

# Jiuzhou BSB11



MONOBLOCK SINGLE LNB  
 Model: BSB11  
 Input: 10.7 - 12.75 GHz  
 LO: 9.75 / 10.6 GHz  
 NF: 0.6 dB

## Monoblock Single LNB

### 2 satellites from one dish

In previous issue of TELE-satellite, my fellow editor, Heinz Koppitz published an article about the problems you may encounter when using a monoblock LNB. Because his article was meant for the newbies rather than for the more advanced readers (it appeared in the Beginner Section), no wonder that it did not contain measurement results. So, when I got the monoblock LNB from Jiuzhou, I immediately thought that except for the product evaluation, this test report can be an excellent appendix to what Heinz has written.

Jiuzhou Monoblock LNB with 6° spacing, main area of use would be for ASTRA and HOTBIRD in Europe. Any other two satellites would suit as well, provided they are 6° apart and receivable with strong enough signals.

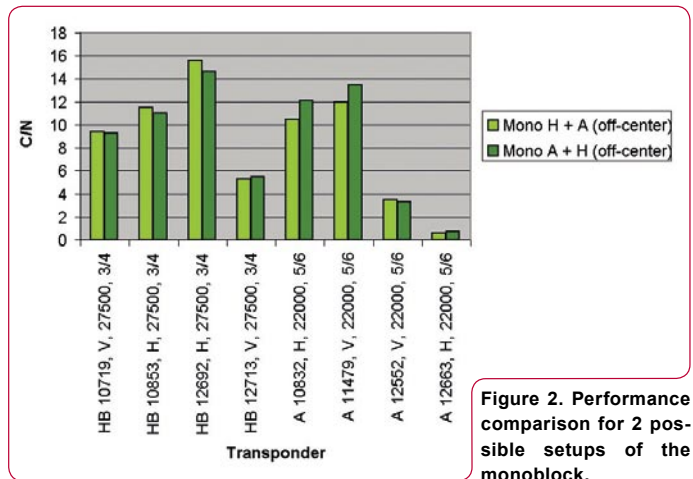


Figure 2. Performance comparison for 2 possible setups of the monoblock.

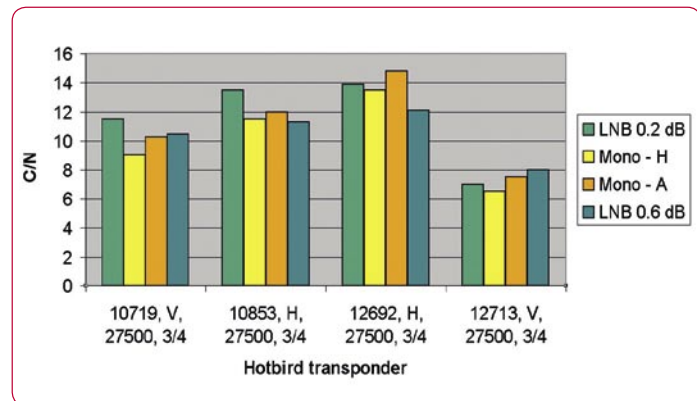


Figure 1. BSB11 noise performance in comparison with reference LNB's.

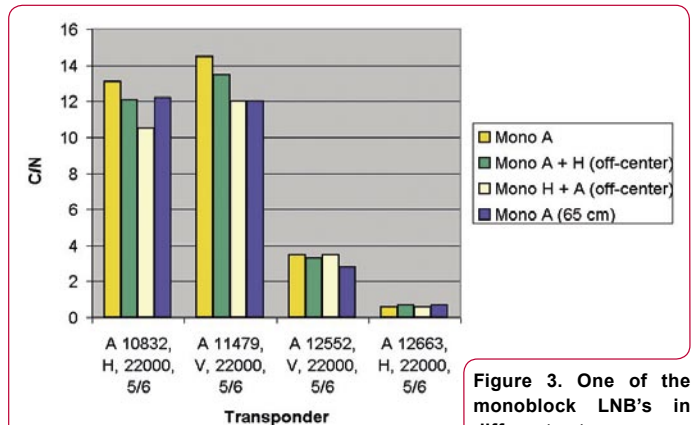


Figure 3. One of the monoblock LNB's in different setups.

BSB11 looks very solid when you keep it in hand. Of course, it is heavier than a single LNB, its weight is more comparable to twin or quad LNB's. Its F connector has no additional protection against weather conditions. At the bottom side of the body, you can see small holes through which the condensed water vapor can leak out. Classical but efficient solution to prevent degradation of LNB performance due to moisture.

On the top side, you can find engraved markings: ASTRA and HOTBIRD on the two feeds. Nice enhancement for the beginners. If your antenna is presently aligned to Astra (19.2° East), you mount the ASTRA feed of the monoblock in the antenna holder. If your antenna is aligned to Hot Bird (13° East), you mount it the other way round: HOTBIRD feed is in the holder and ASTRA feed is hanging off-center. Is this LNB really calculated for ASTRA-HOTBIRD 6.2° distance? We would rather say that it could be used for any 2 satellites that are about 6° apart. ASTRA and HOTBIRD are probably the very first choice for most satellite enthusiasts in Europe because they transmit large number of channels (including a lot of FTA ones).

Jiuzhou BSB11 is a universal Ku-Band monoblock single LNB. As in every universal LNB, its LOF's are 9.75 and 10.6 GHz. Jiuzhou claim typical noise figure of their device to be 0.6 dB which is not the most impressive value today but before drawing a final conclusion wait for the actual results. Monoblock LNB's are designed to work with offset dishes of diameter around 80 cm. Some users say that they used them successfully with the diameters between 75 and 90 cm. We tested it with a 85 cm dish; its reflector dimensions are: 780x832 mm, and the external dimensions: 852x903 mm. Dish of such dimensions would most likely be the choice of a professional installer when dealing with a monoblock LNB.

Before taking measurements of a 2 satellite setup, we decided to compare the noise performance of every half of the BSB11 with the reference devices. Figure 1 presents the results of the monoblock LNB's in comparison with 0.2 dB and 0.6 dB single LNB's. The antenna was aligned to HOTBIRD (13° East). The higher C/N value, the better signal quality and the greater margin for bad weather conditions.

While the results for the low frequency part of Ku-Band were as expected: the 0.2 dB LNB had visibly better signal quality, it was not so obvious for the high frequency end. In fact, ASTRA LNB of the BSB11 performed slightly better than the 0.2 dB single LNB!

That's why we asked our readers not to draw conclusions too fast. We can not judge the total LNB performance based only on the stated noise figure, the more so as it is only a typical value.

The next test was about determining if one of the possible setups is visibly better: HOTBIRD LNB off-center or ASTRA LNB off-

center. The results are shown in figure 2. As you can see it is not so easy to say which is better. Evidently, LNB situated off-center provides worse signal in comparison with the central position. Based only on those measurements (4 transponders) I would vote for the setup: ASTRA in the center and HOTBIRD off-center.

As you can see in figure 2, placing the LNB off-center makes signal quality drop. But how much? To give you some orientation we compared the performance of the off-center LNB with the same LNB mounted on a 65 cm dish. The results are presented in figure 3.

The leftmost result (yellow bar) is the LNB placed and perfectly adjusted in the center of an 85 cm offset dish (the performance of the second half of a monoblock totally ignored). The next bar (green) is the result when the LNB is still in the center but the alignment was done to reach maximum signal for the off-center companion - HOTBIRD LNB. The following (beige) bar is the result when the LNB is in the off-center position and the dish is aligned to get the best signal from that LNB. The last (blue) bar shows the result for the same LNB mounted centrally on the 65 cm dish.

Our setup procedure was like that:

- align the central LNB for the best signal
- switch to the off-center LNB and change the alignment to get the best signal from that LNB (except for turning the dish, tilt the monoblock as well)
- check if the



The holes at bottom of Monoblock keep it dry inside, allowing for condensed water to leak out

central is still receiving signal but do not try to align the system again; just leave it as it is

If you will follow this way and your dish is 85 cm, you may expect that the central LNB will work as if it is mounted on 75 cm dish, and the off-center LNB will work as if it is mounted on 65 cm dish. Please keep in mind that we did the alignment with the help of a dedicated satellite meter. If you do not have one, you may need quite a lot of patience before you reach the optimum setup.

Once we had determined what we can expect from the off-center LNB, we had to check it. This time, the HOTBIRD LNB was off-center and we connected to it the receiver that normally worked with the 65 cm fixed dish aimed at HOTBIRD (13° East). The receiver had absolutely no problem in receiving all the channels it normally received from HOTBIRD with a 65 cm dish. Of course, receiving ASTRA posed no problem either since its LNB was in the central position.

TECHNIC DATA	
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Model	BSB11
Function	Universal Ku-Band Monoblock Single LNB
Noise Figure	0.6 dB (typ.)
LOF	9.750 and 10.600 GHz
DiSEqC Switching	Satellite A = HOT BIRD, Satellite B = ASTRA
Frequency Stability	+/- 1 MHz max. / T=const. +/- 3 MHz / T= -30...+70°C
Gain	50 dB (min.)
Gain Variation (P-P)	5 dB (typ.)
Cross Polarization Isolation	25 dB (typ.), 20dB (min.)
Phase Noise at 1 kHz Offset	-60 dBc/Hz
Phase Noise at 10 kHz Offset	-80 dBc/Hz
Phase Noise at 100 kHz Offset	-100 dBc/Hz
DC Current Consumption	220 mA (max.)
Operating Temperature	-30...+70°C

## Expert conclusion



Despite being specified as having noise figure of 0.6 dB, BSB11 performance only in the lower part of Ku-Band was inferior to a single 0.2 dB LNB. It performed equally well as the 0.2 dB device at the higher end of Ku-Band. We were able to achieve very satisfactory results when receiving HOTBIRD and ASTRA satellites for which the device is mainly dedicated. Except for the noise figure, all other specs are very much alike the other good LNB's on the market today.



The manufacturer may consider adding a protective sleeve for the F-connector.

