



Tenow Steps Up Product Rollout



- *A world first: 4 tuner sensation on the TBS6984*
- *Extremely low threshold, therefore perfectly suited for blind scan: the TBS6925*
- *Pay TV on the PC with external USB box TBS5980*
- *The first PC card for future DVB-T2 transmission standard*
- *Excellent build quality and top-notch components throughout*



PC cards for all digital transmission standards DVB-S/S2 and DVB-T/T2 for every PC from Tenow

The name Tenow should be ringing a bell with many TELE-satellite readers, because in issue 02-03/2011 we ran a company presentation of

this promising PC card manufacturer. The company has recently developed a total of five new PC cards, each of which comes with rather

unique features. For DVB-S/S2 we're talking about the TBS6925, TBS6984 and TBS5980, while for DVB-T/T2 Tenow has the TBS6220

and TBS6280 in store. No matter which product we look at first, all boast excellent workmanship and stylish packaging. Apart from the TBS5980 – which is an external USB box – all other cards are built to PCI-E (express) slot specifications, which is for a reason: This up-to-date interface is the only one that supports transmission rates of up to 250 MB/s, a level that is required to meet Tenow's exacting demands in order to fully exploit all product features.

We do appreciate, on the other hand, that hardware requirements at the user's end are not stretched to the limits at all, so that the Tenow PC cards and the USB box will happily work with somewhat older systems as well. To be precise, DVB-S and DVB-T reception in standard definition require a Pentium III processor with 1 GHz CPU, 256 MB RAM and a graphics cards with a minimum of 16 MB RAM. Even HDTV reception via DVB-S/S2 and DVB-T/T2 does not demand the world: A Pentium IV CPU with 3 GHz or higher, a minimum of 1 GHz RAM and a graphics card with upwards of 64 MB RAM will do the job nicely. To sum



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up, many less than brand new PCs can be used for TV reception with Tenow products. As far as software is concerned you need either MS Windows (2000/XP/Vista/7) or Linux. Each product comes with a user-friendly and conveniently shaped remote control which sits nicely in your hand and will be a great asset for all couch potatoes out there. The IR receiver is built into the casing of the USB box, while all internal PCI-E cards come with an external IR receiver which can easily be hooked into a dedicated socket on the slot panel. All items come with a printed manual that deserves special mention thanks to all the useful information it provides. Together with the installation guide it should answer all questions that can possibly arise in terms of installing and using Tenow products.

TBS6984 – 4 tuners for DVB-S/S2 reception with a single card

Most of us will remember a time – not so long ago, actually – when recording and time-shift viewing of a broadcast stream was nothing short of a sensation.

These days, however, we expect these features to come as standard and it's not such a big deal any longer to even record two streams simultaneously while watching a third channel.

Tenow decided to go an extra mile and now offers the TBS6984 which boasts four tuners as an absolute world first. After all, innovative features and new standards are what Tenow is made of. The four low-threshold tuners support DVB-S and DVB-S2 with QPSK and 8PSK modulations. In QPSK mode they can process symbol rates from 1 to 45 MS/s, while in 8PSK mode the range extends from 2 to 36 MS/s. Naturally, we put these specs to a stringent test and can happily reveal that in the real world the TBS6984 lives up to its promises. It goes without saying that all four tuners cover the essential frequency band from 925 to 2175 MHz and the input threshold measurement yielded identical results for all four tuners.

So what is that raving about four tuners all about? The TBS6984 allows you to watch a channel live while at the same time recording up

to three different channels from different transponders in the background. In this day and age of hundreds or even thousands of available channels we could hardly ask for more. Alternatively, only three out of the four tuners can be assigned for TV reception, with tuner number 4 being set apart for Internet-via-satellite, if required. As a matter of fact, this is a feature that can be used with all other Tenow products as well.

We loved the TBS6984 during our test – there is simply no way we had anticipated how much fun it can be to process four different satellite signals at the same time. Using our up-to-date Intel Core 2 Duo processor we could not detect any flaws or delays, but even when we took out an older Pentium IV system from our office rumpus we were surprised to find that it also did not leave anything to be desired when paired with the Tenow card. To be fair, it did struggle with simultaneous recordings of different channels and with HDTV reception, but we never expected it to be up to those tasks anyway. It should be noted that the TBS6984 offers the option to get its power from the PC's power supply unit. An adapter cable is provided with the card. However, this power plug on the TBS6984 is only optional since the card works perfectly well

when it takes its power from the internal PCI-Express slot. However, under some circumstances like a huge power consumption due to

controlling a DiSEqC motor or with some motherboards, where the PCI-Express slots does not provide sufficient power or where it introduces too much noise, then a separate power cable could help. That's why TBS provided this extra power supply plug for the TBS6984.

When fed with SCPC signals and rather weak signals from ASTRA 2D 28.8° East and Nilesat 7° West the TBS6984 also performed up to standard.

TBS6925 – a PCI-E card for professionals and technical enthusiasts

If you think four tuners is a little over the top you may want to opt for the TBS6925. This PC card has only one tuner, yet impresses with a number of other features. With professionals or tech-savvy users in mind it does not only support DVB-S/S2 with the QPS and 8PSK modulations, but also DVB-S2 with 16PSK and 32APSK. Added to that is multi-input-stream (MIS) reception of VCM and ACM transponders (read more about this very interesting reception standard in one of the coming issues of TELE-satellite) as well as an option to save the generic stream of a transponder on your PC's hard

disk, up to a data transfer rate of 190 Mbit/s.

If SCPC is what you're after, this is the right card for you too. After all, Tenow went at great lengths to come up with just the right tuner for the TBS6925 to support symbol rates all the way from 0.2 to 45 MS/s in both the QPSK and 8PSK modes. A full-range spectrum like that for both modulations is almost unique in itself. You can imagine that we gave our best to check and verify the manufacturer's specification down to the very last detail during our test. Indeed, we were able to receive an MIS transponder from ATLANTIC BIRD1 at 12.5° West (11495H), as well as SCPC signals with an extremely low symbol rate (less than 1 MS/s) which posed no problem at all to the Tenow TBS6925. As if all that was not enough, this particular card comes with an efficient blind scan mode which was able to detect even unusual symbol rates both in DVB-S and DVB-S2 during our test. Applications like that really show a tuner's worth, and together with a very low threshold we were genuinely impressed to receive

flawless video from a signal with a C/N of only 4.5 dB. All things considered, the concept of the TBS6925 is such that Tenow decided not to package several tuners or a number of consumer market-driven features in this card, but rather launch a tool for pros and tech-savvy users who now have a PCI-E card at their disposal which allows them to tap into the more extreme and out-of-the-ordinary realms of TV, radio and data reception via satellite.

TBS5980 – an external USB 2.0 box with CI slot

No matter how capable and rich in features all PCI-E cards made by Tenow are, they invariably require a free PCI-E slot in the PC. In addition, due to size restrictions of PC cards most of them have no CI slot for



TELE satellite AWARD 10-11/2011
Tenow TBS6925
 Has every reception feature you could possibly ask for, plus blind scan. The card of choice for true die-hard professionals venturing to the extreme edges of satellite reception.

TELE satellite AWARD 10-11/2011
Tenow TBS5980
 Brings pay TV onto your computer screen.





pay TV reception. Here too, Tenow has a solution: the USB box TBS5980 measures only 10.5 x 8.5 x 2 cm and comes fully equipped with a blind scan tuner, all control electronics and a CE slot on the front panel.

The low-threshold DVB-S/S2 tuner worked smoothly with QPSK and 8PSK modulations in our test, and it supports symbol rates from 1 to 45 Ms/s in both modes. Never fall for a manufacturer's sale pitch, we thought, and put the USB box to the test. Lesson learned: Tenow can be trusted, as the TBS5980 was able to even show weak signals that hovered just around the tuner's threshold level with only few errors.

Tenow's box is compatible with the USB 2.0 interface, which means it had to be designed as a single tuner version due to bandwidth limitations. We would love to see extended versions with two or even more tuners in future with the much faster

USB 3.0 standard. The majority of users have USB 3.0 available even today, so an upgraded box should be able to use those resources. Even though the box has to live with the present USB 2.0 limitations, however, HDTV reception is possible with the external box from Tenow.

We tested pay TV reception as well and found that the CI slot of the TBS5980 worked just as expected with both a Viaccess CI module and corresponding smart card in its Irdeto sibling. In a clever design move Tenow uses the spare space on the front panel to position the IR receiver so that no external receiver is required for the USB box – as opposed to the PCI-E cards.

TBS6280 & TBS6220 – DVB-T/T2 reception with one or two tuners

The TBS6280 and TBS6220 are twin (6280)

and single (6220) PCI-E cards for DVB-T/T2 reception. From the outside they both look identical, as terrestrial TV reception does not require LNB power supply and the input signal can be forwarded from tuner 1 to tuner 2 if more than one is packed into the card. This is also why only one antenna socket is required, even for the twin tuner model TBS6280. Speaking of the antenna socket, Tenow ships its DVB-T/T2 cards with a rod antenna which in our test demonstrated surprisingly good reception capabilities.

Both cards can be used for the VHF and UHF ranges and are able to receive DVB-T/T2 transponders with QPSK, 16QAM, 64QAM and 256QAM modulations. Apart from reception bandwidths of 6, 7 or 8 MHz the 1K, 2K, 4K, 8K, 16K and 32K FFT modes are available so that both cards cover the entire DVB-T/T2 reception spectrum.

While the TBS6280 with

its second tuner can be used to record one channel while watching another one, the single version TBS6220 has to do without that feature.

Our test revealed that DVB-T/T2 reception was flawless with both models, and even a signal which was modulated by us and corrupted with a substantial amount of errors was corrected and displayed according to specifications. The tuners left a very positive impression throughout, and one that was reinforced when fed with real-world signals as well.

By the way, Tenow enters uncharted territory with its implementation of DVB-T2. Most PC cards available so far are only compatible with DVB-T and we honour the achievement of Tenow to take that additional step once again. Once terrestrial HDTV via DVB-T2 gains momentum, Tenow will be already there waiting with the right product.

TECHNICAL

DATA

Manufacturer	Tenow International Ltd Unit C-8A Shennan Garden Building High-Tech Park Shenzhen, CHINA
Phone	+86-755-26501345 or 26501201
Email	sales@tbsdtv.com
Website	www.tbsdtv.com
Function	PCI-E card / USB 2.0 Box for SDTV and HDTV with PVR functions and different amount of tuners, compatible with Windows and Linux operating systems

TBS6984	
Input Frequency	925-2175 MHz
Amount of Tuners	4
Product Type	PCI-E card
Input level	-69 ~ -23 dBm
Symbol rates QPSK	1-45 Ms/s
Symbol rates 8PSK	2-36 Ms/s
SCPC compatible	yes (tested >2 Ms/s)
DiSEqC	1.0, 1.1, 1.2, 1.3, 2.x
C/KU band compatible	yes
CI slot	no
DVB-S2 QPSK/8PSK	yes
DVB-S2 16 APSK	no
DVB-S2 32 APSK	no
MIS compatible	no
ACM/VCM compatible	no
Generic Stream capture	no
BlindScan	no

TBS6925	
Input Frequency	925-2175 MHz
Amount of Tuners	1
Product Type	PCI-E card
Input level	-69 ~ -23 dBm
Symbol rates QPSK	0.2-45 Ms/s
Symbol rates 8PSK	0.2-45 Ms/s
SCPC compatible	yes (tested >0.9 Ms/s)
DiSEqC	1.0, 1.1, 1.2, 1.3, 2.x
C/KU band compatible	yes
CI slot	no
DVB-S2 QPSK/8PSK	yes
DVB-S2 16 APSK	yes
DVB-S2 32 APSK	yes
MIS compatible	yes
ACM/VCM compatible	yes
Generic Stream capture	yes
BlindScan	yes

TBS5980	
Input Frequency	925-2175 MHz
Amount of Tuners	1
Product Type	USB 2.0 Box
Input level	-69 ~ -23 dBm
Symbol rates QPSK	1-45 Ms/s
Symbol rates 8PSK	1-45 Ms/s
SCPC compatible	yes (tested >1 Ms/s)
DiSEqC	1.0, 1.1, 1.2, 1.3, 2.x
C/KU band compatible	yes
CI slot	yes
DVB-S2 QPSK/8PSK	yes
DVB-S2 16 APSK	no
DVB-S2 32 APSK	no
MIS compatible	no
ACM/VCM compatible	no
Generic Stream capture	no
BlindScan	yes

TBS6220	
Input Frequency	VHF & UHF Band
Amount of Tuners	1
Product Type	PCI-E card
Channel Bandwidth	6,7,8 MHz
FFT mode	1K, 2K, 4K, 8K, 16K, 32K
Center IF Frequency	3 ~ 5 MHz
RF-Input Impedance	75 Ohm
RF-Output Impedance	75 Ohm
CI slot	no
QPSK, 16QAM, 64QAM, 256QAM	yes

TBS6280	
Input Frequency	VHF & UHF Band
Amount of Tuners	2
Product Type	PCI-E card
Channel Bandwidth	6,7,8 MHz
FFT mode	1K, 2K, 4K, 8K, 16K, 32K
Center IF Frequency	3 ~ 5 MHz
RF-Input Impedance	75 Ohm
RF-Output Impedance	75 Ohm
CI slot	no
QPSK, 16QAM, 64QAM, 256QAM	yes

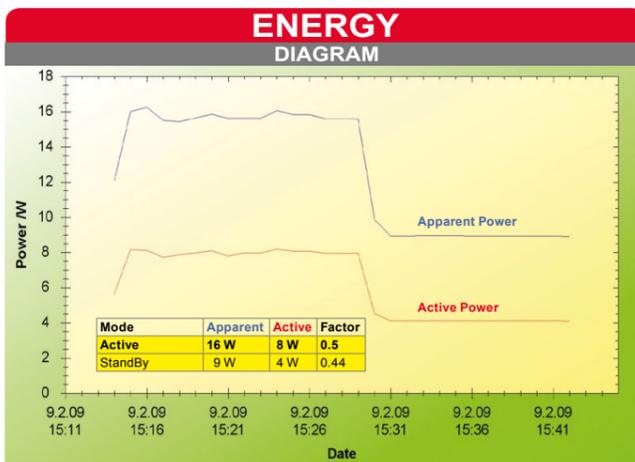
Expert Opinion

No matter which Tenow product we look at, each single one is characterised by excellent build-quality and top-notch components. In our tests we always try painstakingly hard to find any shortcomings of the products we test: this time we failed. Tenow passed the test with flying colour and deserves our salutes.



Thomas Haring
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None



First 15 minutes: Live TV & PVR functions;
Second 15 minutes: StandBy