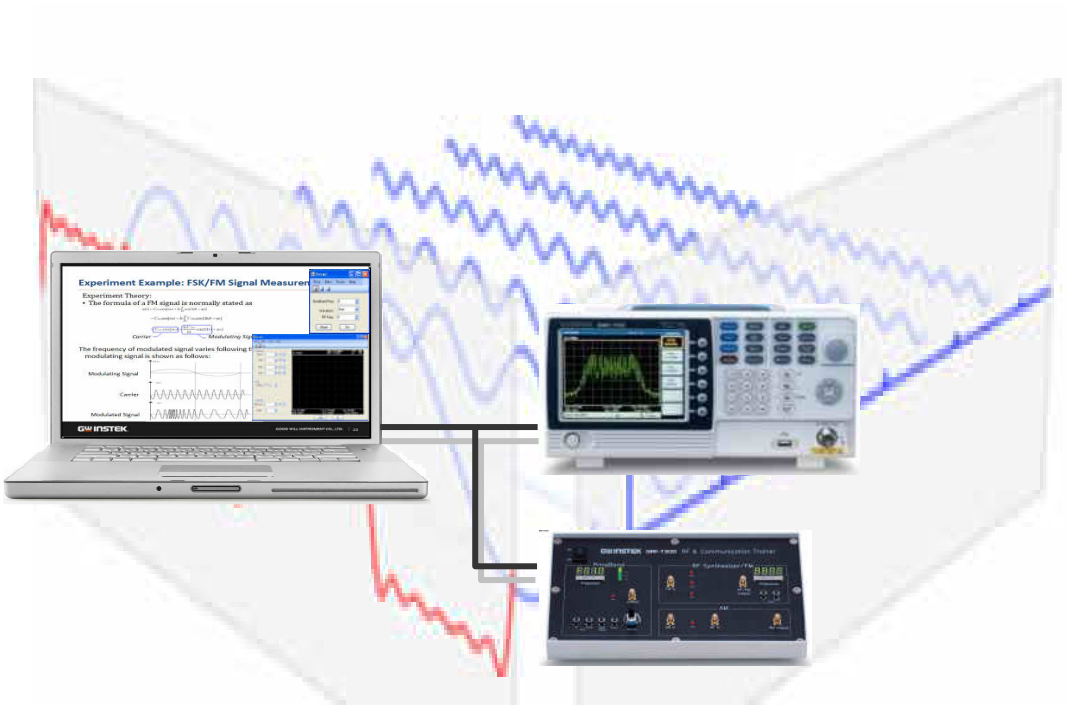
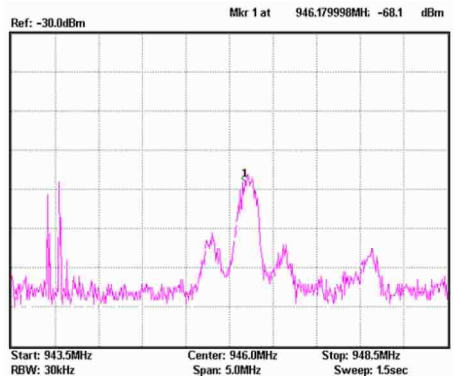
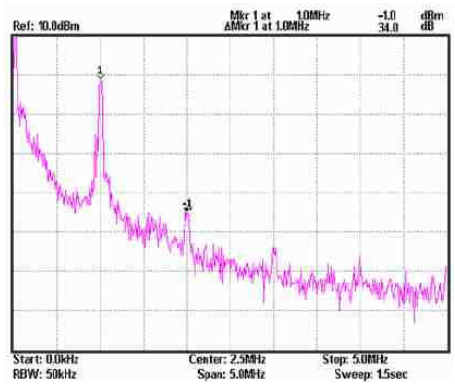
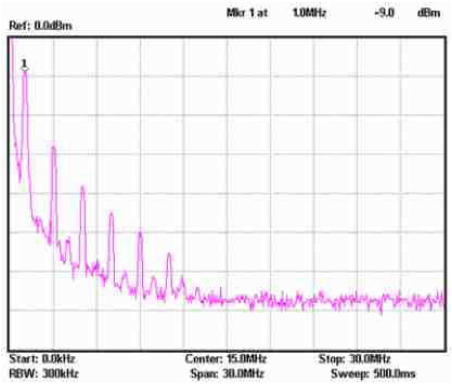
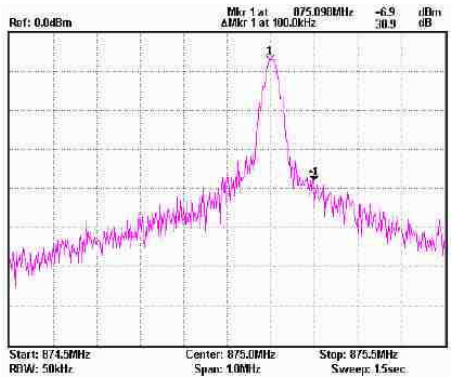
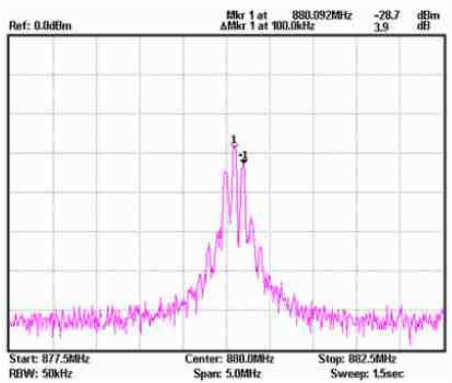
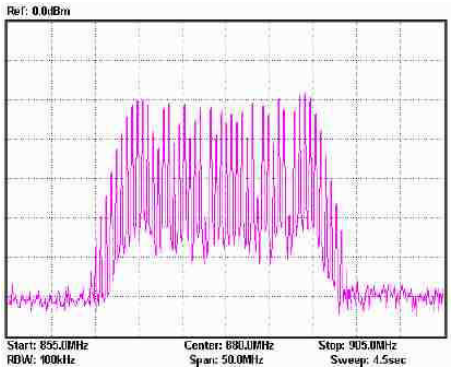
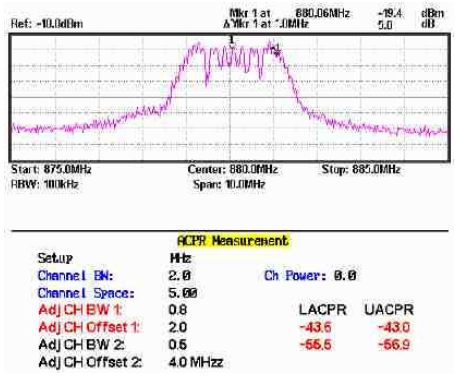
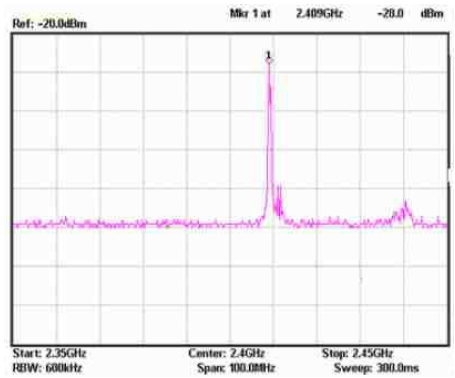
Brief Introduction of GSP-730, USG-LF44 & GRF-1300A RF and Communications Training System



Experiment 1: Basic Operation of a Spectrum Analyzer **Experiment goals:** To become familiar with how to use the GSP-730 and how to use parameter settings such as frequency, amplitude and markers.	**Test Result:**  Frequency and amplitude of mobile phone's transmitter signal.
Experiment 2: Measuring a Baseband Waveform **Experiment goals:** 1. Measurement and analysis on a basic signal. 2. To understand how to use the GRF-1300 system to output a baseband signal.	**Test Result:**  The 2nd harmonic ration is 34.0dB

Experiment 3: Different Baseband Waveforms and their Harmonic Measurement **Experiment goals:** 1. Measure the harmonic content that is output from the baseband signal. 2. Use the measurement results to verify the Fourier series theorem. 3. Understand the internal relationship between the time domain and the frequency domain in a signal. 4. Use this experiment to become familiar with how to measure the spectral characteristics of a typical signal, such as the amplitude and frequency.	**Test Result:**  1MHz triangle wave spectrum signal
Experiment 4: Measurement of the RF Carrier **Experiment goals:** Measure an RF signal from the GRF-1300 RF & Communication Trainer. Also perform measurements on more important parameters such as phase noise and harmonic distortion.	**Test Result:**  Phase noise is -76.18 dBc/Hz at 100kHz offset frequency

Experiment 5: AM Signal Measurement **Experiment goals:** 1. Learn the working principals of amplitude modulation. 2. Use the spectrum analyzer to measure the AM characteristics of an RF signal.	**Test Result:**  Change to 100kHz modulating frequency of the AM signal
Experiment 6: FM signal measurement **Experiment goals:** 1. Understand the working principals of frequency modulation. 2. Use a spectrum analyzer to measure the FM characteristics of an FM wave. 3. Master phase-locked loop principals that are used in FM.	**Test Result:**  Change to 600kHz modulating frequency of the FM signal

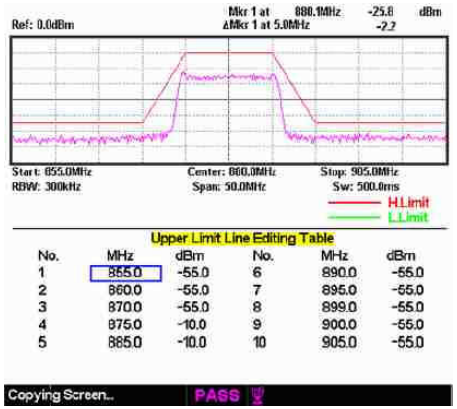
Experiment 7: Using a Spectrum Analyzer in Communication Systems **Experiment goal** 1. To understand ACPR measurement principles and to perform actual ACPR measurements. 2. Understand OCBW measurement principles and to perform actual OCBW measurements.	**Test Result:**  ACPR test result of 1MHz frequency deviation FM signal
Experiment 8: Measurement of communication products **Experiment goals** 1. Use the spectrum analyzer to measure some parameters from common everyday electronic communication products. 2. Learn how a wireless mouse works.	**Test Result:**  2.4GHz wireless device signal

Experiment 9: Production Line Applications

Experiment goals:

1. Learn how to edit the pass/fail limit lines and understand how to perform pass/fail testing.
2. Use remote commands to read back test data from the spectrum analyzer.

Test Result:



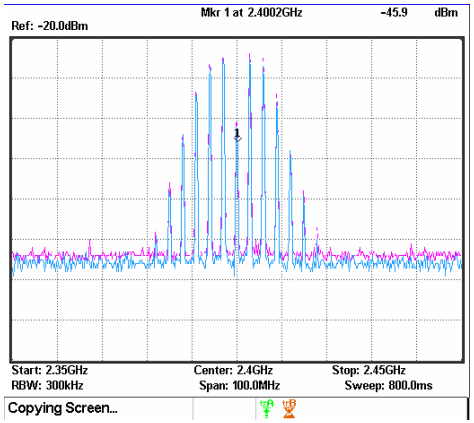
Pass/Fail test result of 5MHz frequency deviation FM signal

Experiment 10: Mixer

Experiment goals:

1. To understand the working principles of the mixer.
2. To observe frequency shift by analyzing the frequency spectrum with a spectrum analyzer.
3. To measure mixer parameters such as conversion gain and port isolation.

Test Result:



2.4GHz signal FM signal

For more information about GSP-730 and GRF-1300 visit gwinstek.com

Sincerely yours;

Good Will Instrument Co., Ltd
www.gwinstek.com
No.7-1, Jhongsing Road., Tucheng Dist.,
New Taipei City 236, Taiwan (R.O.C.)
Email: marketing@goodwill.com.tw