

SPAUN SMS 91609 NF Multiswitch

2 Birds For You and Your Neighbors

There are a variety of multiswitches available on the market. Some of them are designed for many satellites, the others for many receivers. Some are cascadable – what is especially useful

We decided to have a closer look at the new SMS 91609 NF from German manufacturer SPAUN. It is a multiswitch designed to work with 2 Quattro LNB's and up to 16 receiver outputs. Its bigger "brothers" (SMS 92009 NF & SMS 93609 NF) are designed to serve 20 and even 36 receivers!

Evidently these devices are designed to be installed in blocks of apartments in the regions where only 1 or 2 satellites are the most popular and desired by inhabitants.

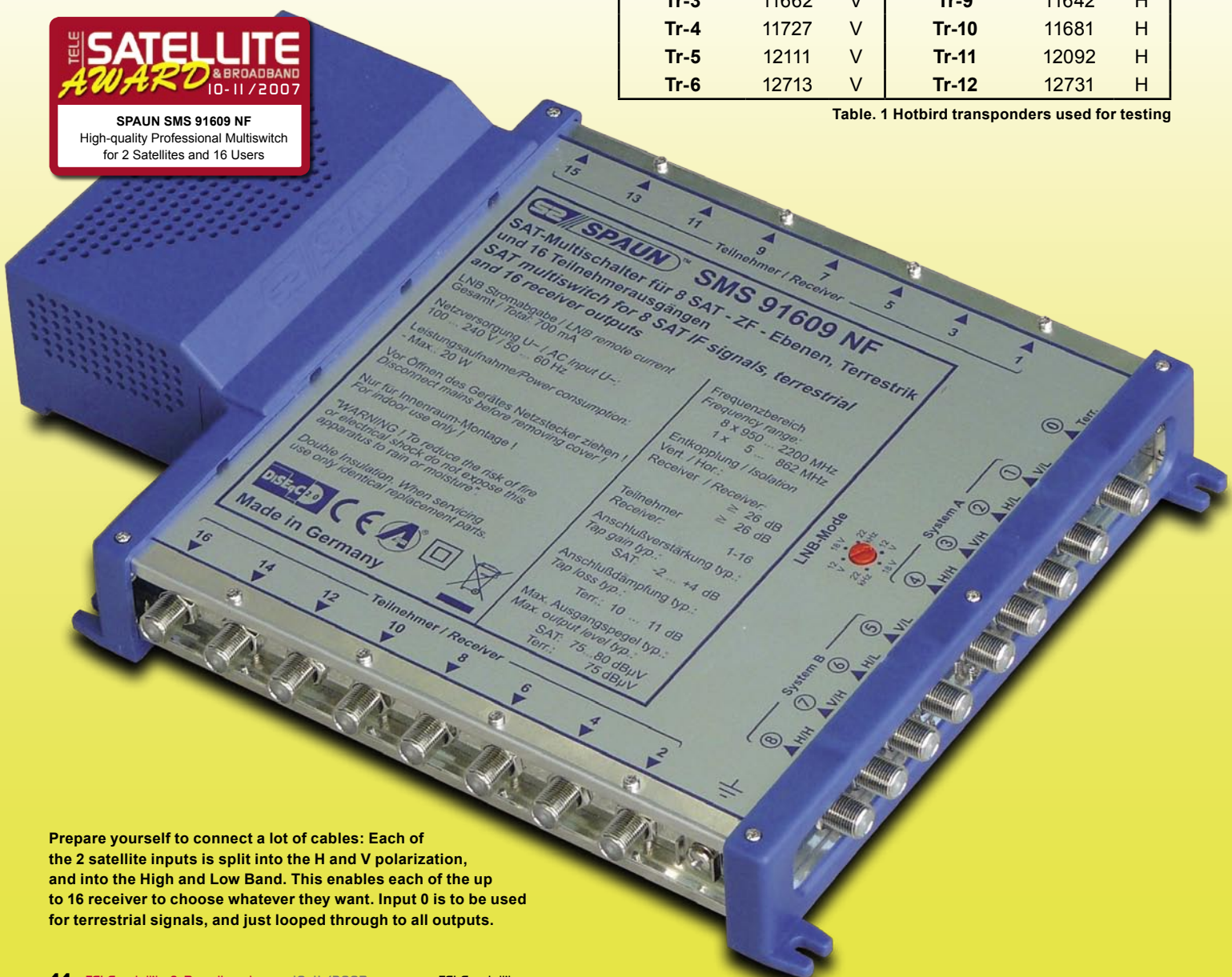
As you can see on the photographs, the workmanship of the switch leaves absolutely nothing

to be desired. SMS 91609 NF looks very professional. Instead of 2 Quattro LNB's, you may connect Quad, Twin or Twin Universal LNB's. You only need to

set accordingly the "LNB Mode" switch located at the top of SMS 91609 NF. Except for the satellite inputs, the multiswitch can also insert the signal from a terrestrial antenna to its 16 outputs. The antenna must be connected to input "0". The unit is powered from 100~240 V, 50/60 Hz mains. Thanks to

Transponder	Freq.	Pol.	Transponder	Freq.	Pol.
Tr-1	10719	V	Tr-7	10723	H
Tr-2	11278	V	Tr-8	11219	H
Tr-3	11662	V	Tr-9	11642	H
Tr-4	11727	V	Tr-10	11681	H
Tr-5	12111	V	Tr-11	12092	H
Tr-6	12713	V	Tr-12	12731	H

Table. 1 Hotbird transponders used for testing



Prepare yourself to connect a lot of cables: Each of the 2 satellite inputs is split into the H and V polarization, and into the High and Low Band. This enables each of the up to 16 receiver to choose whatever they want. Input 0 is to be used for terrestrial signals, and just looped through to all outputs.

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the drawings on the top cover, nobody will have a problem in connecting everything in the right way.

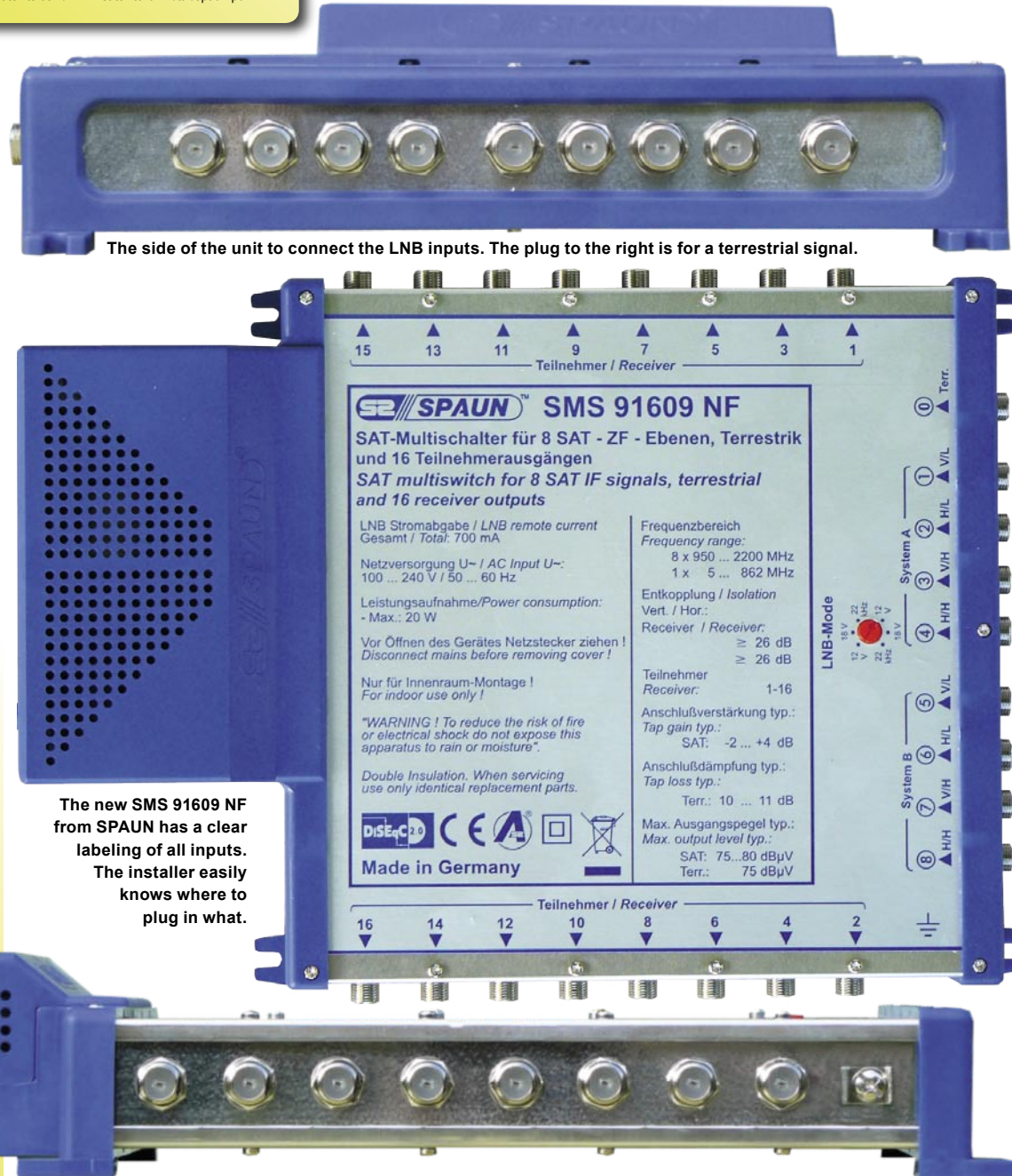
To test the performance of this switch, we selected 12 transponders of Hotbird (13° East) as sources of the input signal. Their parameters are provided in table 1. Of course, we equipped our antenna with a Quattro LNB (0.2dB) to see if the multiswitch correctly chooses the LNB output. Figure 1 shows the tap gain of the SMS 91609 NF for 3 outputs (Receiver 1, 3 and 5).

Tap gain tells you how much the signal is amplified at the receiver output in comparison with the signal coming from the LNB. If the tap gain is negative, it means that the signal is attenuated. SPAUN specifies this parameter as: -2...+4 dB typically. As you can see in the chart, for some frequencies, we got even better amplification than promised.

In the next step we checked how much the quality of signal suffers after passing the multiswitch. For this purpose we measured Modulation Error Ratio that is more credible and stable when measured with the

The SMS 91609 NF is a small unit with just enough space to house the F-plugs. Here we see one of the 2 sides to connect 8 receivers. The screw at the right is used to earth the unit.

real life signals than the C/N ratio. Although MER is derived from the number of bit errors rather than the measurement of carrier and noise power, both measures are strongly correlated. The higher the MER, the higher the C/N and the better



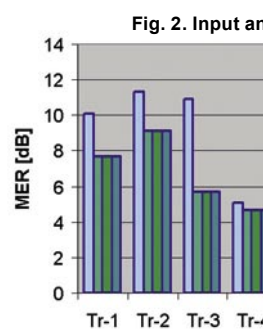
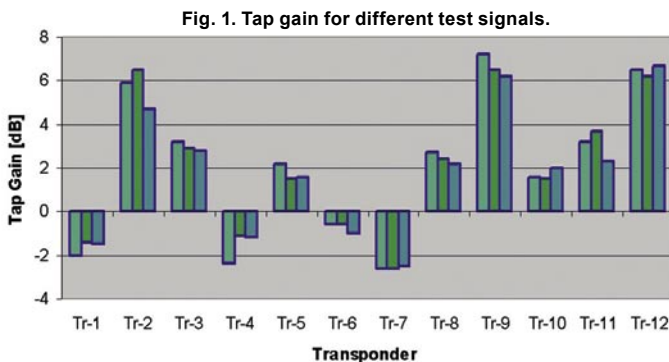
The side of the unit to connect the LNB inputs. The plug to the right is for a terrestrial signal.

The new SMS 91609 NF from SPAUN has a clear labeling of all inputs. The installer easily knows where to plug in what.

signal quality. Every multiswitch decreases the quality of the incoming signal – that's physics. How it goes for the SMS 91609 NF? You can see it in figure 2.

From figures 1 and 2, you can deduce that there is no big difference between the outputs.

To confirm this is the truth, we measured more outputs at the same input test signal. The results are shown in figure 3. It is now evident that all outputs are practically identical. None of the neighbors using this multiswitch will be getting worse signal than the others.



Experts Conclusion

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SPAUN's SMS 91609 NF is a high-quality professional solution for a group of users requiring the reception from only 2 satellites, providing they will not need to extend the system in the foreseeable future. The multiswitch is very simple to install. It has good satellite tap gain and low terrestrial tap loss. Its 16 outputs are practically identical in performance.



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If the satellites to be received are not the very strong ones, you better use a bigger dish to compensate for the inevitable signal loss of the multiswitch.

and output MER for different test signals.

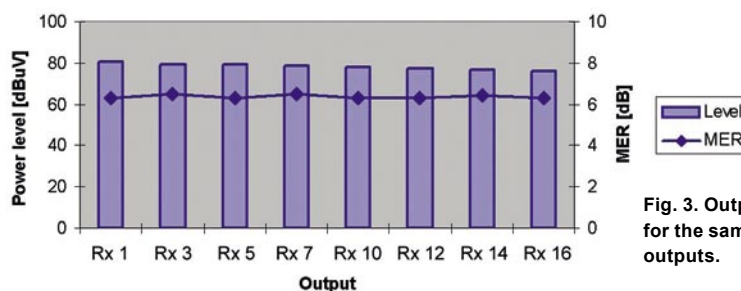
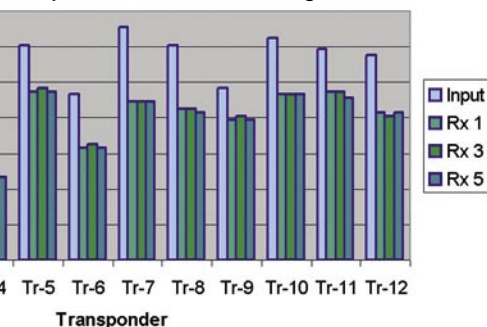


Fig. 3. Output power and MER for the same signal and many outputs.

TECHNIC

DATA

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Model	SMS 91609 NF
Function	Multiswitch with embedded power supply
Inputs	8 LNB + 1 terrestrial
Receiver outputs	16
Cascade outputs	none
Input frequency	950~2200 MHz (Sat.) and 5~862 MHz (Terr.)
IF tap gain	-2~+4 dB
Terrestrial tap loss	10~11 dB
Isolation between satellite inputs	> 30 dB
Remote power supply	700 mA per LNB
Power supply	100~240 V / 50~60 Hz 36 W max.
Operating temperature range	-20... + 50° C/dry indoor use