

Notes for Lab 5

Additional information and Pre-Lab Questions for Lab 5.

Additional Information

There are only enough signal generators and components for 3 or 4 groups. You may wish to co-ordinate groups before the lab. You will still have to submit individual pre-lab and post-lab reports.

The datasheets for the splitter, amplifier and mixer you will use in this lab are available on the course web site.

Pre-Lab Questions

1. From the data sheets, find the following for each of the three Mini-Circuits components that will be used in this lab and fill out a table showing the following:
 - make and model number
 - recommended frequency range
 - input and output impedances
 - typical and maximum supply voltages
 - typical supply current
 - the maximum input power
 - typical loss or gain at 836 MHz
 - typical (output) IP3

Some specifications may not apply to some components.
2. What LO power is required for the mixer?
3. Use the information in Chapter 2 of the Agilent Application Note 150 "Spectrum Analyzer Fundamentals" or any other reference on spectrum analyzers to answer the following questions:
 - (a) What quantity is shown on the vertical axis of the spectrum analyzer's display? In what units?
 - (b) What quantity is shown on the horizontal axis?
 - (c) What control(s) affect the range of input levels being viewed?
 - (d) What control(s) affect the range of frequencies being viewed?
 - (e) What resolution bandwidth might you use to measure two frequency components 1 MHz apart? What would happen if the resolution bandwidth is set too wide?
 - (f) What happens if the sweep time is set too fast?