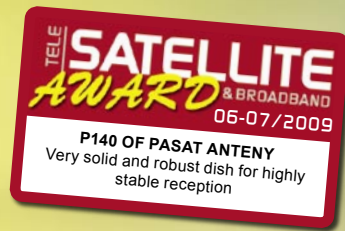


# P140 of Pasat Anteny Prime Focus Dish for Ku-Band

*When it was delivered, I did not know what it was. A huge wooden box weighting 96 kg that occupied half of my garage. After checking the papers it came out that indeed it was a parcel for the TELE-satellite test center. Only then, I recalled that a while before Alex had notified me about an antenna for test from the Bulgarian company Pasat Anteny. I asked myself: if the package was so massive and solid, would the antenna be equally strong and robust? This was one of the questions the test was supposed to answer!*



■ The feedhorn is included in the antenna kit



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Available online starting from 29 May 2009



■ Antenna has been delivered in a very solid wooden box



■ Antenna consists of not too many parts...



■ ... so assembling it is really simple

I needed a hammer and a crowbar to open the box and take the antenna components out of it. Every part of the kit was very carefully wrapped up with protective foil. There was no chance for the smallest scratch due to transportation. I really liked that. Only professional equipment is packed with such attention. When everything was unpacked, I noticed that there are only few components. Good - it should be simple to assemble it.

And indeed. Despite the fact that there was no detailed instruction but only one drawing showing an assembled antenna, the assembly was so straightforward that everybody could do that in no time. Everything fitted perfectly so it was nothing but fun.

I was slightly surprised when I discovered that the antenna had been designed for a mast of 70 mm diameter. More common dimension is 60 mm (and of course 40 mm for small dishes). After checking that the bolts fixing the antenna to the mast are long enough, I decided not to build the new test mast but use my existing test setup with a 60 mm mast. However, for a permanent installation, I recommend using a mast of the proper diameter - 70 mm.

When the dish was put on the mast and all the nuts and bolts were tightened, I noticed with satisfaction that the antenna is really solid and robust. That's very important especially for an antenna of this size. Its viewing angle is so small that even a small backlash can severely affect the reception.

The time came to install an LNB. The antenna is equipped with a feedhorn for Ku-Band. The feedhorn is optimized for this type of PFA antenna, a regular LNBF for Offset dishes would not give good results when mounted on a Prime Focus Dish.

The feedhorn is meant for LNBFs with a flange, which unfortunately was not available in my shack at time of test. What I had in my drawer was an LNBF for Ku-Band already equipped with a PFA feedhorn (NF=0.3dB). It was too thick and did not fit to the original holder. I had to put aside the original feedhorn and its holder and use another holder matching the LNBF. Finally, I was ready to take measurements.

I aimed the antenna at more or less proper direction and immediately I saw the signal on my signal analyzer. The signal analyzer identified satellite position as 28.2 ° East (Astra satellite). I played for a while and every time I got a very good quality signal. For example, MER = 17.4 dB and even more!

But how about receiving weak satellites? I studied carefully the footprints of different satellites on SatcoDX webpage and realized that living in Poland is a very good thing for a satellite fan but not necessarily when you have to test a big dish. Most of the beams aimed at this or that part of Europe also cover the center of the continent with very strong power. 90 cm is quite enough to receive most of the satellites and beams. There are only a few regional beams that do not cover my location but



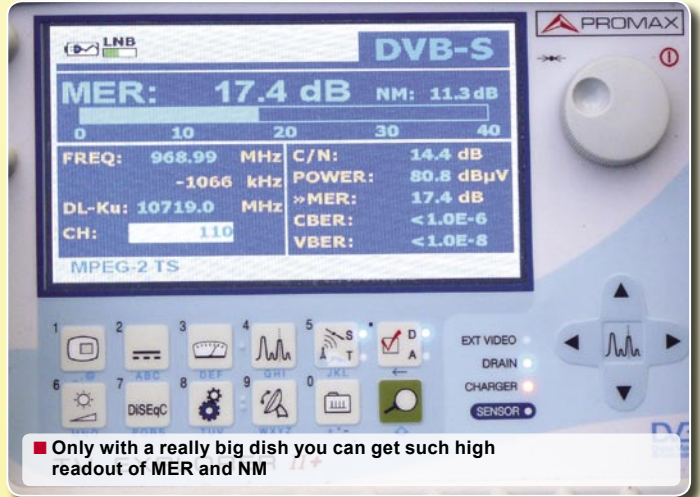
■ Last bolts to be tighten are those fixing the antenna to the mast



■ We used an LNB we had in the drawer, so the original feedhorn and its support were not needed



■ This is the feedhorn holder



■ Only with a really big dish you can get such high readout of MER and NM



■ Aimed at HOTBIRD 13E

in such cases, 140 cm is far too small to receive them.

The only practical candidate for the reception sensitivity test was the beam EXPA22K2 of EXPRESS AM22 satellite (53° East). Its footprint looked as if I should be able to receive it with a 150-190 cm antenna (signal strength >40 dBW), yet I hoped I could get something with the P140. Should it be 42-43 dBW, the antenna could even be able to lock to the signal.

When I was trying to aim PASAT 140 at this satellite, I realized that its elevation adjustment bolt is too short for that bird. I needed to set the elevation 21.4 ° but it was out of range of the dish. The antenna elevation with our test dish could be set from approximately 25° to 70°. The simplest thing I could do was setting antenna elevation to the lowest possible position and additionally tilting the mast by a few degrees.

After I did it, I noticed the spectrum of EXPRESS AM22 signal on my signal analyzer. C/N readout was at the level 8 dB. Unfortunately, it was slightly below the reception threshold. One decibel more or so and I could enjoy seeing something.

Bad luck. I was wondering how should I assess the performance of this dish? Finally, I decided to use much stronger satellite (HOTBIRD at 13° East), measure signal quality and compare it to signal quality from a 0.6 m dish and a 0.9 m dish. The dishes were equipped with different LNBF's but all of them were of quite good quality (NF = 0.3~0.4 dB).

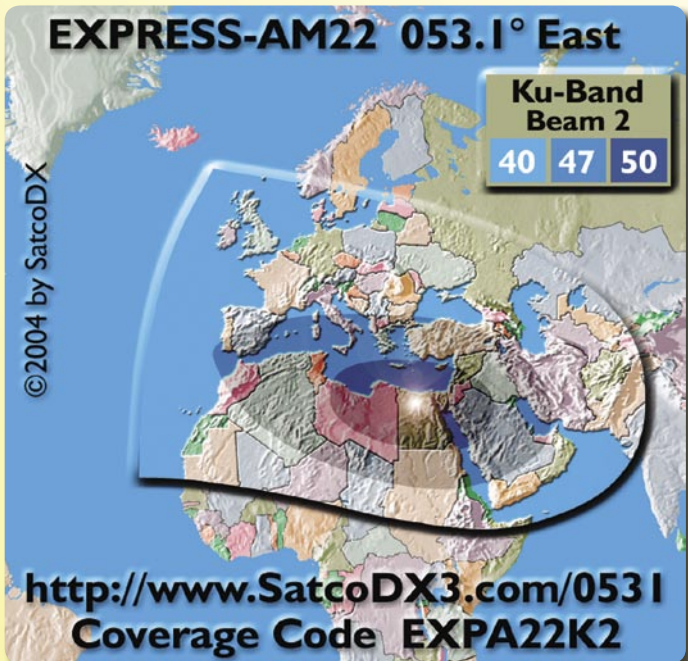
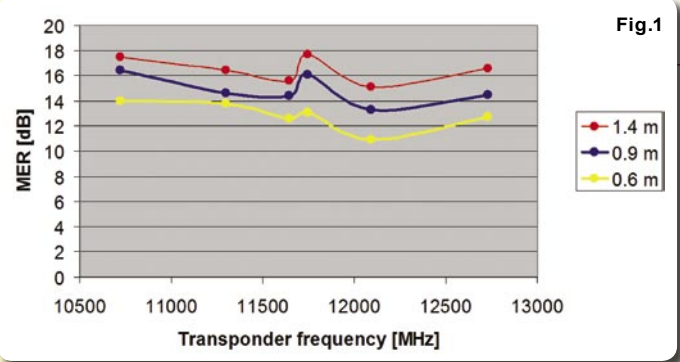
As I expected, the quality of the signal was significantly better. Its MER value was better by 1-2 dB for 0.9 meter dish and 3-4 dB for 0.6 meter dish. Perhaps some of our readers will be surprised but the signal level I got from P140 and prime focus LNBF was not higher than that from smaller dishes. In digital TV, it is much more important to have a big signal to noise ratio rather than the absolute signal level. To achieve this, one must have a big antenna. (Fig.1)

Based on these comparison measurements, I can state that P140 is indeed an antenna of high gain. It means that the curvature of the surface is correct and the signal is focused in the point where the feedhorn is mounted. The dish is very solid so if you only put it on a strong enough mast, it will last for years and years.

Its elevation setting range (25-70°) is more suitable for the countries located closer to the equator than for my location in Poland (52° North) but of course it depends on the satellite you want to receive. Pasat will deliver dishes with other settings ranges, if you specify your needs.

If you decide to purchase one of these robust and easy to install dishes, remember about the mast of 70 mm diameter and a suitable flange LNB for Ku-Band that can be attached to the feedhorn with 4 screws.

The Pasat dish is perfectly suitable for professional installations, and for private users when they want a real stable signal.

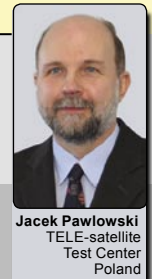


■ This footprint hardly reaches our test center, but Pasat dish was able to get some signals.

### Expert Opinion

**+**  
Very solid and robust dish. Everything fits perfectly. It is packed very carefully. Workmanship leaves nothing to be desired.

**-**  
none



### TECHNIC

#### DATA

Manufacturer	Pasat Anteny, Bulgaria
Telephone	+359 350 6 3911, +359 350 6 6311
Fax	+359 350 6 4011
Website	www.sat.bg
Email	sales@pasat.bg
Function	Prime focus aluminum dish for Ku-Band
Model	P 140
Diameter	140 cm
Focus	50 cm
F/D	0.375
Gain @ 11.350 GHz	42.2 dB
Gain @ 12.125 GHz	42.8 dB
Gain @ 12.626 GHz	43.5 dB
Noise temperature (at elevation 42°)	47 K
Opening angle (-3dB)	<1.25°
Thickness	1.2 mm
Reflector mass	6 kg
Supporting hardware mass	5.2 kg