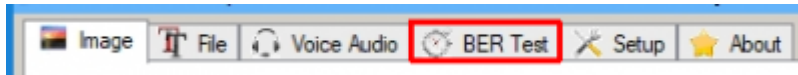# Send and receive test data simultaneously:

In the "BER Test" window, test data can be sent and received to verify the correct functioning of your own system.


Different bandwidths and speeds are available (Fig. 10). For operation on QO-100, 4410 bps QPSK and 6000 bps 8APSK modes are recommended. For the first tests, 3000 QPSK should be selected, since this is where the requirements on the radio system are lowest.
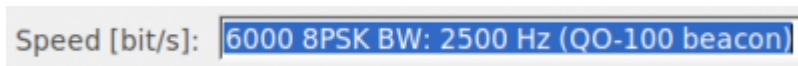

Now click the "START" button and the modem will send test data. Switch the transceiver manually to transmit (there is no automatic PTT yet) and check the output power. Your received own signal must always be below beacon level. When using an SDR-TRX and the SDR-Console you can use their VOX function. There are two possibilities to adjust the transmitter::

1. the level of the sound card and
2. the setting of the transmission power.

Details of how to set this on the IC-9700 are given in a later chapter. For reception, it is important that the input level of the sound card is set so that the spectrum display is in the green range.
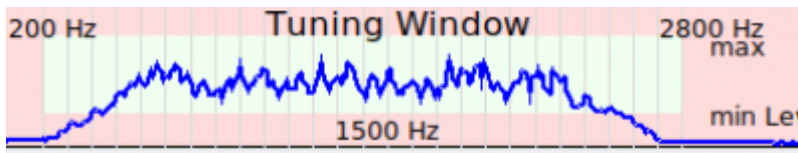

There can sometimes be a small offset between the transmit and receive frequencies. Even with GPS stabilised systems there can be a deviation of up to ±50 Hz depending on the system. The RIT function of the transceiver corrects any deviations to place the spectrum in the middle of the green area. This Figure shows a wrong setting, the frequency is set too low here.
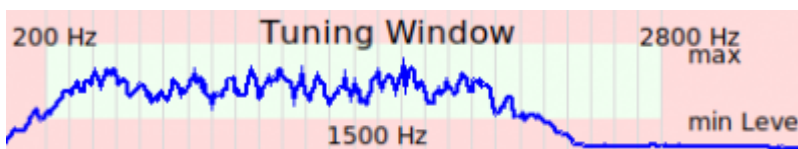

The modem has a capture range of approx. ±200 Hz, but the transceiver's receive filters are usually not as wide and would weaken the signal at the edges if they were set incorrectly. An exact setting is also possible with the constellation diagram.

The points should be as sharp as possible. Here are two examples with 6000 bps 8APSK::
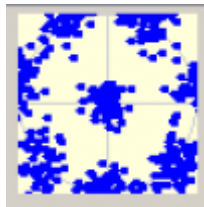
 Wrong setting, the signal is very noisy, the error rate is high
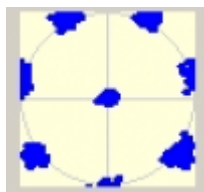
 Correct setting with low error rate As soon as the level and frequency are set correctly, the test data runs through the window.

If all adjustments are properly done, "sequence OK" is always displayed. Error messages (frame lost) should occur very rarely. Of course, you can receive test data from other stations as well.

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