8dtek
DSM Gifted

● **measures all tv signals in DVB-S, DVB-S2 and even the old analog transmissions**

● **big surprise in such small meter: DiSEqC is included and can even turn a motorized dish**

● **an A/V output gives excellent pictures on a laptop or monitor**

● **the meter can stay connected all times because of a loopthrough to connect a second receiver**

● **a basic spectrum analyzer and BER readings are features mostly found with high-end meters**

The Gifted Meter
Something More Than a Simple Satellite Finder

Its interesting external design attracts attention. Who said that meters must look dull? The bottom panel of DSM Gifted is slightly convex what makes the box look intriguing. Two displays: a color graphic LCD and a classical 2-digit 7-segment LED one - this is also something unusual. A quite practical protective bag with a Velcro strip that you can put around your wrist, enables you to carry the meter like a wrist watch. Definitely, 8D Technology demonstrated with 8dtek DSM Gifted that they are innovative guys.

What you can notice at first sight is a simple membrane keyboard made up of just 12 buttons. It promises simple operation and, as you

will learn after reading this report, this promise is really fulfilled. LED indicators signal meter status. Two F connectors located on the opposite sides are: the LNB input and the looped-through output for a satellite receiver. Not many meters are equipped with such a looped output and sometimes we really missed this feature when testing competitor products.

Closer examination reveals that on both sides of the meter there are flaps covering additional connectors. We have a USB port for backing up meter's settings, as well as for loading the meter with firmware updates. There is a power supply socket that accepts either a cable from a wall socket power supply or

a car lighter charger – both are included in the set. And, rather unexpectedly, there is an A/V output with composite video and mono audio output. It has an additional function – it can act as an RS-232 serial interface. Quite unusual, but do not worry - suitable A/V and RS-232 cables are also included.

There are provisions for the other inputs/outputs (Ethernet and HDMI) under the flap on the opposite side of DSM Gifted. However, they are not installed in this meter model. We will soon publish a report covering another, more advanced, DSM model which is equipped with the Ethernet port. Keep reading TELE-satellite! Anyway, it is impressive how many inter-

faces have been embedded in such a tiny box. The on/off switch mounted on the top side of the box ends the list of meter controls.

DSM Gifted, right after switching it on, takes you to the Main menu. The menu consists of 6 items: Sat Find, DiSEqC, Local Sat, Spectrum, Angle and Settings. There is only one menu level so the navigation is pretty simple. Menu, OK and the arrow buttons let you do all the main settings. Occasionally, you use function buttons F1-F4. Their function depends on the selected menu items and is always described at the bottom of the screen. SPCM and SAT are the shortcut buttons that take you directly to the frequency

1 — Main menu

Sat Find | DiSEqC Kit | Local Sat
Spectrum | Angle | System

2

Satellite	(2/98) HotBird (13.0E)
LNB Freq	Universal(9750-10600)
Transponder	(1/10) 10719 V 27500
22K	Auto
Scan type	TP Scan
Start scan	

Level: 90%
Quality: 86%
BER:0.00E-7   Hot Bird 6/8/9(13.0E)
F1 Edit TP   F2 Add TP   F3 Del. TP

3

Satellite	(2/98) HotBird (13.0E)
LNB Freq	Universal(9750-10600)
Transponder	(1/10) 10719 V 27500
22K	Auto
DiSEqC1.0	Disable
DiSEqC1.1	Disable
Motor Type	USALS
Limit setup	

Level: 90%
Quality: 86%
F1 Auto DiS   F4 Sat Find

4

Azimuth S->W 5.3   Elevation 30.0
Eurobird 9A(9.0E)
Location   Berlin(13.22E 52.31N)
Level: 90%
Quality: 86%
OK Search ◀▶ Satellite F1 Loc.Edit F2 Loc.List

5

City	◀Berlin(13.22E 52.31N)▶
	Augsburg(10.53E 48.22N)
	Basel(7.35E 47.33N)
OSD Transpare	Berlin(13.22E 52.31N)
Off Timer	Bern(7.26E 46.57N)
Lock Beep	DISABLE
LNB Power	On
	USB upgrade
	USB backup
S/W VER. 1.0.0.6049	H/W VER. 1.21
	Factory default

6

0
-25
-50
-75
-100
950 1070 1190 1310 1430 1550 1670 1790 1910 2030 2150
Start: 950 | End:2150 | Cur:1550 | Span:Full
F1 13/18V   F2 22K

7

City	◀Berlin(13.22E 52.31N)▶
Language	English
OSD Transparency	OFF
Off Timer	OFF
Lock Beep	DISABLE
LNB Power	On
	USB upgrade
	USB backup
S/W VER. 1.0.0.6049	H/W VER. 1.21
	Factory default

8

Satellite	(3/98) Turksat 2A/3A(42.0E
Sat Degree	042.0 E
Local Longitude	015.50 E
Local Latitude	51.90 N
Calculate	

| Azimuth | Elevation | Polarization |
| S->E 33.6 | 25.6 | 26.5 |

N
W — E
S

9

City	Augsburg(10.53E 48.22N
	Basel(7.35E 47.33N)
	Berlin(13.22E 52.31N)
OSD Transpare	Bern(7.26E 46.57N)
Off Timer	
Lock Beep	DISABLE
LNB Power	On
	USB upgrade
	USB backup
S/W VER. 1.0.0.6049	H/W VER. 1.21
	Factory default

10

Satellite	(2/98) HotBird (13.0E)
LNB Freq	Universal(9750-10600)
Trans	

Edit TP
Frequency   ◀ 10719 MHz ▶
Symbol Rate   27500 KS/s
Polarity   V
Save   Cancel

BER:0.00E-7   Hot Bird 6/8/9(13.0E)
F1 Edit TP   F2 Add TP   F3 Del. TP

11

Upg File	dump201103271811.abs
Mode	Allcode
Start	

28%
Alert:Do not remove U Disk during dumping
Alert:Do not remove U Disk during dumping

12

Satellite	(2/98) HotBird (13.0E)
LNB Freq	5150-5750
Transponder	5750-5150
22K	Universal(9750-10600)
Scan type	Unicable(9750-10600)
Start scan	

Level: 89%
Quality: 80%
BER:0.00E-7   Hot Bird 6/8/9(13.0E)
F1 Edit TP   F2 Add TP   F3 Del. TP

spectrum view and local satellites view

Sat Find is probably the most important menu item accessible from the main menu. Here, you can set: the satellite, LNB frequencies, transponder, scan type. In the same screen, you get the measurement results: signal level and signal quality expressed in percentages and bit error rate. The signal quality percentage reading is repeated on the two digit LED display. This is a great idea because the figures on the LCD screen are rather small and hard to read from a distance. When turning the dish, you can also refer to the bar graphs showing signal strength and quality.

At the bottom of the screen, there are 3 help tips on what the function buttons can do when in this menu item. The red F1 button is used to edit a transponder, the green F2 button to add new transponder and the yellow F3 to delete the present transponder. This is a quite useful feature because in different regions of the

1. **Main menu**
2. **Finding satellite signal**
3. **DiSEqC settings**
4. **Editing localizations used in Local Sat menu item**
5. **Visualization of the satellites available in a selected location (Clarke Belt)**
6. **Frequency spectrum view**
7. **System settings**
8. **Antenna angles calculation result**
9. **Selecting location for the Clarke Belt visualization**
10. **Transponders can be edited, deleted or added**
11. **The firmware and all settings can be dumped to USB memory**
12. **Small part of the available LOF's**

world various transponders of the same satellite are receivable. So, it is impossible to create a common list of transponders for, say, Spain and Russia. If some of the ten transponders assigned to every satellite in the original list prepared by 8D Technology are not receivable in your area, simply delete them and add the other ones. Alternatively, edit them by changing their frequency, symbol rate and polarization.

Now let's start the fun: how does DSM Gifted perform in real life? We started

with measuring signal quality. It turns out, that DSM Gifted, like in a typical satellite receiver, the quality result does not change in 1 % steps but with 6 or 7 % step. If we take into account that the results lower than 53% are practically below the reception threshold, we are left with 8 levels: 53%, 60%, 66%, 73%, 80%, 86%, 93% and 99%. So to find an ideal maximum when turning a dish or skewing an LNB in its holder, you have to find the limits where the reading drops down by 6-7% and then set the dish/LNB somewhere in between.

DSM Gifted allows you as well to check BER. However, like with all other meters

too, the BER readings are unstable, which is how it is with digital transmissions and their ever changing contents. But DSM Gifted goes one step further: you can also measure MER. This is the best measurement one can have (modulation error ratio). MER is stable and can be measured with 0.1 dB resolution. Our test sample was not yet equipped with MER readings, but 8D Technology are planning to enhance DSM Gifted with MER measurements in one of their next firmware upgrades.

See the chart in Figure 1 to see how the percentage reading of our test sample was correlated with MER and Loss Margin results meas-

ured with an expensive professional meter.

From the practical point of view of a satellite installer: the percentage readings, in the form they are implemented now in DSM Gifted,

enable you to direct 60-90 cm dishes for popular satellites in a simple way and with acceptable precision. We would not recommend DSM Gifted with the present firmware for dishes 120 cm or larger. And if you are fight-
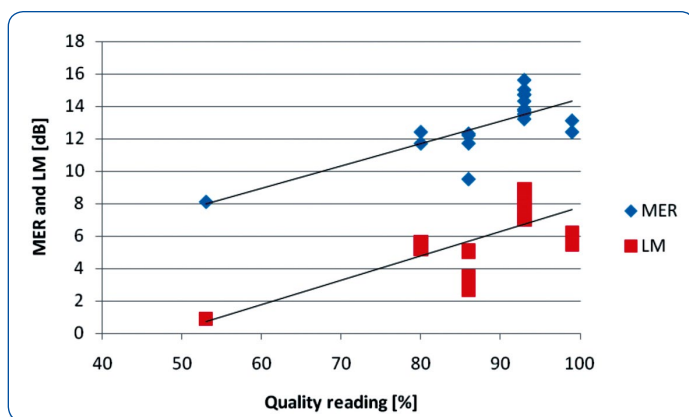

Fig. 1. The trend lines "translate" DSM Gifted signal quality readings to MER and LM results. Actual results of 18 transponders from different satellites are shown with blue and red markers.

ing for a split decibel in order to work a weak transponder (like true satellite enthusiasts often do) this meter can only be used for the initial setup.

On the other hand, 8D Technology can really be proud of the number of frequencies they offer in the Sat Find menu item. Here is the impressive list of local oscillator frequencies (LOF's) you can select in DSM Gifted: 5150, 5750, 5950, 9750, 10000, 10050, 10450, 10600, 10700, 10750, 11250, 11300, 5150-5750, 5750-5150, Universal (9750-10600) and SCR (9750-10600).

The second menu item is DiSEqC. We were impressed that 8D Technology equipped DSM Gifted with DiSEqC 1.0, 1.1 as well as 1.2 and USALS. There is even DiSEqC auto detection function! During our whole test, US-ALS was operating without any problems. We turned our dish quite a number of times during this test powering the motor from this tiny meter. That's what every installer will really appreciate.

However, when the battery finally got discharged, the meter went off without any warning. There is no battery charge status in the settings menu or elsewhere. The manufacturer promised to add this feature in one of the next firmware upgrades.

Local Sat menu items presents a picture showing you what satellites are located in which position on the Clarke belt as seen from your location. The test meter was prepared for Germany and in its memory had a number of German towns. After selecting the closest town to your current location, you can jump from satellite to satellite with left/right arrow buttons and see their elevation and azimuth values. If necessary, you can edit locations and change them to be more suitable to your own needs.

Another menu items - the spectrum analyzer - is something one does not expect in such a small meter like DSM Gifted. However, this is not a fully fledged analyzer. First of all, it is rather slow. Evidently the processor is not powerful enough for that function. As a result, you cannot use it when coarsely adjusting your dish to monitor if your antenna starts picking up a signal. Secondly, there is only full span. Zooming in to a specific frequency is not possible. You can not click on a transponder selected on the spectrum to identify its parameters. The real use of this spectrum view is a quick recognition which satellite you are currently tuned in - for professional installers who do installations frequently, do remember how each satellite's spectrum should look like.

The Angle menu item is somewhat similar to the Local Sat but more data is available. You select the satellite, enter your coordinates and, except for the correct elevation and azimuth, you additionally get the proper LNB tilt angle. The last one is needed for the reception of transponders with linear polarization. The more the satellite is away from the south direction in your location, the more tilt you need to apply to the LNB in its holder.

The very last menu is called the System. Here you set several meter parameters as well as start the software upgrade and backup on a USB memory stick. We actually did one software upgrade and it went very fast. This is a very convenient way of upgrading the device.

If you have taken a look at the screen-shots accompanying this report, you probably ask yourself how these photos were made. Actually, these are not the screenshots of the LCD meter taken with a photo camera but the pictures captured on the meter's A/V output. There is a cable with RCA connector you can connect to the laptop with TV tuner and get a large high quality meter display. Perhaps this is not a very practical feature in field measurements but if you take the measurements indoors, it is quite an interesting option.

DSM Gifted is an easy-to-use and cleverly designed satellite finder with several unexpected features usually found in more expensive meters. With the present firmware, it is good for medium size dish installations.

Expert Opinion

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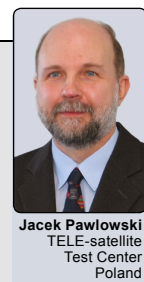
Measures DVB-S, DVB-S2 and analog signals.
Support for DiSEqC 1.0/1.1 and SCR.
Suitable for turning motorized dishes (DiSEqC 1.2 and USALS).
Quality readings duplicated on an easy to read LED display.
Very good picture quality on A/V output.
Signal output to connect a receiver.

Jacek Pawlowski
TELE-satellite
Test Center
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Signal quality readings not precise enough for larger dishes and DX setups.
No battery status indicator (available in future firmware)
No MER measurement (available in future firmware)

TECHNICAL DATA	
Manufacturer	8D Technology Ltd., Hong Kong
Webpage	www.8dtek.com
Email	8dtek@8dtek.com
Fax	+852 3965 3222
Model	DSM Gifted
Description	Satellite Meter for Antenna Alignment
C/Ku Band	Yes
SCR	Yes
DiSEqC	1.0 – 1.3 (USALS)
Quantities measured	Signal Level [%], Signal Quality [%], BER
Inputs	L-Band (950-2150 MHz), DVB-S/S2 and analog signal
Outputs	L-Band (looped through), A/V (composite + mono)
Data ports	USB, RS-232
Power Supply	100-240 V 50/60Hz
Dimensions	140 x 100 x 40 mm (ca. 5.5 x 4 x 1.5")