The following example shows you step by step the programming of a digital transponder. Therefore please use an already aligned antenna. For additional informations please refer to the Instruction Manual.

In this example we use the ZDF transponder of ASTRA at position 19.2° east. We can find the following reference data (satellite magazine or web):

ZDF (Transponder TV77)
Frequency: 11.954GHz
Polarity: H (Horizontal)
Symbol Rate (SR): 27.500 MS/s

Next step is to check which kind of LNB is used. In our example we use a 11/12GHz standard universal LNB. The corresponding local oscillator frequencies (LO) are 9.75 & 10.6GHz. Polarity is switched by a switching voltage 13V (V) & 17V (H). LO frequencies are switched by an additional 22KHz control signal. According informations can be found on the LNB`s label or data sheet.

We have chosen the following configuration:

Polarity H = 17V
11.954GHz= High Band=LO 10.6GHz=22KHz control signal

Let`s begin. We connect the antenna cable to the DILAN`s input and switch on the instrument.

After displaying version number & configuration the main menu appears: **MEM. CHANNELS - SETUP**

We select **SETUP** by pressing the corresponding soft key.

• *Symbol Rate Selection*

1. The following selection menu appears: **DVB-S - (ANALOG) - LNB - FREQUENCY**
2. DVB-S is blinking. We press the lower soft key for confirmation.
3. Now the menu for selection of the corresponding symbol rate appears. Four symbol rates (#1-4) are already pre-setted. At #1 27.500MS/s are already stored. Other symbol rates are shown by pressing the ⊡ key. It is also possible to edit a pre-setted symbol rate. The **"EDIT"** mode is selected by using the corresponding soft key. We confirm 27.500MS/s by pressing the **ENTER** key.

• *LNB Voltage & Switching Pulse Selection*

We are back in the menu **DVB-S - (ANALOG) - LNB - FREQUENCY**

1. This time we select the menu LNB by pressing the upper soft key and confirm by pressing the lower soft key.
2. The sub-menu 13V / 17V appears. We activate 17V by pressing the lower soft key **17V (•)**
3. A new sub-menu appears. Here we can select besides the LNB supply voltages also additional switching control signals. We need in addition to the 17V voltage also the 22KHz control signal.
4. We select with the corresponding soft key **22Kc ( )** which should now start blinking.
5. By pressing the lower soft key we can activate the 22KHz (•) pulse.
6. Finally we confirm the actual configuration by pressing the **ENTER** key.

• *Frequency Display Mode*

We are back in the menu **DVB-S - (ANALOG) - LNB - FREQUENCY**

Finally we can select the mode of frequency display.

1. We select the **FREQUENCY** menu by pressing the upper soft key
2. The sub-menu **DIRECT-IF - SAT** appears.

DIRECT-IF corresponds to the meter`s direct input frequency range 900 - 2150MHz. If we subtract the LO frequency 10.600GHz from our transponder frequency 11.954GHz the result is 1.354 GHz = 1354MHz (DIRECT IF). This is rather complicate and we prefer the real satellite frequency (SAT). Corresponding calculation is done automatically by the meter.

4. Therefore we select **SAT** by pressing the upper soft key and confirm by pressing the lower soft key.
5. A new sub-menu for selection of the LO-frequency appears. By pressing the upper soft key we select #2 according 10.600GHz LO frequency and confirm by pressing the **ENTER** key.
6. The confirmation dialogue **LO < SAT ?** or **LO > SAT ?** appears. We select **LO<SAT** and confirm by pressing the ENTER key twice.

• *Tuning & Measurement*

Now the continous mode menu appears.

1. The upper line displays the satellite frequency. In our example it`s the low-frequency limit of the High Band = 11.500GHz. Tuning is done by pressing the corresponding +/- soft keys.
2. We tune to **11.954GHz**
3. The lower line displays the corresponding input level (dBuV) & SYNC-Status (0-3) behind **DVB-S**
4. When reaching **DVB-S3** (FEL) the green FEL-LED lights up and also a new menu displays Symbol Rate (SR), FEC Rate (FEC) & Bit Error Rate (BER).
5. The command **"MORE"** opens a special sub-menu with digital C/N value, input level and rough reception quality concerning BER which is very useful to adjust the antenna for best performance.
6. In case of no Front-End-Lock (FEL) at 11.954GHz it might be possible that the LNB`s LO frequency is slightly defiating. Deviation direction is then displayed behind the signal level value by an additional double arrow symbol (up/down) which delivers also the information for an optional manual frequency correction (+/- soft keys).

• *Storing Preset Data into Memory*

For easy operation it is possible to store all important parametes like frequency, symbol rate, LNB voltage & control signals into a non-volatile memory. The DILAN can store up to 32 recallable memory presets (MEMORY CHANNELS).

In the following example we will store the above chosen settings into Memory Channel 01:

1. Press the **ENTER** key
2. The upper line displays **STORE ?** whilst the lower line displays the corresponding channel number. It is also possible to change this channel number by pressing the upper soft key. In our example the wanted channel number **CH01** is already selected.
3. We confirm **STORE ?** by pressing the corresponding soft key.

Now all parameters are stored into the memory. We switch off the unit and then switch on the unit again for testing purposes. After displaying version number & configuration the main menu appears: **MEM. CHANNELS - SETUP**

We select **MEM. CHANNELS** by pressing the corresponding soft key and select Memory Channel **CH01**.

The correct stored frequency **11.954GHz** should now be displayed at the upper line.