

Test Script 3004_1202_4004.stn

COM-3004 70 MHz receiver ->
COM-1202 PSK/APSK/QAM Modem ->
COM-4004 70 MHz modulator ->
Loopback to input

Objective: Illustrate the COM-1202 operation at 4 Mbits/s (2 MSymbols/s QPSK) with 70 MHz input and output.

Configuration: Connect a USB cable between the PC and the COM-1202. Import the settings 3004_1202_4004.stn from the File | Import menu. The configurations should be as shown below:

COM1202 PSK/QAM/APSK Modem & USB 2.0 Basic Settings

Modulation

Symbol rate: 2000000.007 Modulation: QPSK

Signal gain: 30000 External transmitter gain: 0

Output center frequency: 0 Hz Spectrum inversion

Spectrum shaping filter bypass Insert periodic sync word

Test mode: Pseudo-random sequence Input: USB

Input format: 1-bit serial Input bus address: 0

Output: J5 Digital 2*14 precision (COM-4004)

Demodulation

Symbol rate: 2000000.007 Modulation: QPSK

Input center frequency: 0 Hz Spectrum inversion

AFC enable: Automatic AFC selection Input: J4 connector 2*10 digital

Rx ADC gain: 20 dB DC Bias removal

Detect periodic sync word AGC response time: 12

Output: USB 4-bit soft quantization

General

Test points: Demodulator & BER

Apply Ok Advan... Cancel

COM4004 70 MHz IF Modulator Basic Settings

IF Center Frequency: Hz

Gain Control:

10 MHz External Frequency Reference

Unmodulated Test Mode

Output On

Apply Ok Advan... Cancel

COM3004 IF receiver [20 - 90 MHz] Basic Settings

Frequency Selection:

Frequency 0: Hz

Frequency 1: Hz

Frequency 2: Hz

Frequency 3: Hz

Frequency 4: Hz

Frequency 5: Hz

Frequency 6: Hz

Frequency 7: Hz

10 MHz External Frequency Reference

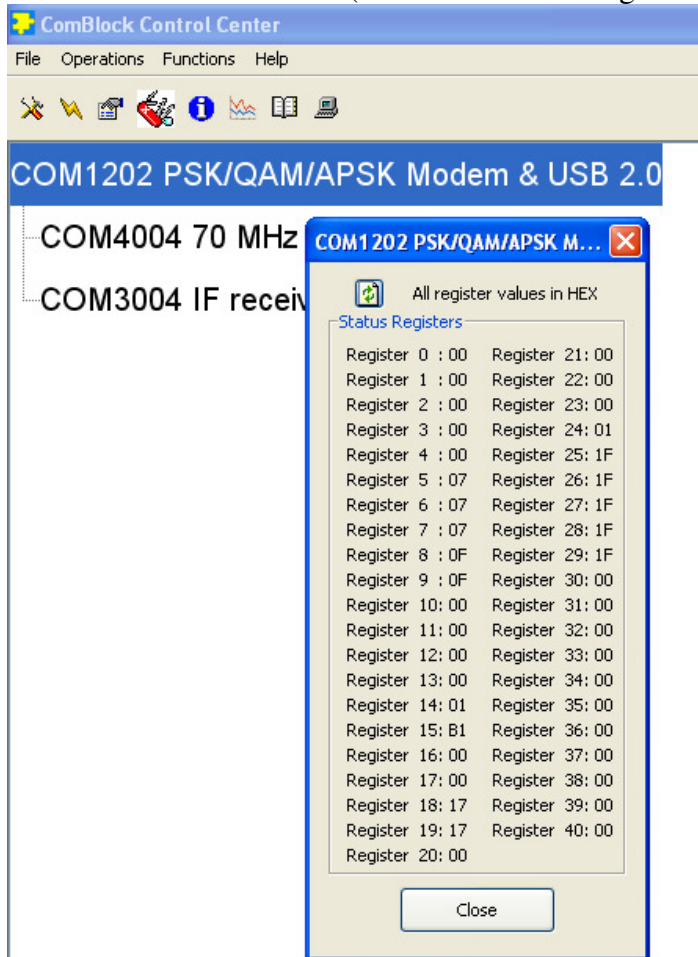
External Trigger

Number of Frequency Hopping Steps:

Apply Ok Advan... Cancel

Observe:

1. COM-1202 TP8 is high, indicating BER measurement lock
2. COM-1202 TP9 is low, indicating no bit errors
3. COM-1202 TP10 shows periodic pulses (start of PRBS11 sequence) at a frequency of $4\text{Mbits/s}/2047 = 1.954\text{ KHz}$.
4. BER measurement is zero (COM-1202 status registers 20 through 23)



5. 5VDC Power consumption: 2.1A
6. ComScope Trace 2 Signal 1 shows a small amount of noise at the optimum sampling instant (due to the non-linear behavior of the COM-3004 when the input signal is too strong). Adding an attenuator (30-40 dB) between the COM-4004

output and the COM-3004 input is recommended.

