

Boiingsat's Numerous Production Facilities

● **Three Production Locations in Zhuhai/China**

● **Large Sales Expansion in South America**

● **In the Works: LNB with Two Feed Rings**

LNB Manufacturer Boiingsat operates multiple production facilities in Zhuhai, China, a city with 1.5 million inhabitants located in western Guangdong Province. Zhuhai sits right next to Macao and slowly but surely is attracting more and more satellite component manufacturers.

But one of the first of these manufacturers was Boiingsat; it has been in exis-

tence since 1997. However it all really started in Taiwan. Hoawen Chiang, General Manager of the company who was also born in Taiwan, explains to us how it all began.

"In 1996 I was a Production Manager at an LNB manufacturer in Taiwan. But things didn't go exactly as I had planned so in 1997 I along with three investors founded Boiingsat in Zhuhai, China",



remembers Hoawen Chiang. "Two of the investors have in the meantime moved on to other things but investor, Yunnjye Qin, is still here and is in charge of Production."

The main reason for moving from Taiwan to China was obviously the costs. Wages in China are still lower than that of Taiwan. "But we still have a small R&D office in Taiwan with three engineers", says Hoawen Chiang. Thus far the technical expertise in Taiwan is somewhat more advanced than in Mainland China at least as far as high frequency LNBS are concerned.

"Back then we started with 30 employees and produced 20,000 C-band LNBS every month", he says looking back. In 2002 Boingsat started a second produc-

tion plant which they used to manufacture 240,000 C-band LNBS every month.

2004 became rather turbulent: "We sold our first production facility and then built a new one for Ku-band LNBS." Now with 500 employees, production climbed to 350,000 C-band LNBS per month and 150,000 Ku-band LNBS per month.

The next expansion step took place in 2008: "We constructed our third factory this time for production of die-cast housings." With



■ One of Boingsat's three factories in Zhuhai in southern China; soon it'll be four factories. The company's administration offices can also be found here.



this third plant, Boingsat was in control of every aspect of production; they only needed the SMD components which they went out and purchased. In 2010 production capacity reached 500,000 C-band LNBs and just as many Ku-band LNBs. A fourth factory should begin operations in 2013 which would then raise the capacity of Ku-band LNBs to a staggering one million a month.

Of course, we want to know where all these LNBs are going to. "In the beginning, we delivered our production to Indonesia and Thailand", explains

Hoawen Chiang to us. These two countries still received the bulk of their deliveries in 2010: 40% of their production went to Indonesia and 30% to Thailand. 20% went to Brazil with 10% going to other countries like South Africa, Dubai, Russia, Singapore as well as Malaysia.

When we heard him mention Brazil, our ears perked up. "We've been delivering C-band LNBs to Brazil since 2004 but demand has recently taken a strong jump upwards", revealed Hoawen Chiang, "In fact, for 2011 we're expecting that 35% of our LNB production will be delivered to Brazil."

of Ku-band LNBs looks quite a bit different.

"Our primary market for Ku-band LNBs is the Middle East. In 2010 60% of our Ku-band LNBs were shipped to Dubai, 15% went to North Africa, 5% to South Africa with the remaining 20% going to North America, Australia and Europe." But in 2011, Jason Chiang sees these numbers shifting considerably: "The North African market will pick up quite a bit; we expect to ship 30% of our total production there, 45% will go to the Middle East, 5% to South Africa, 10% to Brazil with another 10% going to the rest of the world."

Hoawen Chiang's son Jason Chiang also works for the company. He's currently passing through a number of stations in the company but above all he's involved in International Sales. He breaks down for us the product distribution by groups; the geographical distribution

Once again Brazil is mentioned but this time in connection with Ku-band LNBs. Jason Chiang revealed a little secret: "I have good contacts in Brazil." That along with the steadily increasing demand in that South American country makes for a very attractive market.

It's common knowledge how prices for LNBs have been falling considerably and when General Manager Hoawen Chiang

■ Haowen Chiang
Boingsat's founder
and General
Manager





1. Annie greets visitors at the reception desk
2. Yunnjye Qin is co-owner of Boiingsat and in charge of production.
3. Jason Chiang is the son of the company's founder and designated successor to the Captain's chair. Here in the showroom he shows us one of the company's specialties: a four-way combination with 4 x C-band LNB. This LNB lets four receivers receive four C-band satellites independently from each other; this setup is especially in demand in Indonesia.
4. Sales Manager Joseph Liu runs a team of six employees



revealed his sales figures, a tendency in that direction was clearly visible: "For 2010 we calculate sales of USD\$ 20 million. For 2011 we expect a fallback to USD\$ 18 million and for 2012 we expect a further fallback to USD\$ 16 million."

Those aren't very pretty numbers but

then he surprised us with his prognosis for 2013: "We expect sales to jump to USD\$ 24 million!" What? Is he serious? And then he surprised us for a second time: "I believe that demand for LNBS will drop off for several years but then it will turn around and go back up." But that alone couldn't possibly be the reason for

such an increase in sales, could it? "Well, actually, we're expecting this increase in sales also because we're expanding into a new business sector; in 2012 we'll be opening up a new factory for LED lights. In 2013 we expect that 30% of our sales will be from LEDs with the rest coming from LNB production." OK, now the picture is getting clearer.

But back to LNBS. Sales Manager Jason Chiang tells us that in 2009 70% of all the LNBS shipped were single models. In 2010 that number dropped to 50% and it will obviously continue to sink. Single LNBS will cease to exist in a few years. Twin models made up 35% of the total in 2010; the rest consisted of quad and octo models.

The time has come for new models. Jason Chiang gives us some insight: "In the second quarter of 2011 we'll be releasing a Ku-band LNB with a shorter housing, for the third quarter there'll be a Ku-band LNB with only two rings instead of the previous three rings in the feed. For the fourth quarter we're planning on an SCR LNB." So, it's plain to see that there are several new products coming for 2011. "But that's not all", he says, "In 2012 we'll be starting with Ka-band



LNBS.” Since SCR LNBS and LNBS for Internet-via-satellite (Ka-band) have the most demand in Europe, the next question must be how production will conform to European requirements. “We’re in the process of converting our production to the RoHS standard step-by-step. We should be ready no later than 2012”, explains Hoawen Chiang.

Clearly the company Boingsat is preparing to move itself onto higher levels. With consistent small improvements in technology and improvements in production, they can raise their standard and thereby enter those sophisticated markets such as Europe and North America that up until now couldn’t be breached. And for this reason you can only meet up with Jason Chiang at a Boingsat stand at trade shows outside of Europe. For 2011 that would be CABSAT in Dubai, the EEBC in Kiev as well as the two local Canton shows in the Spring and the Fall. “But for 2012 we’re looking to be at the IBC in Amsterdam”, says Jason Chiang optimistically regarding the future of the company with its many factories.

1. Sam Ho is Production Manager for C-band LNBS

2. A Boingsat specialty: mounting components for the 4 x C-band LNB for the Indonesian market.

1

BOINGSAT
LNB Manufacturer, China

Company Details

Engineers in Research & Development | Total Number of Employees
 0 500 1000

Average Turnover (Previous, This, Next Year Estimates)
 0 12.5 25 Mio US\$

Production Certificates
 RoHS in preparation
 Main Products
 LNBS for Ku and C bands, Ka band in preparation. Variants in Single, Twin, Quad, Quattro and Octo.

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Available online starting from 1 April 2011



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Research & Development at Boiingsat

1. David Chou is R&D Manager and is in charge of a team of six R&D engineers. Three additional engineers should be added in 2011.
2. R&D engineers here in the lab test product samples taken from the production line and check for product improvements.
3. An employee is testing the gain/noise figure of a C-band LNB.
4. New from the R&D team: the LNB on the left is from current production, the LNB on the right has a new shape that is somewhat shorter and makes possible even smaller LNBs. Current LNBs are 103.5mm long; the new model will only be 85mm in length.
5. A look into the feed. Up until 2008 these feeds were manufactured with four rings. Then advances in technology allowed one of the rings to be removed. Now, as can be seen in the picture, there are only three rings. But it won't be long before the third ring can be eliminated. An LNB with two rings is planned for the third quarter of 2011.



LNB Circuit Board Production

1. The LNB circuit boards are produced here using four SMD machines. Boingsat uses two Yamaha SMD machines and two from Siemens. SMD Production Manager Andy Gong explains, "These machines operate 24 hours a day and produce 40,000 LNB circuit boards in that time."
2. The stuffed boards exit the oven and are checked by an employee for mechanical defects.
3. Employees use two optical measurement tools to check the circuit boards.
4. If any defects are found, this employee manually resolders any cold solder joints.
5. Every tenth circuit board is optically rechecked by an employee.
6. Before they move on to actual production, this employee solders the reception probes onto the circuit boards. For each version (Single, Twin, Quad, Opto) a variety of different reception probes are needed.



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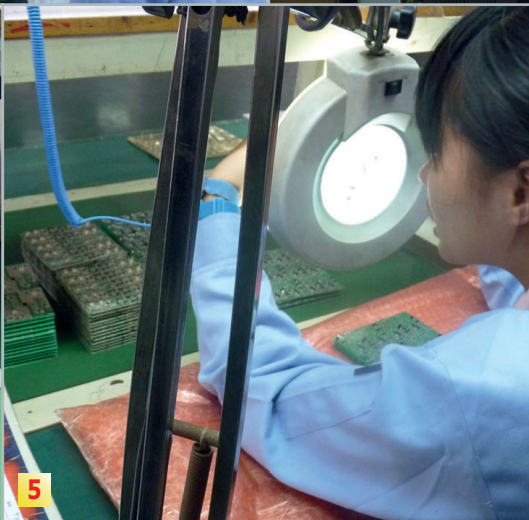
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Production of a Ku-Band LNB

1. A look onto the factory floor.
2. The LNB housing that Boingsat produces in another factory is fitted with "F" connectors here in this first step.
3. The just-completed circuit boards are placed in the LNB
4. The "F" connector is soldered to the circuit board.
5. An initial test with power applied: is there a short circuit or does the circuit board work correctly?
6. Mounting screws are placed on the separately manufactured LNB circuit board cover...



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- Loctite on the adjustment screws to make them operate smoothly.
11. The LOFs are adjusted. With a universal LNB it would be 9.75 GHz and 10.6 GHz. An employee uses a foot switch to shift between the two reception bands.
 12. Gain is checked.



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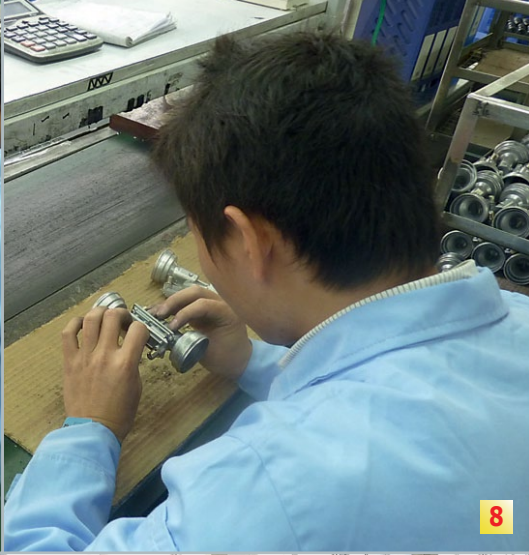
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7. ...the cover is then screwed onto the LNB.
8. Visual checkpoint: does it all fit?
9. An oven is waiting for the LNBs: the LNBs are burned in here for 20 minutes at 80°C
10. Next is fine tuning. An employee dabs

13. Noise figure is tested. Using a transmitter that fits perfectly on the feed opening, an employee checks the behavior of an LNB.
14. And that's just about it: here the protective cap is placed on the feed opening.



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15. Next comes the cold soak: The completed LNBS are placed in these refrigeration chambers and cooled to -18°C. If the LNBS are to be delivered to colder climates such as Russia, the LNBS would be cold tested to -40°C. And they have to work perfectly.

16. After the cold soak the LNBS are waterproofed: the circuit boards are covered with silicon paste that dries in four hours.



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17. The plastic top is mated on the side with the "F" connector...

18. ...and then mated with the plastic bottom.

19. A final functionality test.

20. The completed LNBS are cleaned..

21. Next comes the sticker.

22. The completed LNBS are packed and ready to ship to the customer.



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