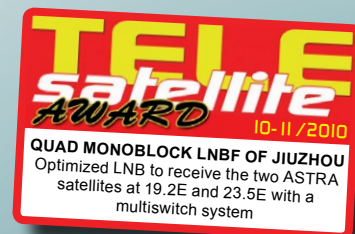


JQB4P - 4.3° Quad Monoblock LNB of Jiuzhou for ASTRA 1 on 19.2° E and ASTRA 3 on 23.5° E



In Europe, probably the most popular monoblock LNB's are made for 6° spacing. Little bit less popular are LNB's for 3° spacing. But what if you want to receive 2 satellites that are 4.3° apart – like ASTRA on 19.2° East and ASTRA on 23.5° East? Neither 6° nor 3° degree monoblock LNB will do. Fortunately, some manufacturers noticed the market need and developed the 4.3° monoblocks. One of such market oriented manufacturers is Jiuzhou, a company well known to TELE-satellite readers. Some time ago, we tested their 6° monoblock (TELE-satellite 06-07/2008). This time we decided to take a very close look at the JQB4P – quad monoblock for 4.3° satellite spacing.

The monoblock is contained in a metal box sealed with silicon. It is rather heavy so you should select a dish with rather solid LNB support arm. Along with the LNB we get a plastic adapter for 40 mm LNB holders. Without the adapter,



you would need a 23 mm holder. When we installed JQB4P in our standard 40 mm holder and tightened the screws, it still had too much freedom to skew. The simplest remedy was to wrap the

original 23 mm neck with a layer of tape and then put the adapter on it. In this way we created extra friction and there was no risk that the monoblock would change its position spontaneously.

Fig. 1. Comparison of JQB4P vs. Reference Monoblock

Central LNB, ASTRA 3 (23.5 East), Pol.=V

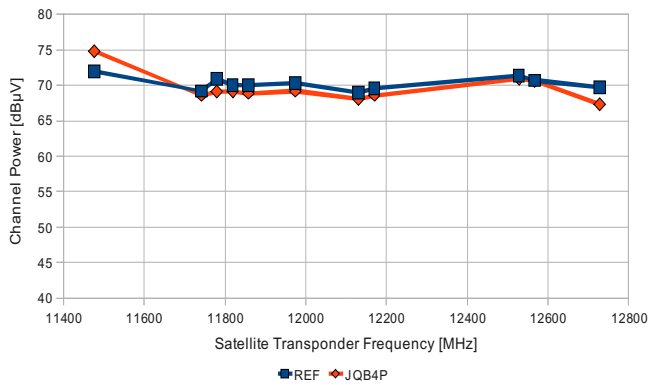


Fig. 2. Comparison of JQB4P vs. Reference Monoblock

Central LNB, ASTRA 3 (23.5 East), Pol.=H

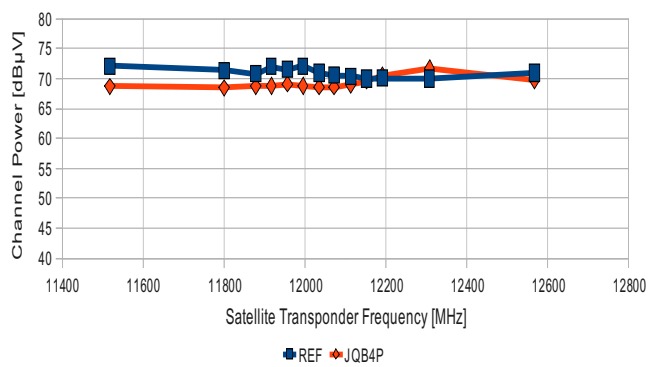


Fig. 3. Comparison of JQB4P vs. Reference Monoblock

Off-Center LNB, ASTRA 1 (19.2 East), Pol.=V

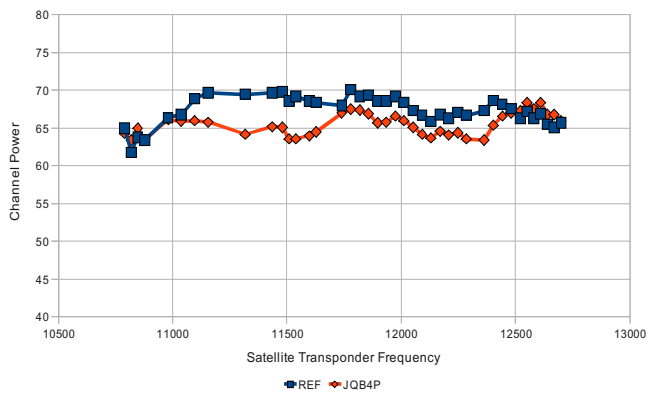


Fig. 4. Comparison of JQB4P vs. Reference Monoblock

Off-Center LNB, ASTRA 1 (19.2 East), Pol.=H

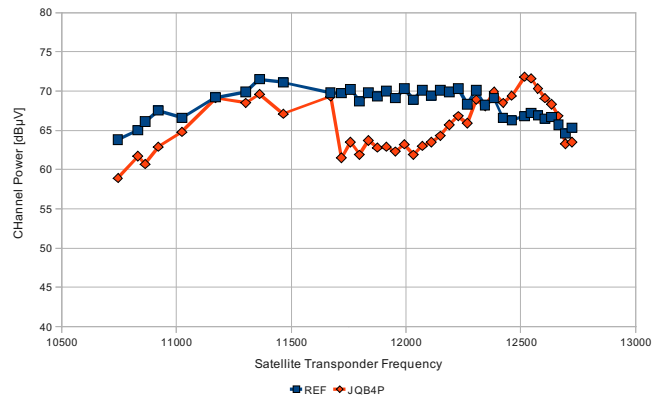


Fig. 5. Comparison of JQB4P vs. Reference Monoblock

Central LNB, ASTRA 3 (23.5 East), Pol.=V

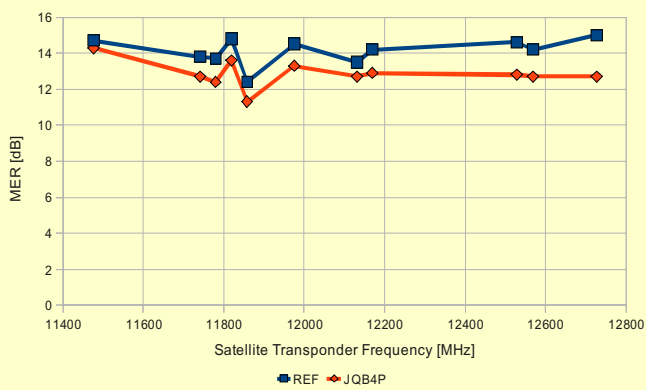


Fig. 6. Comparison of JQB4P vs. Reference Monoblock

Central LNB, ASTRA 3 (23.5 East), Pol.=H

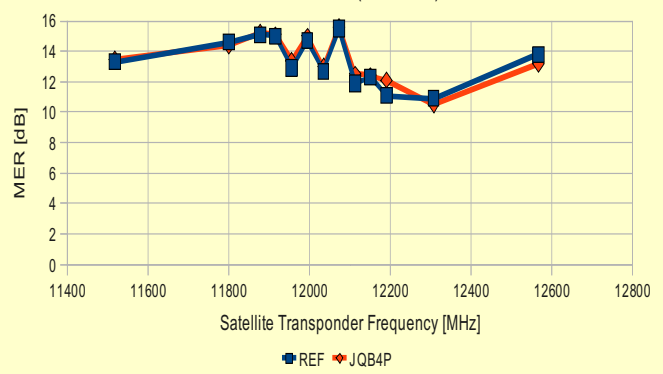


Fig. 7. Comparison of JQB4P vs. Reference Monoblock

Off-Center LNB, ASTRA 1 (19.2 East), Pol.=V

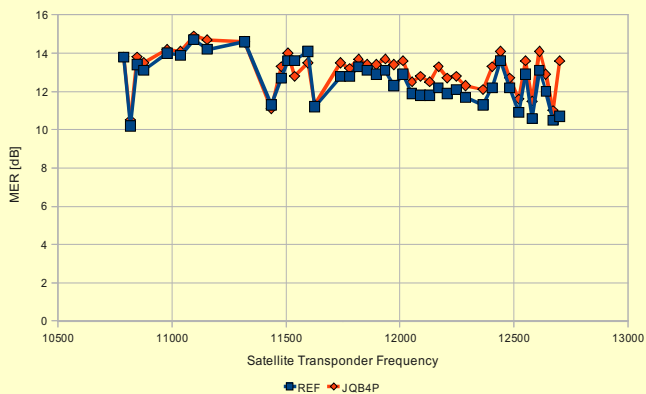


Fig. 8. Comparison of JQB4P vs. Reference Monoblock

Off-Center LNB, ASTRA 1 (19.2 East), Pol.=H

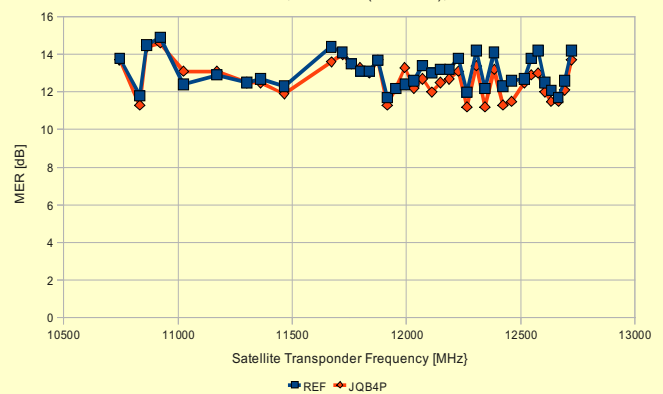


Fig 9. Comparison of the Four Outputs of JQB4P

Central LNB, Astra 3 (23.5 East), Pol.=V

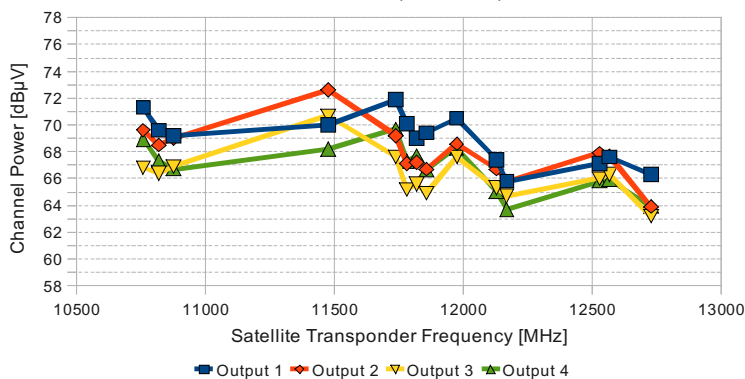


Fig. 10. Comparison of the Four Outputs of JQB4P

Central LNB, Astra 3 (23.5 East), Pol.=H

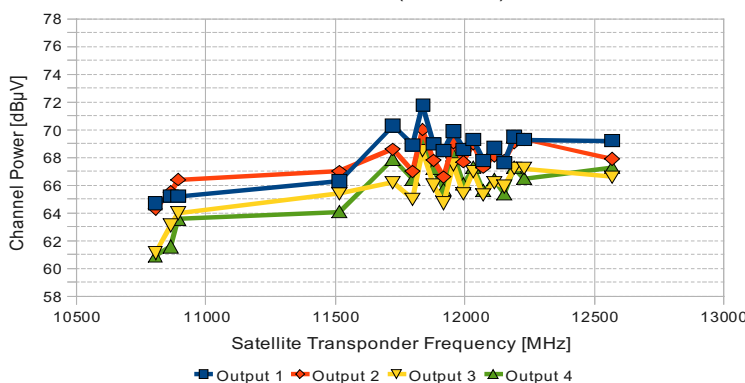


Fig. 11. Comparison of the Four Outputs of JQB4P

Central LNB, Astra 3 (23.5 East), Pol.=H

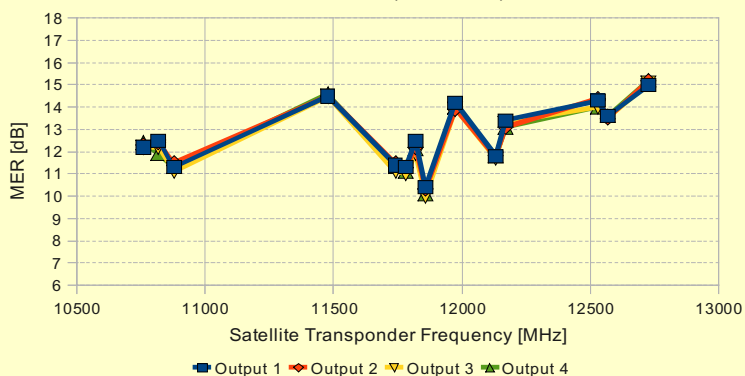
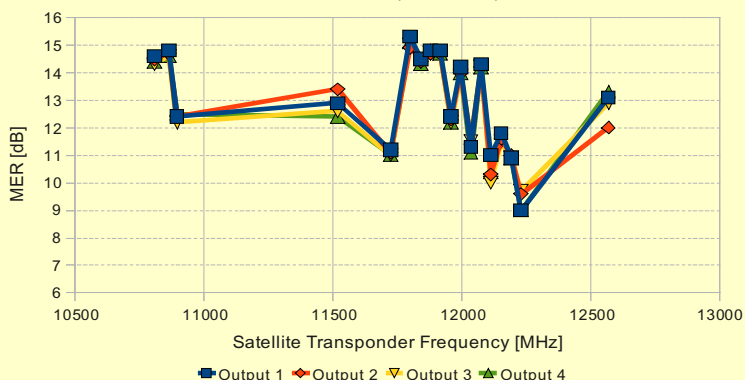


Fig. 12. Comparison of the Four Outputs of JQB4P

Central LNB, Astra 3 (23.5 East), Pol.=H



The first test we did was to compare the performance of Jiuzhou quad LNB with our reference LNB. The reference was a low noise universal single monoblock for 4.3° spacing (NF=0.2dB). We used 85x80 cm offset dish with f/D ratio 0.6. Both the LNB's in the focus and LNB's off-center were measured and compared with one another.

If you examine Figures 1 through 4, you will notice that the quad JQB4P generates only slightly lower output than the single device. For the high end of the Ku-band it is even better than our reference. We can say that the output level of JQB4P is strong enough for low and medium size distribution networks. Only for the antenna setups with very long cables you should consider adding amplifiers.

And what about noise performance? Can a quad device match the performance of a single monoblock? The measurement results are shown in the Figures 5 through 8. JQB4P performance is very good, practically the same as our reference. Usually, a quad device has worse MER results than a single device but not in this case. Only for the vertical polarization of the central LNB we can observe slightly worse performance. The horizontally polarized signals are handled equally well as in the reference single LNB. We have even better results with the off-center LNB. Here, the JQB4P is better for the vertical polarization and practically the same for the horizontal one.

The next thing we wanted to test was the equality of the four outputs of JQB4P. Figures 9 through 12 tell the story: there are practically no differences between the four outputs. Especially MER results are almost identical. It means that none of the four signal paths is superior or inferior compared with the others.

This could have been the end of our test but we decided to check something more. There is yet another satellite which is in similar angular distance from Astra 3 on 23.5° E. We mean Astra 2 on 28.2° E. The difference is not 4.3° but 4.7° but who knows, perhaps it will be possible to use JQB4P for this pair of satellites? We repositioned the monoblock in the holder so that now the off-center LNB was in the opposite side and checked the signal. To our delight, our meter displayed immediately green smiley's that meant the reception was possible. To compare it, we took another set of measurements – see Figures 13 and 14. Close examination shows

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Available online starting from 1 October 2010

TECHNICAL DATA	
Manufacturer	Sichuan Jiuzhou Electric Group Co. Ltd, China
Internet	http://www.jiuzhou.com.cn/
E-mail	overseas@jiuzhou.com.cn
Telephone	+86-816-2468428 / +86-816-2468360
Fax	+86-816-2468903 / +86-816-2469241
Model	JQB4P
Function	Universal Ku-Band Monoblock Quad LNB for 4.3° spacing
Noise Figure	0.6 dB max.
LOF	9.750 and 10.600 GHz
Frequency Stability	± 1 MHz max. @ T=25° C ± 3 MHz @ T= -30...+60° C
Gain	50 dB min.
Gain Variation	8 dB p-p (max.)
Cross Polarization Isolation	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	250 mA (max.)
Operating Temperature	-40...+60° C
Waterproof	+60° C WATER FOR 5 MINUTES
Holder Diameter	23 MM

Expert Opinion



Jacek Pawlowski
TELE-satellite
Test Center
Poland

+

Very good solution for ASTRA 1 on 19.2° E and ASTRA 3 on 23.5° E

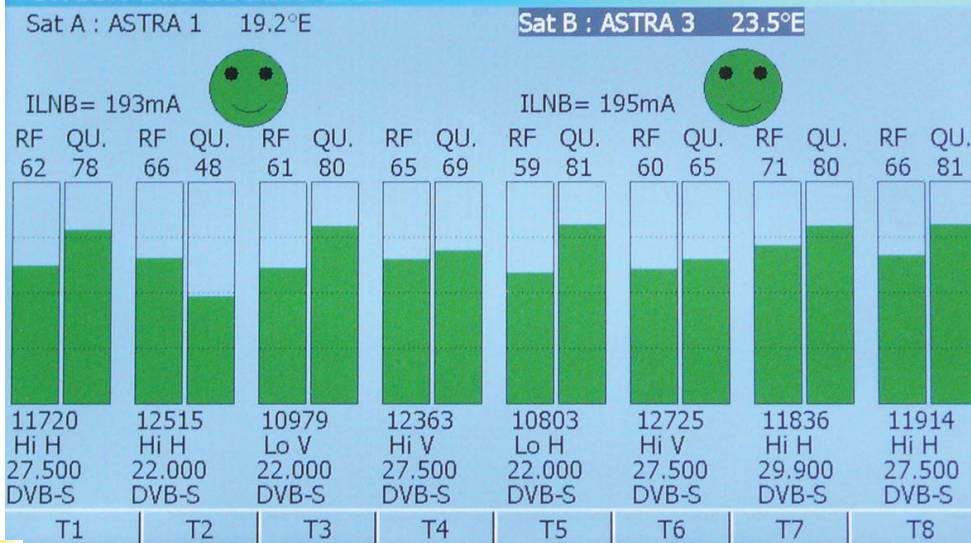
Excellent noise performance of both LNBF's matching the 0.2-0.3 dB competitors
All four outputs equally good

-

Rather heavy

The holder adapter ring 40/23 should be more fitting

1 Check Sat double LNB

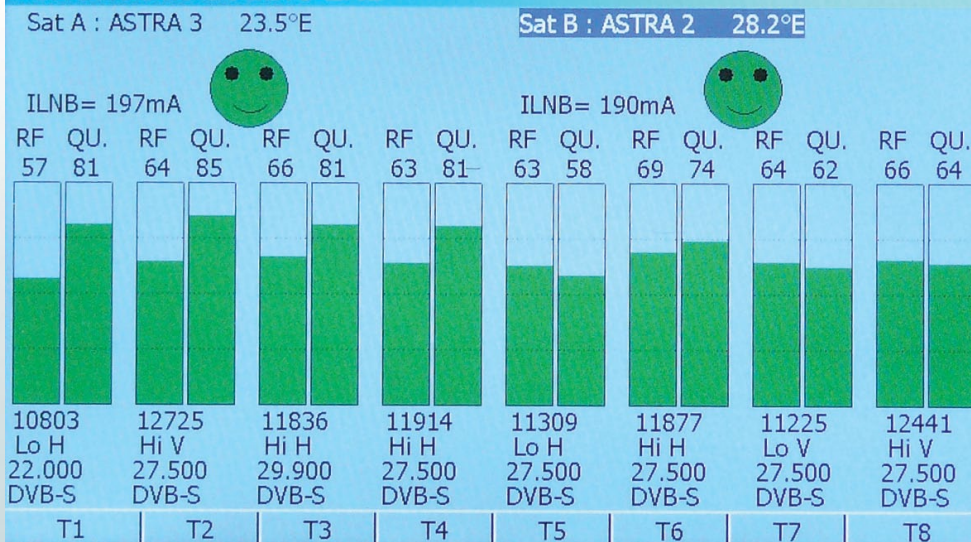


that there is a loss of signal quality if compared with for 4.3° spaced satellites reception. You can expect problems with the reception of some transponders, especially in bad weather. However, the stronger transponders should still be receivable. And do not forget that this is not intended application of this device. We stretched it to fulfill our (and hopefully yours) curiosity.

So the best idea is to use JQB4P for the 4.3° spacing accordingly with its specification. You will be satisfied with the results.

Receiving 2 satellites separated by 4.7° is still possible but not all transponders are guaranteed in bad weather. For such non-standard use, you may consider using JQB4P mounted on a smaller dish, say, 75x70 cm. In such case, its LNB offset should ideally match 4.7° satellite spacing.

2 Check Sat double LNB



1. A meter detects perfect alignment for 2 satellites. JQB4P monoblock is used for the reception of ASTRA 1 (19.2° E) and ASTRA 3 (23.5° E) – 4.3° spacing.

2. The monoblock can be successfully used for another pair of satellites: ASTRA 3 (23.5° E) and ASTRA 2 (28.2° E) – 4.7° spacing. Also now, our meter detects very good signal strength and quality.