because there is some increased capacity.

Unidentified Analyst

[Indiscernible].

Sid Rosenblatt

Well, the Sony 55 inch OLED TV that was at CES was a 4K 55 inch OLED TV. I don't think 4K matters to us. It is really pixel density. So, OLED TVs can be 4K, they can be larger. The issue with 4K realistically is they look great except there is no content. So, when you take it home, you're not going to be able to see anything in 4K because there is no 4K content over the waves and it's not going to be till 2018 in Japan before there is content for 4K.

I don't see that as a barrier in terms of OLEDs. The benefits of OLEDs, one is when you compare them to LCDs, when you get the comparable yields and volume, OLEDs cost 20% to 25% less. There is lot of less process steps, there is lot of less in the inter-build materials. So they're looking at premium markets for OLEDs and increasing their profit margins.

Right now the Korean manufactures and others are competing pretty much with Chinese and they're losing money or they're selling things at cost. Having a premium price product that you

can see the difference, when you look at OLED TV, whether you compare it to 4K LCD or just a regular LCD, there is a clear difference in the picture. The colors are much brighter, much truer because you have the true black background. So you have a much higher contrast ratio. So, I think they're going to be able to get the premium part of market. The TV business is a $100 billion annually. OLEDs are not going to take that over overnight. So, for the foreseeable future, they're going to continue to work at the premium markets where they can make more money and you can see the difference.

Unidentified Analyst

[Indiscernible].

Sid Rosenblatt

We don't make them. So it's hard for me to answer that question. From what I understand it should matter. It's really the shadow mass technology and TV, there is actually a lot more pixel density, it's harder to make this screen that has 400 DPI than it is to make a 4K 55 or 60 inch TV. The pixels are actually larger in those.

Unidentified Analyst

Okay. Thank you very much. Thank you.