# INFOSAT V055 Primary Focus Dish

## As Light As A Feather

TELE SATELLITE AWARD & BROADBAND 10-11/2008
INFOSAT V055 PRIMARY FOCUS DISH
Lightweight dish for C-band, easy to assembly and elegant looking

**If you are a satellite fan** living in Europe, the Ku-Band satellites are something very common to you. But haven't you ever thought about exploring the mysterious world of C-Band? You think that the C-Band dish needs to be big, heavy and ugly? Well, not quite. You cannot do too much about the size – the C-Band has approximately 3 times longer wavelength than the Ku-Band. So to get the similar gain, the antenna must be also 3 times bigger. But you do not have to use a solid dish. You can choose an aluminum mesh reflector instead. In this way, you get a light antenna wit a much more appealing look than a solid one.

### Installation

V055 of INFOSAT is a 1.65 m aluminum mesh antenna. It comes in three packages. Four parts of the reflector make up the first one. The second contains the pole and the LNBF legs and the third one – nuts, washers, bolts and the rest of the mounting stuff. The weight of the reflector is only 3.8 kg. It means that one segment weights less than 1 kg.

After unpacking everything, we looked for the assembly instructions. The producer did not include any. Well, we counted every bolt and nut, sorted them by size and compared with the holes we could see in the reflector segments and mounting parts. It did not take us long to figure out which bolt/nut should be used for. However, if INFOSAT decides to sell this product directly to the end users, it could be a good idea to attach simple instructions.

The assembly of the four parts of the reflector was really easy. We did it quickly and moved to a more tricky part – preparation of a provisional base for the antenna pole. Fortunately, a piece of particleboard was waiting in our garage exactly for the moment like that. How wise, that we did not throw it out. We could finally justify why so many strange things cover dust in our garage.

The V055 1.65m dish is delivered in three packages

After adding four adjustable legs, we could use the board as a horizontal base for the pole. We attached the pole to the base using three legs included in the package. Mounting the reflector on the pole could not be easier. You just put it on.

After mounting the reflector on the pole, the last step to do was the installation of four legs supporting the LNBF. It did not cause any problem. The antenna was ready for testing. We were quite anxious to see what this lightweight dish is able to provide.

### C-Band Reception – Linear Polarization

There are not too many C-Band satellites receivable in Europe that transmit with linear polarization. Thanks to the Satellite Dish Pointer (www.dishpointer.com) and SatcoDX (www.satcodx.com), we selected 4 such satellites. Only one of them: BADR-C had high elevation: 30°. The elevation of the remaining three: ABS-1, TELSTAR and NSS-10 was only around 10°. Our fears materialized. We were able only to receive the European beams of BADR-C.

**TELE-satellite World** www.TELE-satellite.com/...

**Download this report in other languages from the Internet:**

| | | |
|---|---|---|
| Arabic | العربية | www.TELE-satellite.com/TELE-satellite-0811/ara/infosat.pdf |
| Indonesian | Indonesia | www.TELE-satellite.com/TELE-satellite-0811/bid/infosat.pdf |
| Bulgarian | Български | www.TELE-satellite.com/TELE-satellite-0811/bul/infosat.pdf |
| Czech | Česky | www.TELE-satellite.com/TELE-satellite-0811/ces/infosat.pdf |
| German | Deutsch | www.TELE-satellite.com/TELE-satellite-0811/deu/infosat.pdf |
| English | English | www.TELE-satellite.com/TELE-satellite-0811/eng/infosat.pdf |
| Spanish | Español | www.TELE-satellite.com/TELE-satellite-0811/esp/infosat.pdf |
| Farsi | فارسي | www.TELE-satellite.com/TELE-satellite-0811/far/infosat.pdf |
| French | Français | www.TELE-satellite.com/TELE-satellite-0811/fra/infosat.pdf |
| Greek | Ελληνικά | www.TELE-satellite.com/TELE-satellite-0811/hel/infosat.pdf |
| Croatian | Hrvatski | www.TELE-satellite.com/TELE-satellite-0811/hrv/infosat.pdf |
| Italian | Italiano | www.TELE-satellite.com/TELE-satellite-0811/ita/infosat.pdf |
| Hungarian | Magyar | www.TELE-satellite.com/TELE-satellite-0811/mag/infosat.pdf |
| Mandarin | 中文 | www.TELE-satellite.com/TELE-satellite-0811/man/infosat.pdf |
| Dutch | Nederlands | www.TELE-satellite.com/TELE-satellite-0811/ned/infosat.pdf |
| Polish | Polski | www.TELE-satellite.com/TELE-satellite-0811/pol/infosat.pdf |
| Portuguese | Português | www.TELE-satellite.com/TELE-satellite-0811/por/infosat.pdf |
| Romanian | Românesc | www.TELE-satellite.com/TELE-satellite-0811/rom/infosat.pdf |
| Russian | Русский | www.TELE-satellite.com/TELE-satellite-0811/rus/infosat.pdf |
| Swedish | Svenska | www.TELE-satellite.com/TELE-satellite-0811/sve/infosat.pdf |
| Turkish | Türkçe | www.TELE-satellite.com/TELE-satellite-0811/tur/infosat.pdf |

**Available online starting from 26 September 2008**


INFOSAT
INFOSAT
INFOSAT

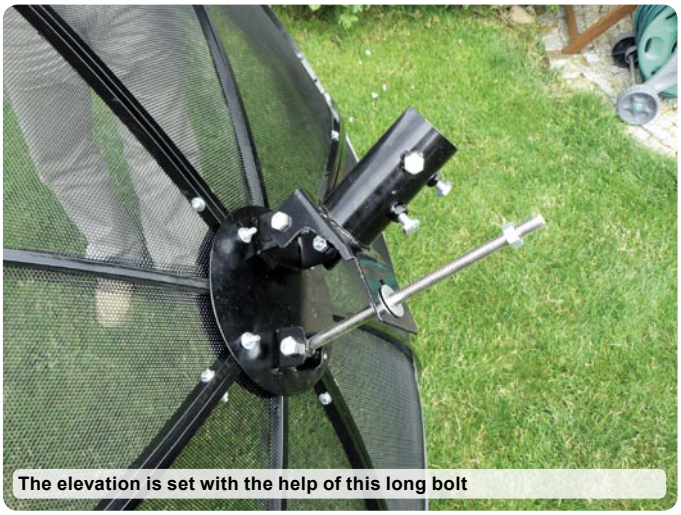

The 4 parts of the reflector are protected with cardboard


Reflector parts are unpacked...

...and so is the rest of the package


Assembly of the reflector was quite easy due to the very low weight


Are all the nuts tightened?


The elevation is set with the help of this long bolt


The improvised support for the antenna has been prepared. The included mast has been attached to the particle board equipped with adjustable legs to level it off.


Well done, all parts fit, now the electronic parts

The finished dish with the typical C-band LNB protector. It's elegant and is allowed be fixed permantently next to the trees

Time to align the antenna. We recommend to use a water level equipped with an angle meter – it will make setting the elevation much easier.

The other satellites did not even produce the smallest peaks on our spectrum analyzer. The trees surrounding our place made it impossible. In that moment, we were really sorry that the TELE-satellite test center is not located on the roof of a skyscraper.

The signal from BADR-C, 26°E, was very, very strong. We received transponder 3880H (27500, 3/4) with the channel power of 84 dBµV and C/N 12 dB. Noise margin was over 6 dB. Another digital transponder: 4040H (27500, 3/4) was not worse. Signal strength 84.1 dBµV and C/N 12.6 dB. The noise margin: 6.3 dB. Very good!

The analog transponders were equally strong and clear. The C/N was higher than for the digital transponders (what is natural) but would you expect C/N=23.5 dB!? We noted this record for the transponder 3996H (PAL). The Al Jazeera English channel is transmitted with such powerful signal.

## Ku-Band Reception – Linear Polarization

Although mesh antenna is rather dedicated for C-Band, we also tried a primary focus LNBF for Ku-Band. The reception in Ku-Band was not so strong. We tested one transponder on HOTBIRD satellite (13°East). Generally speaking, the carrier to noise ration was slightly worse than that of a regular LNB mounted on 90 cm offset dish (12 dB vs. 12.5 dB). We were hoping for a performance of a 120 cm solid dish but remember that a mesh antenna is not the best good choice for Ku-Band. Some noise from the ground can get through the mesh surface and reach the converter.

Because it could be quite interesting for our readers, we also tried a regular Ku-Band LNB for offset dishes. We installed it on INFOSAT V055. Theoretically such LNB has too high f/D ratio (0.6) so it can only "see" a central part of the primary focus dish. Our measurements confirmed the theory. The signal quality dropped by 1 dB when compared with the primary focus LNBF (C/N = 11 dB). However, strong satellites like HOTBIRD could still be received even with such "wrong" LNB installed on V055.

The fun starts: trying to receive a C-Band satellite located very low over the horizon

## C-Band Reception – Circular Polarization

There are more satellites transmitting with circular polarization receivable in our location but most of them require bigger dishes than 1.65 m. However there were a few ones that should be reachable. We tested the antenna with NSS-7 22° West, and YAMAL 202 49° E. We got C/N 6-7 dB. Their EIRP is 40 dBW in our location what means that one should use at least 1.5 m dish to receive them. With C/N close to 7 dB we were at the reception threshold.

## Conclusion

The V055 is a lightweight mesh dish which can easily be erected in a garden. It's size of 1.65 m diameter is the minimum required in Europe for C-band reception, but is sufficient in other regions with more high-power C-band satellites. The advantage of the V055 is it's ease of assembly, and that it fits easily into a garden. It's best used as a fixed dish for a high-power C-band satellite.

And now we test the dish with a Prime Focus LNB in Ku-Band

## Experts Opinion

**Jacek Pawlowski**
TELE-satellite
Test Center
Poland

\+

**INFOSAT V055 is a very lightweight antenna best to be used as a fixed dish. It is easy to assembly and looks elegant. Definitely, it is not a big ugly dish!**

\-

**Due to its delicate construction the dish is deformable and requires careful handling.**

## TECHNIC DATA

| | |
|---|---|
| **Manufacturer** | INFOSAT INTERTRADE CO., LTD. |
| **Website** | www.infosats.com |
| **Email** | sales@infosats.com |
| **Tel./Fax** | +66- 2- 961-9161-3 / +66- 2- 961-8587 |
| **Model** | V055 |
| **Function** | 1.65 m Primary Focus Dish |
| **No. of segments** | 4 |
| **Focal length** | 63 cm |
| **Depth** | 28 cm |
| **f/D ratio** | 0.38 |
| **Material** | Aluminum mesh 0.9 mm |
| **Operating frequency** | 3.4 ~ 12.75 GHz |
| **C-Band gain** | 35.5 dB |
| **Ku-Band gain** | 42 dB |
| **Stand pole** | 1 m, ∅ 2" |
| **Reflector weight** | 3.8 kg |
| **Mounting stuff weight** | 3.5 kg |
| **Pole and leg supports weight** | 2.6 kg |