Horizon HDSM USB PLUS

"even a total dummy can use it"

Let's be frank, when it came, we were amused. What was this? It was small - no more than 1/2 of a cat (see the photo). The simple case resembling the ones you could buy in every electronic Do-It-Yourself store and the front panel with only arrow buttons did not promise much. And this yellow color! We thought: "No, this can not be really useful – probably just a toy for the amateurs who do not care how much time they spend playing with their satellite dishes..." How wrong we were!

The relaxed cat of TELE-satellite editor shows the very small dimension of the new HDSM USB PLUS satellite meter from HORIZON.

Full of skepticism, we started to examine the accessories. The leather bag had a strap to hang it on your neck but you can also fasten it to your belt. There are openings in the bag through which you can attach a cable, should it be a car charger lead, USB lead or a mains power cord (all included in the package). Yes, the power supply unit is built in! No more headaches with connecting a box to another box and to a wall outlet. Despite having the power supply unit inside its case, HDSM USB PLUS is not heavy at all. Everything is based on Velcro and is really practical in everyday use.

We started with charging the built-in accumulator using the mains lead. The manufacturer clearly states in the user manual that we are getting the unit not charged. During charging, the meter was showing us the percentage of battery capacity. Another thing worth mentioning is the intelligence built into the charging circuit. You can leave your meter for an extended period of time without a fear that something bad will happen to your battery. Although the manual recommends continuing the first charging for 24 hours, we noticed that after approximately 1.5 hour, the accumulator charge rose from 10 % to 100%. Of course, we could not wait 24 hours before giving the meter a try. Right after charging, we started.

Operating the meter could not be simpler. You connect the

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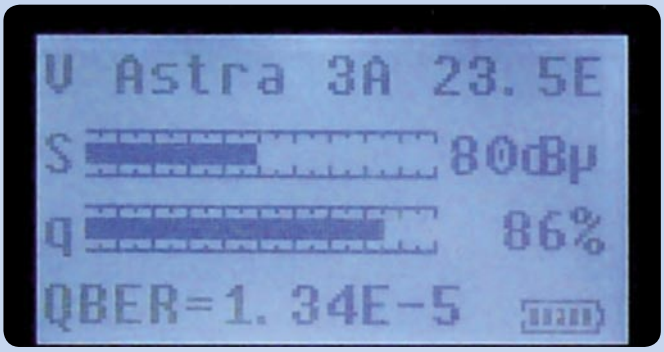
HORIZON HDSM USB PLUS

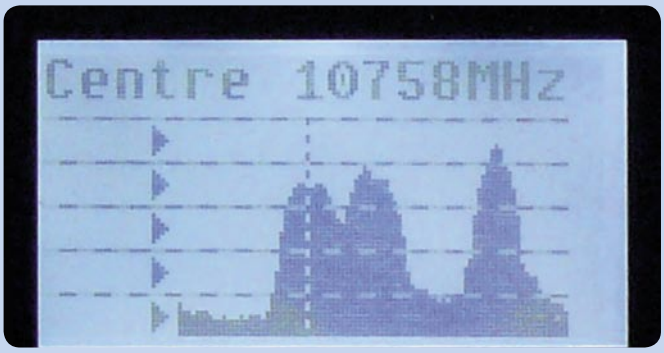
We did not even think one could offer a satellite meter so easy to use

HORIZON did a wonderful job in giving the installer all data he needs with a simple push of a button:

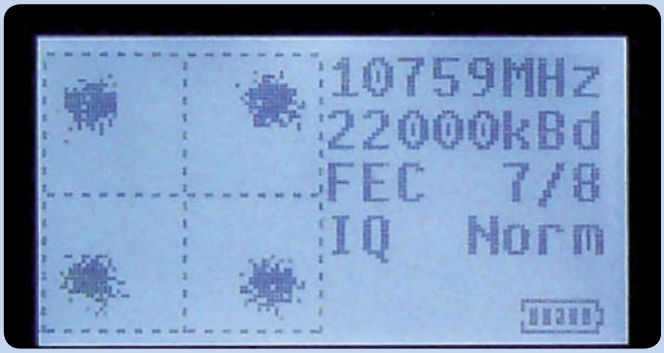


Signal Level and Channel BER before correction

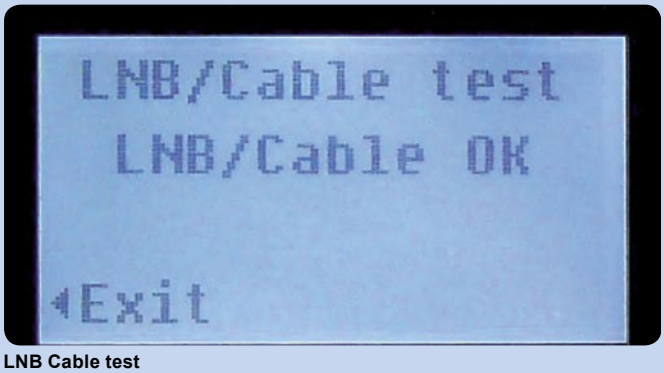
Carrier to Noise Ratio and the Post Viterbi BER



Frequency Spectrum



Constellation Diagram



LNB Cable test

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cable from LNB to the input F connector, switch the meter on, select with the arrow buttons the satellite you want to align your dish to and that's it. Now, you can rotate your dish until you hear a sound generated by the meter and see the level and quality readings. If you find nothing, increase or decrease the dish elevation angle and start rotating it again. In practice, it takes you at most a minute to find the desired satellite. In our tests it did not take us more than 5-15 seconds but we already had some experience where to look for which satellite and what to do with the elevation setting for every of them.

When you turn your antenna by a big angle, it is sometimes good to observe the meter - not only wait for the "success sound". When you notice an increase in signal level, you may want to start switching the HDSM USB PLUS to other satellites (left and right arrows) until you identify the satellite your antenna is currently looking at. This gives you a clear hint whether to turn it more to the East or to the West.

The meter stores in its memory 64 transponders from 32 satellites (2 transponders per satellite: one with horizontal and one with vertical polarization). Additionally, you can enter manually one additional transponder – the one you care most in your routine installations. When doing this, you will notice that the choice of LOF's is very wide – the meter is compatible with C, Ku and Ka Bands.

We were asking ourselves how it was possible that HDSM USB PLUS "knew" which transponders to use when identifying satellites in our location? As we all know, in different regions of the world, you receive different satellites. Even if the same satellite is receivable in different locations, it is quite common that you are able only to receive some of the satellite beams in one location and quite different beams in the other location. This means that the meter may need to use different transponders for identifying the same satellite in the UK, Spain or Poland. We found no explanation of that in the manual, so we turned to the Horizon webpage (www.horizonhge.com). Only then did everything become clear. The meter is preprogrammed with the set of transponders depending on the target country. In other words, different transponders are stored in HDSM USB PLUS memory when it is sold in the UK and different when it is sold in Poland. In fact, in the download section of Horizon site, we found 14 different preconfigured downloads including Russia, Brazil and China. We know from our experience that choosing the right transponders for a particular location (country) requires a lot of time and effort. Horizon did it for us. Thanks!

When the meter identifies the desired satellite, it plays a short sound and below the signal level bar, it displays an additional one showing signal quality in %. Below the 2 bars we can see the channel BER value displayed (QBER). This is the BER before the Viterbi error correction. Generally, QBER should be below 1.0 E-2, otherwise we may observe video distortions.

We may switch the meter to show another set of values. Instead of the signal level, signal quality and QBER, we may have C/N ratio and the post Viterbi quality expressed in % and post Viterbi BER value (VBER). While the VBER is not very practical (it rapidly jumps from very bad to very good values), the C/N ratio can be used for comparing different antenna setups. For example, you may see how inserting a multiswitch in the reception setup influences the C/N ratio.

Apart from these modes,

the meter may show frequency spectrum graph. This view may be useful when aligning antenna for very week signals. In the spectrum mode, we may change the span (with up/down arrows) in the following steps: 60, 120, 240, 480, 960 and 1200 MHz as well as the center frequency (with the left/right arrows) within the band.

For those who prefer to evaluate the quality signal graphically rather than numerically, Horizon implemented an additional mode in the HDSM USB PLUS meter. It is the QPSK constellation diagram. The more concentrated dots in every quarter, the better the signal (less noisy).

In this small "a quarter of a cat" volume, Horizon managed to pack even more. You may connect the HDSM USB PLUS after a DiSEqC switch and using the meter menu, you will be able to select satellite A, B, C or D. Not sure about the cabling and/or LNB condition? Run the LNB/Cable test. The meter will detect both short circuit and open circuit (no consumption of power typical for an LNB).

Important for the professionals is the ability to log the measurement results. This facilitates reporting the work done at remote locations. HDSM USB PLUS can be reprogrammed via the USB port (what is evident from its name). In this way we may upgrade to newer versions of the firmware, download the logged values or upload the transponder settings should we decide to take the meter to Brazil for vacation.

We did a few measurements to find out how accurate the meter is in comparison with another instrument. We found differences from up to 1 dB in signal level measurements. Note that the HDSM USB PLUS readings are calculated from the true digital Q+I values - other instruments may use analogue sources for their readouts and their readings may differ significantly from HDSM USB PLUS.

You may fully trust the meter when it tells you that one antenna setup is better than the other one. You may also be sure that the antenna alignment done with HDSM USB PLUS is the best possible if only you were patient enough to fine tune the azimuth, elevation and LNB skew.

Ready to use: the belts make it easy to carry the meter, f.i. on top of roof

TECHNIC

DATA

Manufacturer	Horizon Global Electronics Ltd.
Fax	+44 (0) 1279 417025
E-mail	sales@horizonhge.com
Web page	www.horizonhge.com
Model	HDSM USB PLUS
Function	Antenna alignment meter
Input frequency	950~2150 MHz
C/Ku-Band compatible	Yes (DVB-S)
Signal level	-65 dBm to 25 dBm
Symbol Rate	1~45 Msps
LNB supply	250 mA nom., 500 mA max.
Number of pre-programmed satellites	32 (horizontal & vertical polarization)
Power supply	100~240 V, 50/60 Hz, 0.31A max.
	12 V DC, 0.8 A max.
Operational time when fully charged	5 hours typ.

Experts Conclusion

Peter Miller
TELE-satellite
Test Center
Poland

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The meter is very handy and light. However, the most important feature of HDSM USB PLUS is its ease of use. We did not even think one could offer a meter so easy to use having all necessary settings correctly preprogrammed by the manufacturer! Good job! Do not be tricked by its toy-like appearance. It is a real, very useful meter. DVB-S2 will be offered soon, also readings of MER will be offered in a future software release.

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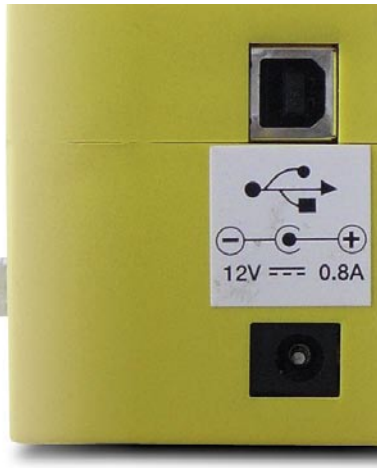
Horizon could make the sound announcing the transponder lock a bit louder.



Connect the car charger, and/or your laptop to the USB plug. The mains plug is on the other side of box.