

Throw Away the Bad Apple – Investigation of Lens Technology



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Introduction

In September 2014, Apple announced its new product Apple Watch, calling it “the most personal device ever” (Apple, 2014)¹, tiny, wearable on wrist, more than just an accurate timepiece, but a convenient communication device and workout tracker, with style². Your fingertips make every command on the “pioneering user interface” by touching and swiping the scratch-resistant sapphire crystal glass display cover naturally, just the way you use a smartphone.

Apple is reportedly the biggest consumer of the world’s sapphire supply, about 18 percent³. Besides Apple Watch, the camera lens cover and ID touch sensor since iPhone 5 are made of sapphire crystal. The glass display covers of smartphone and smartwatch have to go through different processes - from cutting to grinding, then polishing to a transparent finish, and being strengthened in a potassium ion bath, later painted and cured then the finally coated with anti-smudge and anti-reflection (New York Times, 2015). The process of cutting and grinding involve the operation of machines, where the potassium ion bath and coatings contain various chemicals and paints.

Behind this, Lens Technology, hereinafter Lens, is the supplier to 40 per cent of Apple Watch sapphire crystal glass display cover (Business Today, 2015). Together with its counterpart Biel Crystal, the Hong Kong-owned enterprise investigated by SACOM in

¹ <http://www.apple.com/pr/library/2014/09/09Apple-Unveils-Apple-Watch-Apples-Most-Personal-Device-Ever.html>

² Apple Inc. (9 Sept 2014), Apple Unveils Apple Watch—Apple’s Most Personal Device Ever, <http://www.apple.com/pr/library/2014/09/09Apple-Unveils-Apple-Watch-Apples-Most-Personal-Device-Ever.html>

³ Lens Technology, Biel Crystal expected to benefit from Apple Watch, say Taiwan makers (9 March 2015), <http://www.digitimes.com/news/a20150309PD213.html>

2013, Lens is one of the key suppliers to the world's smartphone production, supplying to Apple, Samsung, LG, HTC, Huawei, Nokia, Motorola etc. Besides, Lens also supplies to material suppliers, some of which is to meet their customers' "just-in-time" materials supply."⁴ It is reported that 21 per cent of the world's smartphones are carrying its cover glass⁵.

The company first started as a watch cover glass supplier, then expanded its business into technology industry following the rise of mobile devices. In 2001, Lens got its first profit by supplying glasses for TCL mobile. Two years later, Motorola commenced its business relation with Lens through the production of Razer V3. Today, Lens gets 75 per cent of its revenue from Apple and Samsung (New York Times, 2015). In 2014, 47.44 per cent of Lens' revenue came from Apple, meaning RMB6.88 billion (USD1 billion approximately)⁶.

Zhou Qunfei (周群飛) is the president of Lens. She won the title of the richest woman in China with her personal fortune at US\$10 billion in April 2015 (South China Morning Post, 2015) and the #30 richest people in Tech (Forbes, 2015) after the company went public in Shenzhen Stock Exchange on 18 March 2015. She is also praised as "the world's richest self-made woman" (Forbes, 2015). Her rags-to-riches story amazes the world. Zhou was born into a poor family in Xiangxiang City (湘鄉市) in Hunan province in 1970. Her mother died when she was five years old. She was raised by her blind father with her elder siblings. Reportedly, her father lost one finger and most of his eyesight during a work incident in the 1960s. Like many young people from impoverished provinces of China, Zhou quit school at 15 to work in Shenzhen as a worker in a watch display glass factory. Later in 1993, she used HKD20,000 (USD2,570) to start her own factory with her siblings and cousins in a small apartment in Shenzhen.

In 2003, Zhou found Lens Technology Co. Ltd. in Shenzhen. The company headquarter moved to Changsha, the capital city of Hunan province, also the origin of Zhou three years later. Interviewed by the Gansu Satellite Television in March 2015, she told the journalist that even though she is now a Hong Kong citizen, she remains patriotic and so she decides to keep her company's headquarter and major production base in the Chinese mainland⁷.

Lens currently has ten subsidiaries and factories located in Hunan, Jiangsu, Guangdong provinces and Hong Kong; and branch offices in Korea and the United States⁸. Although the company is now listed in Shenzhen Stock Market, Zhou and her spouse Zheng Junlong (鄭俊龍) still hold nearly 90 per cent of the company.

In order to understand the supernova of the electronic industry, SACOM conducted an investigation in three plants of Lens. It is also our commitment to disclose working conditions in the global supply chain to the public, and to advocate for a safe, healthy and dignified workplace for workers.

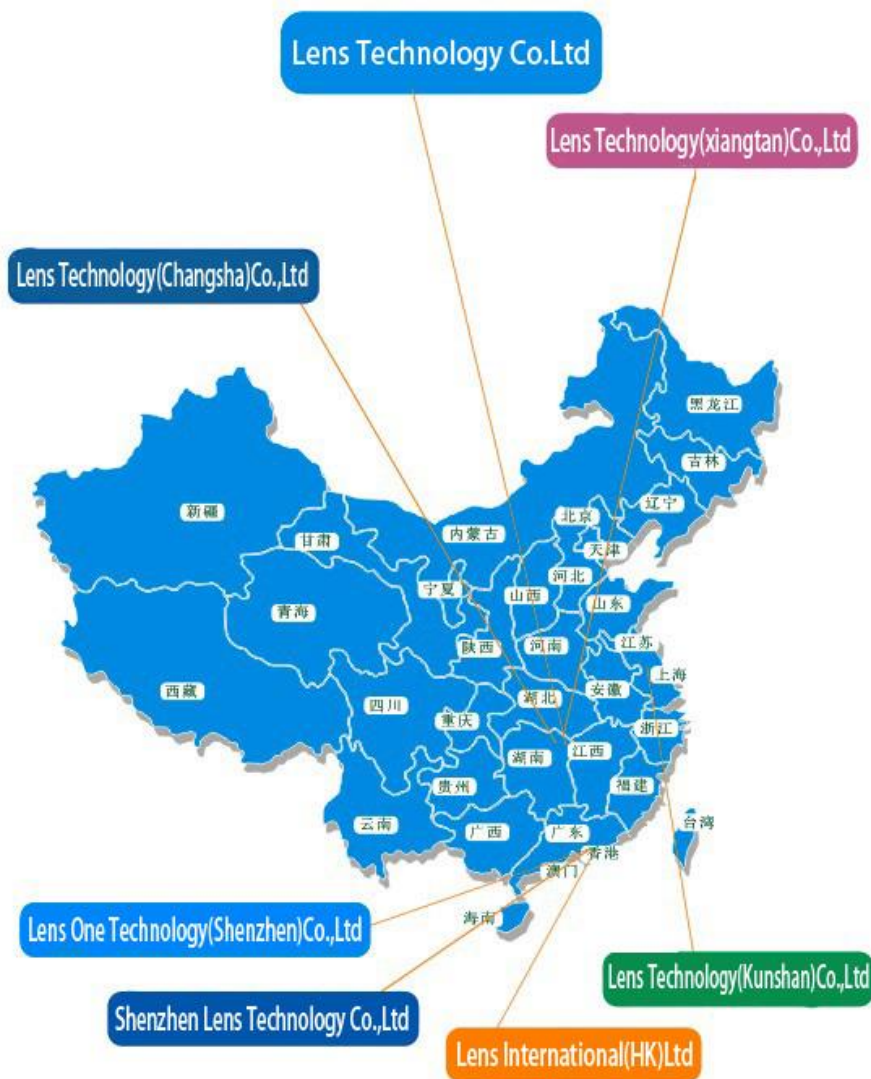
⁴ Introduction of Maruzen Intec, <http://www.maruzen-intec.co.jp/english/>. According to Lens' prospectus, Maruzen Intec is one of the customers.

⁵ Livemint.com, (1 Apr 2015), *Factory worker turned Apple supplier now China's richest woman*.

⁶ Yun Chong (11 Mar 2015), The Beijing News, *The Yesterday Factory Girl Might Turn in to the Richest Woman in China*, <http://www.bjnews.com.cn/finance/2015/03/11/355916.html>

⁷ Gansu Satellite Television, Interview of Zhou Qunfei, *Trading Day (19 March 2015) (in Mandarin)*, <http://www.letv.com/ptv/vplay/22234312.html>

⁸ Lens Technology, *About Us (in Chinese)*, <http://www.hnlens.com/lyzp/lens/about/about-2.html>



Picture 1 Location Map of Lens Technology
 (Source: Lens Technology Website)

Research Methodology

SACOM researchers investigated Lens factories in Shenzhen, Liuyang and Langli – two cities of Hunan province, between January to June 2015. It was an attempt to show the similarities and differences of Lens in coastal and inland regions. The investigation consists of two parts, undercover in-house investigation in Langli and Liuyang factories for first-hand information, and off-site interviews with over 60 frontline workers from the three factories. Topics include the use of labour, working hours, wages, accommodation, and occupational safety. To ensure the anonymity of interviewees, pseudonyms are used throughout this report.

Company profile of Lens Technology			
Name	Lens Technology Co., Ltd.	Lens Technology (Changsha) Co., Ltd., Langli Plant	Lens One Technology (Shenzhen) Co., Ltd.
Address	Lens Technology Zone, Changsha National Biomedical Industrial Estate, Liuyang, Changsha, Hunan, China	No. 99 Huangxing Road, Langli Town, Changsha, Hunan, China	Yuyongxing Industrial Park, Changzhen Community, Gongming Street, Guangming New District, Shenzhen
Product	Cover glasses, sapphire crystal and Poly(methyl methacrylate) (PMMA) glasses for smartphone, laptops, tablets and other electronic devices etc.		
Client	Apple, Samsung, LG, Windows, Nokia, Motorola, Huawei, HTC etc.		
Current workforce number (estimate) ⁹	42,000	7,000	7,000
Workers' origins	Hunan, Shanxi, Yunnan, Shaanxi, Jiangxi	Hunan, Shanxi, Jiangxi	Guangxi, Sichuan, Guangdong, Guizhou, Hunan, Hubei, Jiangxi, Henan
Age range	18-40	18-40	18-40
Website	http://www.hnlens.com/		
Year of Establishment	2006	2011	2006

Table 1 Company profile of Lens Technology plant in this investigation

Findings

1. Use of Labour



Picture 2. Crowds of applicants queuing up to apply for a job in Lens One, Shenzhen. Job application in Lens One is competitive.

⁹ Lens Technology, *About Us (in Chinese)*, <http://www.hnlens.com/lyzp/lens/about/about-2.html>

Direct recruitment

According to Lens, the company does not cooperate with any labour agencies in recruitment (see picture 4.). During our investigation, plants in Shenzhen and Changsha recruit workers directly through advertisements on the Internet forums and its official website and banners outside of the factory plants. It also encourages employee referral from its existing workers. Existing workers would get RMB450 as reward for each successful referral, after the referred employee passed the three-month probation period. The company also hosts recruitment seminars in job centres.



Picture 3. Banner outside Lens factory to invite new worker referral. Existing worker will have RMB450 and other gifts for each successful referral.



Picture 4. An official notice by Lens clarifying rumour of Lens' cooperation with labour agency to hire 6,000 dispatch workers. (Lens website, 15 Jun 2015)

Recruitment procedure

Photo-taking and smoking were not allowed during the recruitment session. The face-to-face interview was taken in groups of seven people. Workers were asked to do self-

introductions, the interview questions were about their marital status, family background, academic qualification, working experience, accommodation preference and their reason to join the company.

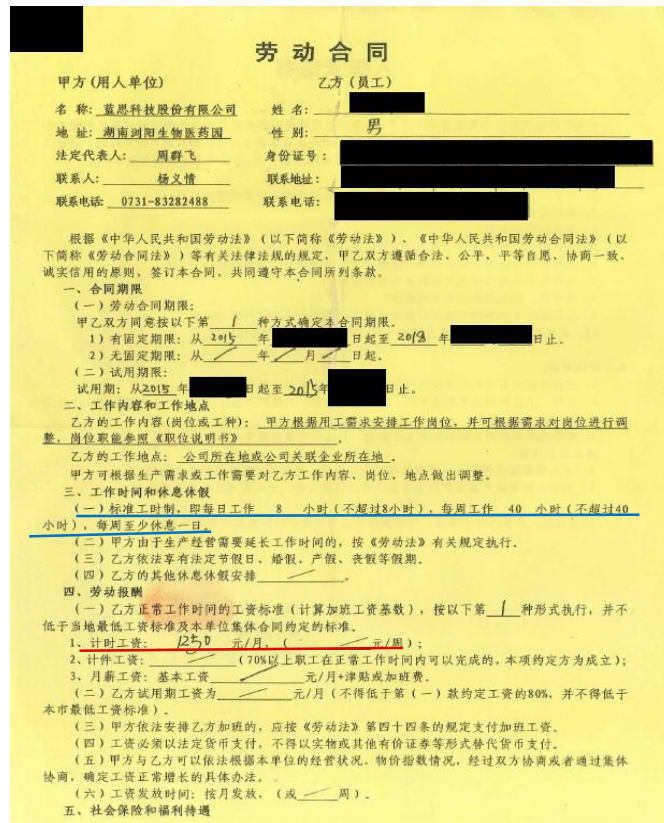
Then applicants were sent for an eyesight check and a brief exercise test of leg raises. For those who passed the face-to-face interview and exercise test, they would be sent for a medical checkup for chest x-ray, blood pressure and heart rate checkup, blood test and urine test. Applicants are responsible for the medical checkup cost (RMB45).

Hiring discrimination

According to Lens' requirement, it only accepts female applicants aged 18 to 35 and male applicants aged 18 to 40. The company rejects applicants with criminal records, tattoos, dyed hair, scars, chapped hands and male applicants with an ear-piercing. From this, it is clear there is discrimination against applicants by their age, sex, appearance and personal history.

Work contract with suspicious details

Successful applicants sign their work contract directly with Lens during the pre-work training. An original of their work contract was given to every worker, but the basic wage was marked as RMB 1,250 (the minimum wage of Liuyang region) and RMB1,390 (the minimum wage of Langli region), instead of RMB1,800 as stated in the job advertisement and the actual wage base paid to workers. This suspicious move might make workers vulnerable for compensation for possible work injury, occupational diseases or factory relocation.



Picture 5. Basic monthly wage marked RMB1,250 (the red underlined), the minimum wage of Liuyang region, contradictory to the actual basic wage of RMB1,800. The blue underlined shows the basic working hour is eight hours a day, and no more than 40 hours per week with at least one rest day per week.

2. Working hour

Excessive overtime hours

Based on Article 41 of the Chinese Labour Law, the monthly overtime hour should not exceed 36 hours; and according to Apple's code of conduct, "a workweek shall be restricted to 60 hours, including overtime". However, Lens workers told us the factory is violating both requirements.

As on Lens recruitment advertisement, the "comprehensive income"¹⁰ workers get is based on a working time of six days a week, ten hours a day, which means the monthly overtime hours could reach 80. In Shenzhen Lens One, SACOM researcher met a worker who worked 110 hours overtime in one month.

SACOM researchers interviewed Zhang from the Apple Watch production line in Langli plant. He told us during the peak season from last November to this March, workers only had one rest day every two weeks and they had to work three hours as overtime every day. Other workers also told SACOM researchers that overtime work is "compulsory" in the plant. It is hard to have free time on weekends.

To boost work efficiency, Lens sets a high daily production target; workers are asked to work extra time if the production line failed to reach such a target, sometimes for 20 minutes to 30 minutes.

Deduction of rest day pay from workers

In Shenzhen Lens One, Fang from the grinding department told SACOM researchers that although workers are entitled to four rest days per month (mostly Sunday), an application has to be made in advance during peak season, and basic salary for the day would be deducted. The management assume workers attend all assigned overtime duty, unless he or she has special reasons or sign the rotation application form to change their rest day to another day.

Workers in Hunan province did not have this wage deduction problem, but most of them complained about the rotation system in Lens – The factory arranged workers to take rest during weekdays instead of weekend. "The thing that most upset me is the time off system of Lens. Why we could not get double pay for sunday work as entitled by the Law because they arrange us to take rest on weekday? It is just not fair!" said a female worker Lin from the quality check department in Langli plant.

Workers in Hunan also mentioned the change of hourly pay to piece rate in some departments since this March. "It is getting more competitive now. The more you do, the more you get." Chen, a former worker who just left the quality check department during the

¹⁰ According to the job advertisement, workers could get RMB3,500 to 4,000 monthly during the three-month probation period, and RMB4,000 to 5,500 after the probation period for work of ten hours a day, six days a week.

interview. “For every piece of glass, worker gets RMB0.5 only. After working so hardly, he or she could get only RMB5-6 more than his colleagues at the end. Isn’t it ironic?”

3. Wage system

Wages are withheld for 20 days before payment

Shenzhen Lens One releases wages on the 15th or 30th day of the following month¹¹, for example, the wage of May is kept until June 15 or June 30. However, according to Article 11 of the *Regulations of the Shenzhen Municipality on the Wage Payment to Employees*, employer should pay workers’ wages within seven days of the next month.

Lens is using this to ensure workforce stability but also bringing workers hardship to maintain their living before the payment date. Moreover, when workers decide to quit but cannot go through the long resignation procedure, they tend to leave “voluntarily” which means they have to give up their kept salary to the factory.

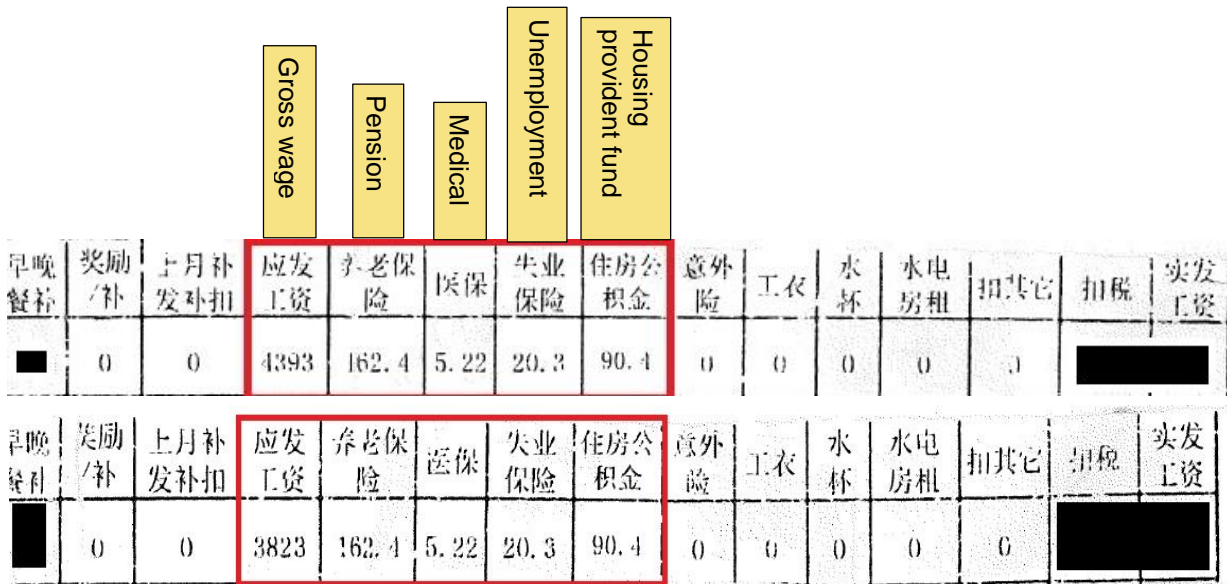
For Liuyang and Langli plants in Hunan province, the pay day is the 20th day of the month. According to Article 7 of the *Provisions of Hunan province for the Administration of Wage Payment*, the payment arrangement should be through the negotiation between employer and employee meeting or general meeting of employee representatives or any other ways in a democratic manner and have open announcement of the result to other staff members. Referring to Apple’s Code of Conduct, “Supplier shall communicate pay structure and pay periods to all workers,” yet, the worker’s contract only says wages would be paid on a monthly basis and workers interviewed have not engaged in any administration policy negotiation in the factory.

Social security not paid in the way required by the Law

According to the Chinese government’s requirement, the contribution should be based on workers’ individual wage¹². However, workers in Shenzhen Lens One pay fixed social security contribution monthly based on the minimum wage of the city, i.e. RMB2,030 (see Picture 6.). From this perspective, Lens is violating the Law which would hinder workers to get their entitled amount for pension and other types of insurances.

¹¹ Langli plant holds workers’ wages for 20 days while workers in Shenzhen plant could have their wages withheld for 15 days or even one month.

¹² China Labour Bulletin, China’s Social Security System.<http://www.clb.org.hk/en/view-resource-centre-content/110107>



Picture 6. shows pay slips of two individual workers of June 2015. They are charged same amount for pension, medical, unemployment insurances and housing provident fund, despite their gross wages were different.

4. Occupational health and safety

Use of carcinogen in shopfloor

Lens workers told SACOM researchers that carcinogen benzene is used in the form of solvents and paints in the printing department. According to the interviewed workers, Lens offers higher pay to encourage workers to work in printing department. They complained about the strong chemical smell in the shopfloor. Windows in the shopfloor are sealed, resulting in bad ventilation. Lin from the Quality Check department told SACOM that she is still suffering from dizziness every time she enters the shopfloor, despite working in the factory for two months.

Workers are restricted to work in the printing department for over three years, but according to workers from the department, some workers have been working for over five years. Reportedly, some female workers in the department are having issues with abnormal menstruation.

According to the World Health Organisation (WHO), "Human exposure to benzene has been associated with a range of acute and long term adverse health effects and diseases, including cancer and aplastic anaemia¹³." Lens workers daily work could reach at least 10 hours daily in peak season, putting them under long hour exposure to benzene that increases the risk of cancer. Leukemia is often seen as one of the diseases caused by this chemical in the electronic industry. In August 2014, Apple announced the ban of benzene and another toxic chemical n-hexane in their final assembly facilities; regrettably the ban has not reached suppliers downstream to protect workers from risks.

Insufficient protection from chemical substances

¹³ International Programme on Chemical Safety, Benzene, http://www.who.int/ipcs/assessment/public_health/benzene/en/

Besides benzene, thinner, industrial alcohol and some other solvents are used in the factory. In the glass shaping department of Langli plant, glasses are heated in chemical mixture liquid for shaping in a small room which resulted in high temperature and pungent smell. In this March, workers staged a two-day strike in the department to demand improvement of working condition in the shopfloor. The factory management later demolished the wall of the room to improve the ventilation. Jin from the department finds this ridiculous, “the pungent smell spread through the whole shopfloor. We are breathing in the toxic gas together now!”

Jin also told us she and her colleagues suspect the chemicals used at work might have cause them suffering from chronic pharyngitis. Many of their voices have turned hoarse, after joining the department. Sometimes, they even find blood in their phlegm. Jin wears two masks to protect themselves, but find it not useful at all.

Lens provides personal protective equipment (PPE) to workers, such as activated carbon face mask, gloves, and industrial shoes. However, workers reflect they are still affected by the pungent smell of chemicals in the air, nausea, headache or even skin allergy. “The gloves are too loose for me, every time I wash glasses, the solvent flows into my gloves!” said Li. He joined the polishing department for only one month and already had his hands festered, his hands are in pain when contacting water (see Picture 8.).



Picture 7 & 8. Workers' hand festered due to contact with solvent (red circle).



Picture 9. A worker's hand showing the impact of solvent.

Under the stressful atmosphere for production target, factory management of Lens often turned a blind eye on workers who refuse to wear PPEs, as long as the daily production target is met.

Risk of fire danger in the factory

At least two fire incidents were reported in Lens Langli plant. One happened in the female dormitory, another one in the printing department. "I simply feel that if there is a fire, it is difficult to escape." Said a female worker experienced the fire in female dormitory last November. "The fire alarm did not work. We were only aware of that and escape until we saw the smoke coming towards us.

Another worker also worries that a stampede might occur when a fire happens, as the staircase in his plant is only two metres wide and there are over 1,000 workers working on each floor.

"There was a fire in the printing department too, the heating oven was on fire" said Jin, "it is just next door to my department. Many people escaped on their bare foot. After the fire, the pungent smell of benzene filled the air."

Weaken eyesight under strong light in quality check department

Workers in the quality check department have to check glasses under strong light. The interviewed workers explained the strong light in the shopfloor and the glass reflection has weakened their eyesight. There is no related arrangement to protect workers from this.

5. Management style

Inhumane management style in workplace and dormitory



Picture 10. A glance in the dormitory area in Langli. Workers are occupied by work, and cannot enjoy the facilities provided.

During the worker interviews, “boring”, “lonely” are the two words most used to describe life in Lens. Sometimes, the tense atmosphere in the shopfloor just make workers silent. Speaking to each other seems a waste of time and a risk to producing defected products. Although Lens provides recreational facilities, like library, basketball court, football field, television room to workers, they are so tired from the long hours of work every day and cannot enjoy these facilities.

Lens also adopts a time-off rotation system to keep production round the clock, but workers cannot enjoy their time-off on the same day. “I made some good friends in my shopfloor but we are having time-off on four different days. We cannot go out together. Two of my friends tried to request changing of time-off on the same day, but the management declined.” Said Guan, a 19-year-old male worker responsible for the glass cleaning process in Langli plant.

The dormitory arrangement is “random.” Workers share rooms with others from different origins, different shopfloors, different work schedules, which strongly affect their rest quality, and some workers even think that Lens does it intentionally to avoid workers getting organized.

Stressful management systems in shopfloor

There is a performance-related bonus system in Lens, where it is said to encourage workers with outstanding work performance. However, in the workers’ eyes, it is a tool to control their behaviour. They would lose their bonus if they apply for leave and for being late, “many workers refuse to apply leave even they want to, they do not want to lose their bonus.”

There is also a fine system in Lens. Wages would be deducted for being late or leaving early (RMB30); chewing betel nuts (small demerit and RMB50); production-related mistake for big demerit and RMB100. Workers will get dismissed immediately if they participate in

a gang fight in the factory. According to the Chinese Labour Law, it is illegal for employers to deduct wages from workers in the name of a fine.

Just like other electronic factories, Lens requires its workers to obtain an off-duty permit for a toilet break. The break is only 15 minutes long and in the quality check department in Langli, there are only six permits for 200 workers.

Workers have to take off their dust-free uniform before they go. In between, there are different security checkpoints. 15 minutes is insufficient for them to take a rest and go to the toilet. Therefore, workers only go to toilet when they are off from work. Moreover, according to workers, the factory emphasizes production target and good quality; nearly 80 per cent of workers have to stand at work to increase efficiency. Workers are suffering from swollen feet and painful knees. The working atmosphere is so stressful that workers find it uncomfortable.

Difficult resignation

It is difficult for workers to resign regardless if they are old workers or new workers under probation. Throughout the online forum of Lens and our interviews, many workers complain about how their supervisors ignore their request to resign.

“The Law entitles workers in probation to leave the factory with a three-day prior notice, but the management and supervisor just ignore my request. They only ask me to be patient; they have a big order to be finished. It is all lie!” said Chen. In reality, many workers have to leave “voluntarily” without getting wages. In some extreme cases, workers intentionally violate the factory regulation to get fired from the factory, so that they could get some of their wages back.

Worker asked to pay for medical checkup before resignation

According to the Law, it is employer’s responsibility to arrange medical checkup for workers in a high-risk position before their resignation or dismissal. We met Liu, a female worker from the grinding department of Langli plant who was asked to have medical checkup to prove she is in good health. Her request would be declined if she refused to have the checkup. The management even told her if her health condition turned bad after resignation, she could not request Lens for compensation. Liu has to pay for this medical checkup expense too.

6. Trade union and worker organizing

Unrepresentative trade union



Picture 11. Billboard inside Lens factory in Hunan to promote the enterprise-level trade union in the company.

Many workers from the three factories are confused with the function of the trade union, thinking that they would get a “discount for Internet surfing” if enrolled in the trade union membership; and not all workers are aware of the existence of the trade union. Fang, a 30-something female worker from the Apple Watch production line in Langli plant told SACOM researchers, “I heard about the trade union only until my supervisor gave us a form to sign last month. That form was for nominating my supervisor to be a trade union representative. All people signed that because we were asked to do so.”

SACOM met with a Lens One trade union committee member during the investigation. She did not know her role in the union and have no knowledge on the structure of the union.



Picture 12. Signage of the staff service centre of Lens One trade union in Shenzhen.

Even for those aware of the existence of the union, they think it is a pro-employer body and does not represent workers’ interests.

There is a worker caring centre in Lens as well. However, the interviewed workers criticize the neutrality of the centre and do not think the centre would handle their complaint with transparency even if they file complaints to it.

7. Conclusion

According to Apple's website, it writes "we want to make sure that each person is treated with dignity and respect;" at the same time, the website of Lens lists "people orientation" (以人為本) as one of its enterprise mottos.

Humanity seems the most important element to the industry yet our investigation again reveals the inhumane treatment of electronic industry workers in reality. Workers are being exploited in exchange for high profits, given that Apple gained 92 per cent of the world's smartphone market in Q1 2015¹⁴ and vowed to make a record-breaking number of new iPhones¹⁵ in 2015.

Although Apple has established its code of conducts since 2005, and have various cooperation with Fair Labor Association (FLA) and Electronic Industry Citizenship Coalition (EICC), the labour condition in the shopfloor is still far from satisfactory.

Over the years, SACOM has released a lot of investigative reports on various Apple's suppliers in China. Regrettably, Apple insists not having any constructive dialogue with us. We, again, strongly demand Apple and Lens to:

1. review and restructure Apple's zero inventory policy to give appropriate production time to suppliers and control work hours as required by Chinese Labour Law;
2. increase higher and reasonable pay to suppliers, tackling problems from root causes and allowing more space to suppliers to improve working conditions;
3. provide contract with full and genuine details to respect the mutual agreement made with workers;
4. respect local law and handle resignation abide with the law;
5. provide at least one rest day every week for workers and limit the maximum overtime work to 36 hours a month;
6. provide adequate training, protection and health examination to workers on occupational health and safety, immediate improvement in shopfloor ventilation;
7. pay for workers' health check fees;
8. enable workers to select their representative in accordance with the Trade Union Law.

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¹⁴ Rob Price (13 July 2015). Business Insider UK. Apple is taking 92% of profits in the entire smartphone industry.

¹⁵ Lisa Eadicicco (8 July 2015). Business Insider. Apple is going to make a record-breaking number of new iPhones this year. <http://www.businessinsider.com/apple-iphone-6s-production-2015-7>