

## Interference from Machines in a Dongguan Factory

Site Name	Plastic & Hardware Factory
Country/ City	Guangdong, China
Industry	Factories
Solution	DTV Digital FHD Surveillance System DTV DVR*4 set DTV 1080P Camera* 62 pcs
Solution Provider	A-Tec Subsystem Inc.
Reasons of Adoption	<ul style="list-style-type: none"> <li>■ Retrofit with existing cable</li> <li>■ System expansion by daisy chain</li> <li>■ Immune to interference</li> <li>■ Power over coaxial cable (POC)</li> </ul>



### CUSTOMER NEEDS AND PROBLEMS

The customer in this case owns a plastic and hardware factory in Dongguan, Guangdong. The factory features X-ray thin-film measurement systems, wastewater treatment equipment, electroplating baths, ovens, anodizing processors, and other heavy-current equipment.

Three years ago, the owner was looking for the improvement of the production line quality and worker management and decided to replace the outdated standard-definition surveillance system (350 kilopixels) installed more than a decade ago with a high-definition system (1.3 megapixels). At that time, the owner asked around for recommendations, he came up with a couple of solutions, IP-based digital HD system, SDI digital HD system, and analog HD system. The IP-based system required the complete replacement of coaxial cables with network cables. However, the cables routed through several million-dollar pieces of machinery, and the owner was reluctant to pay for the relocation and recalibration of these expensive machines in addition to the cable replacement. For the SDI solution, field tests indicated that the old 3C2V cables already in place in the factory were not good enough. In order to use SDI, it required the replacement of at least 5C2V cable or better ones. It turned out that the analog HD solution was the only candidate if no re-cabling is required. As a result, the owner chose the analog system.

However, after analog HD system was installed and operated, it was found that the electromagnetic fields generated by the machines interfered the video seriously. Noises and snowflakes were common in the videos. There was once an event that a production line went down unexpectedly, and the surveillance video was not able to provide any identification of the possible cause due to interferences. The factory owner had

no choice but to find another solution to solve the problem once and for all.

## CUSTOMER BENEFITS

The owner chose the analog HD system due to the difficulty of cable replacement, but he realized that it is impossible for analog HD system to work under an environment full of interference. Only a digital system could solve his headache. Thanks to the sales representatives of A-Tec in China, the owner learned about the "DTV digital HD surveillance system". It is digital and can work with various types of cables and wires (coaxial/network/fiber optics), and even old coaxial cables. There is no need for overhaul of the cable system, which eliminates the need to relocate and recalibrate the heavy and expensive equipment. All there left to do is to replace the cameras and video servers, and the entire surveillance system is upgraded to a 1080P digital HD system. Most importantly, there are no more snowflakes in the videos. At the end, the owner not only replaced all analog HD cameras scattered across the 20,000m<sup>2</sup> factory floor with DTV digital HD cameras, but also added 12 new cameras on the extension from the original cabling system for enhanced security. The farthest camera is 450m away from the security control center without amplifiers.



Figure 1. The analog surveillance videos from the processing room (upper left image) were subject to electromagnetic interference. With the upgrade to DTV digital HD system, the interference no longer causes problem and the videos are clear and sharp.

Figure 2. The old cables cause noises in the analog surveillance videos at the DCC center (upper left image). With the upgrade to DTV digital HD system, the video becomes clear and this shows the improvement.





Figure 3. The analog videos from the warehouse deteriorated and were blurry due to the long transmission distance. With the upgrade to DTV digital HD system, the video is clear again. The warehouse is now secure.