

# GOOSAT's New Super-Modern Production Facility

GOOSAT moved into this new production facility in Zhuhai, China in 2011. Several million digital TV receivers are made here every year.

- *Producing to the highest technical standards*
- *200 R&D employees*
- *3D development*
- *Manufacturing capacity of several million receivers per year*
- *Expansion into TV production*



# The newest manufacturing plant allows very high production rates at low prices



■ Mike Miao is GOOSAT's founder and chief. He takes care of all strategic decisions.

One of the most modern receiver and TV production lines was placed into service by GOOSAT in January of 2011. The production line was started up in multiple steps through the course of the year and by the end of 2011 it was time: TELE-satellite could visit GOOSAT's super new and super modern fabrication plant in Zhuhai.

Zhuhai is the "little sister" to the gigantic city of Shenzhen. The city is located on the western edge of the Pearl River, right next to Macao. While Shenzhen is the world's







■ This 250-seat auditorium is used by GOOSAT to organize meetings and other events and includes everything from employee training, company presentations up to dealer training classes.

■ Marketing manager Josie Yang in GOOSAT's showroom in front of a large logo.



receiver manufacturing headquarters, competition is growing between Shenzhen and Zhuhai.

GOOSAT actually has its roots in Shenzhen. TELE-satellite reported on this back in the 02-03/2011 issue. Sure enough, GOOSAT's factory isn't located in central Zhuhai, but rather it can

be found 30km away in Hongqi Town where you'll find a brand new 300,000 sq-meter building. The central section contains GOOSAT's administration as well as the Research and Development engineers and programmers. The actual production facility can be found in the two adjacent sections of the building.

Production is already in the millions reveals Marketing manager Josie Yang

to us: "In 2010 we produced 4.2 million digital TV receivers." It was a little less in 2011.

The outlook is much better for 2012: "We're expecting to boost production to 4.5 million pieces in the new factory in Zhuhai." Above all, sales will significantly rise considering that the quality of the products will increase thanks in part to the new manufacturing machines.





1

"We're also planning to play a stronger role in TV production," comments Josie Yang. "We started our first deliveries to The Middle East." The numbers are still somewhat small; in 2011 only about 10,000 TVs were shipped. But in 2012 plans call for a ten-fold increase. "We'll also

start selling TVs domestically here in China and we expect to sell 200,000 TVs." Of course, selling TVs in Europe is also part of the plan.

The TVs already manufactured for The Middle Eastern market are Plug&Play versions; the built-in tuner

can be either a DVB-S or DVB-S2 model. "For Europe we're making TVs with built-in DVB-T tuners." But when Josie Yang spoke about 3D TVs, the conversation got much more interesting: "We're hoping to be able to introduce a triple tuner 3D TV in 2012 with DVB-S2, DVB-T and DVB-C tuners."



1, 2: On GOOSAT's roof: a small satellite antenna farm. In the background can be seen housing for the production employees.

2



Warmest welcome  
 Mr. Alexander Wiese  
 of TELE-satellite Magazine  
 to visit Globalsat!

GOOSAT 全星

全星科技(珠海)有限公司

Globalsat Technology (Zhuhai) Ltd.

朗朗电子科技有限公司

Longlong Electronics



**GOOSAT**  
 Receiver and TV Manufacturer, China  
 www.goosat.com

**Company Details**

Engineers in Research & Development | Total Number of Employees  
 0.....250.....500

Average Turnover (Previous, This, Next Year Estimates)  
 0.....75.....150 Mio US\$

Production Certificates  
 RoHS, FCC, UL, CE, DVB, ISO

Main Products  
 Receiver for HDTV and SDTV in DVB-S/S2, DVB-T, DVB-C, ISDB-T, HD+, CI+ and HbbTV, Multimedia Receiver, IPTV Boxes, Media Player, TV Monitors with built-in receivers



Technically this is possible but Europe has strict technical requirements that GOOSAT engineers still have to tackle: "Power usage has to be reduced; our TVs are still above the values required for Europe", we found out.

The huge numbers that GOOSAT can manufacture can also be found in other providers of TVs and digital receivers. Up until now GOOSAT has been understood to be an OEM manufacturer; they produce receivers that dealers sell under their own brand name. If GOOSAT were to find a suitable brand name and acquire it, then this situation would change.

"We are ISO certified", explains Josie Yang, "That has helped us to further optimize our production process; the knowledge contained in the ISO standard is actually quite useful for a perfect production line."

That's how the company, founded by Mick Maio in 2004 ("our first office was 14 Sq-meters in size"), has managed in just a few years to become one of the top digital TV manufacturers and thanks to the most modern production facilities have formed and excellent foundation to actively take part in the development of the international digital TV market.

GOOSAT has achieved the ISO9001 certificate in 2008 and the ISO14001 in 2011







## Research & Development Department

1. The designers work here. They are responsible for the physical appearance of GOOSAT's products. The 20 employees construct the front panels, the packaging, the housing and the physical shape of the circuit boards.

2. Ian is in charge of the Hardware Team. He is seen here holding one of the newest GOOSAT HDTV receiver models in his hands.

3. The Hardware Team. 35 engineers are constantly at work further developing GOOSAT's receiver product line.

4. Denny Wu (right) runs the Software Team. CTO (Chief Technical Officer) Bean Zou (left) watches over the entire technical development process at GOOSAT.

5. GOOSAT's Software Team is also made up of 35 engineers.







6

6. What is this Software Team employee doing? She has an exciting job; she is developing 3D technology for GOOSAT products. Michelle is Project Manager in the R&D Team and is testing the function of a brand new GOOSAT 3D model. We can't wait for this receiver to become available!

7. In the software testing lab. Hui Li (center) runs the team that checks the receiver software functions.

8. The hardware testing room. New receivers models are checked here against their technical specifications. The 12 engineers have access to the most modern test equipment.

9. An employee is checking the function of a receiver using this super test instrument from Rohde&Schwarz. The instrument generates the various digital TV standards from around the world so that the receivers can be checked to see if they work with these different standards.



7



8

9





10



11

### Circuit Board Production

10. Frank Ma is arguably the most important man in production; he's in charge of the section with the SMT machines. "Roughly four million USD was invested here", namely in a total of eight of the newest SMT systems. "Each SMT line is operated around the clock in two shifts from 8AM to 8PM. We can manufacture 1500 HD receiver circuit boards or 3000 SD receiver circuit boards on each machine. On top of that we produce lead-free!" At the moment production puts out about 300,000 pieces every month; in 2012 it will increase to 500,000 pieces. The machines are located in a clean room and can only be accessed through a special air lock. This guarantees extremely high production quality.

11. An employee is examining a circuit board for obvious defects before she sends it to an oven.

12. This AOI (Automatic Optical Inspector) checks the circuit boards for the smallest of defects fully automatically. Each GOOSAT SMT machine leads to the AOI at the end of the oven in which the surface mounted components are soldered onto the circuit board. Here we see two AOIs at the end of the oven and then...

13. ...here we see one of GOOSAT's all new double ovens: it is fed by two SMT machines. At a T junction (center) the two conveyor belts from the two SMT machines meet; the two circuit board belts run parallel into the oven. The best part: "If one of the SMT machines is loading an HD circuit board and the other is loading an SD circuit board, then the two conveyor belts run at different speeds through the oven", explains SMT Manager Frank Ma. "One HD circuit board carries from 400 to 600 components while an SD circuit board only carries from 200 to 500 components." The soldering process runs at 274°C so the HD circuit board that has more components must run at a slower speed through the oven. The monitor on the oven displays the two conveyor belts (middle of the monitor) and the circuit boards on the belts (black dots).



12



13



14



15



17



16

### Receiver Assembly

14. Factory Manager Ren watches over a production employee. He explains: "140 employees assemble here each shift on five assembly lines."

15. Video function in-process inspection.

16. Samples from the circuit board production line pass through quality control before assembly and are functionally checked.

17. The tuner is placed on the circuit board here.





18



21



19



22



20



23

## Receiver Assembly

- 18. Each and every circuit board is functionally checked before final assembly.
- 19. Production samples are tested. Six work stations are available for the eight quality inspectors. Using modern test equipment these inspectors check the functions of production samples. The ISO standard dictates exactly how many samples must be tested based on manufacturing conditions.
- 20. Final assembly takes place here: the completed circuit boards along with the power supply are installed in the housing. Eight of these assembly lines are operated by GOOSAT in this section; 300 employees work here per shift.
- 21. A completed receiver. Before it is packaged or sent as a production sample to quality control, it is given a quick check here of its critical functions.
- 22. GOOSAT also manufactures TVs. An employee is seen here testing the functions of a 32" LCD model.
- 23. A special feature with GOOSAT TVs: the Plug&Play receiver slot on the side of the TV. Either a DVB-S or a DVB-S2 tuner can be inserted here depending on what the customer wants. Models with DVB-T are also available for Europe.





## Sales Team

24. Alvin is in charge of the Sales Team. In the past you could find him at almost any trade show. Today, though, he works more out of his office. He is constantly in contact with international customers. The Calligraphy on the wall means "If you work hard, you'll get rewarded".

25. If you want to purchase GOOSAT products as a dealer or distributor, you'll end up with the Sales Team. 35 employees handle orders that come in from around the world. Currently, the majority of GOOSAT's exports land with customers in The Middle East as well as Europe although the new markets emerging in South America (ISDB-T) and Africa (DVB-T2) have recently come into the focus of GOOSAT's Sales Managers.

