

University of Pennsylvania
Department of Electrical and Systems Engineering
Undergraduate Laboratories

FFT measurement using the 54600 Oscilloscope
Part 2. Demodulation

1. Display the time domain signal of which you like to take the FFT, on the oscilloscope (e.g. on channel 1 or 2).
2. Adjust the time scale (Time/Div) knob so that you see about 10 periods of the signal.
3. Hit the Math [+/-] key, located on the vertical display panel, between the two channel keys.
4. Hit the menu key (underneath the display): Function 2: ON.

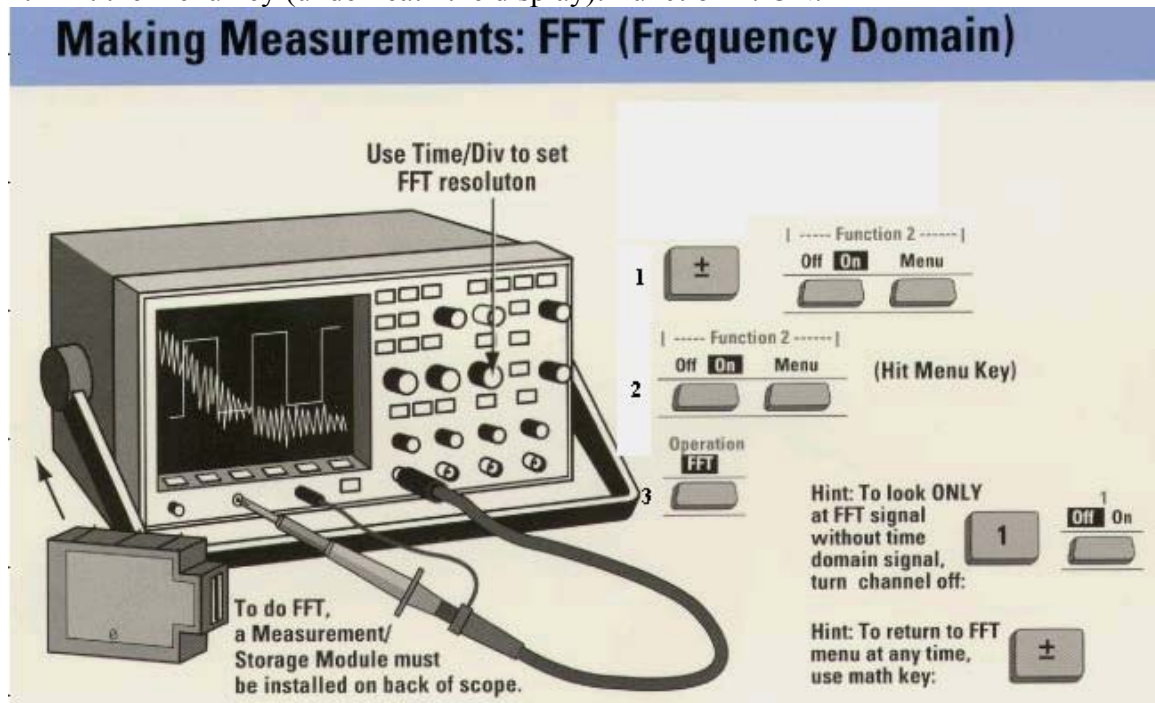
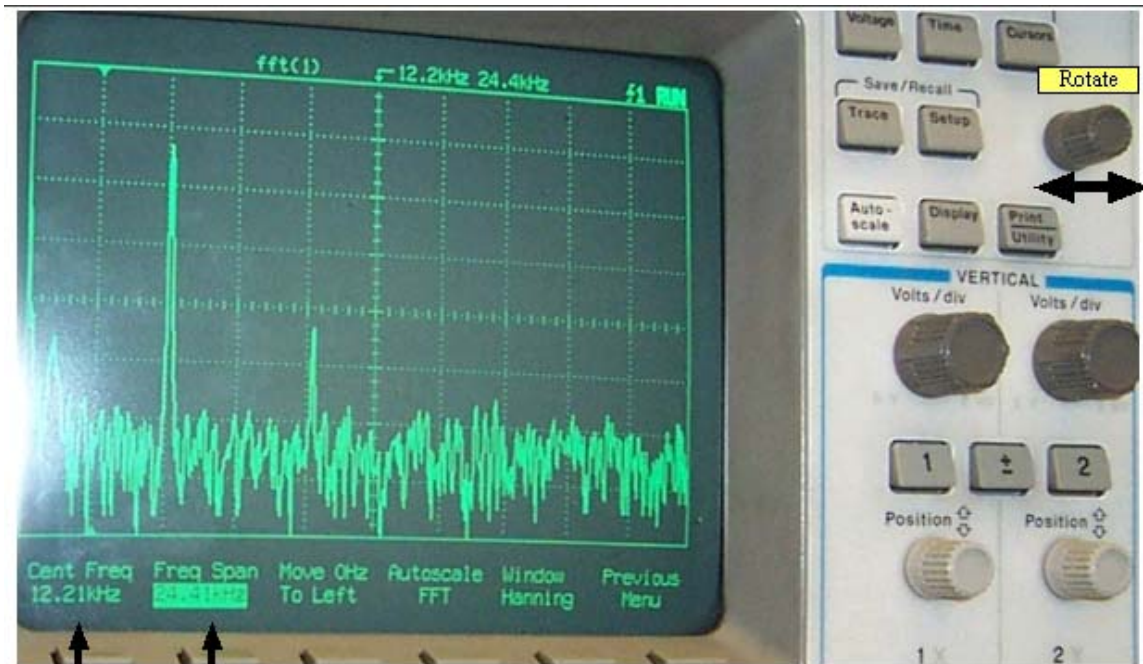


Figure 1: Picture showing the menus and set up for FFT display.

5. Hit the FFT menu key. This will show the FFT and bring up a new set of menu keys.
6. To see only the FFT signal without the time domain signal, hit the channel key [1] until the signal disappears. To return to the FFT menu, press the Math [+/-] key again.
7. You can now adjust the scale of the FFT:
 - a. Hit the Center Frequency key. You can change the center frequency by rotating the knob on top of the oscilloscope panel (see Fig. 2).

- b. The change the span (and thus the scale) over which to display the spectrum, hit the Frequency Span key and use the knob to change the value.
- c. In case you cannot get the right values of the center frequency and span, you can change the Time/Div key. This will change the sampling frequency and also the frequency range and span. Once these are in the right range, you can use the Cent Freq and Freq Span keys to make further adjustments.



In case you are unable to obtain the values shown here, rotate the Time/Div knob to change the sampling rate of FFT (change it to 50 KS/sec)

Rotate the knob as shown in above figure to enter the values shown above.

Figure 2. Scope adjustment for showing FFT of an AM signal, Cent. Freq = 12.21 KHz, Freq Span= 24.41 KHz. The modulating frequency $f_m=5$ kHz. Notice the frequency components at 5kHz and 10kHz.

Created March 26, 2003 by Jan Van der Spiegel and Sid Deliwala.