

CPE-TC5010

Wireless Communication & Antenna Trainer



FEATURES

- 2-in-1 training system for antenna and wireless communication
- Standalone operation or PC dependent operation using an operation software
- Multi-channel RF sources: 500MHz / 2GHz / 10GHz
- Consists of various types of antenna such as Yagi, Dipole, Monopole and Microstrip
- Can practice PWM and PLL-VCO (Phase Locked Loop-Voltage Controlled Oscillator)
- Understanding the characteristics of various antennas and practicing frequency measurement and analysis

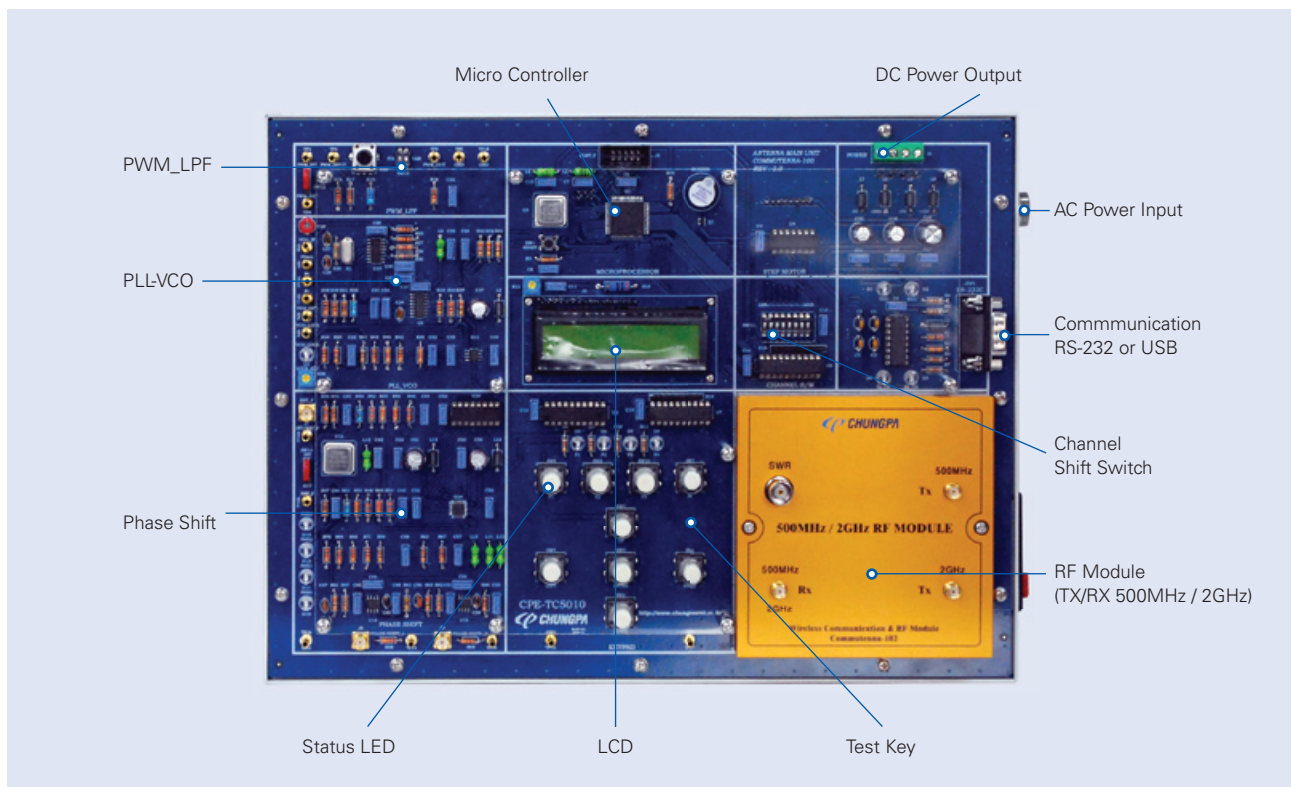


INTRODUCTION

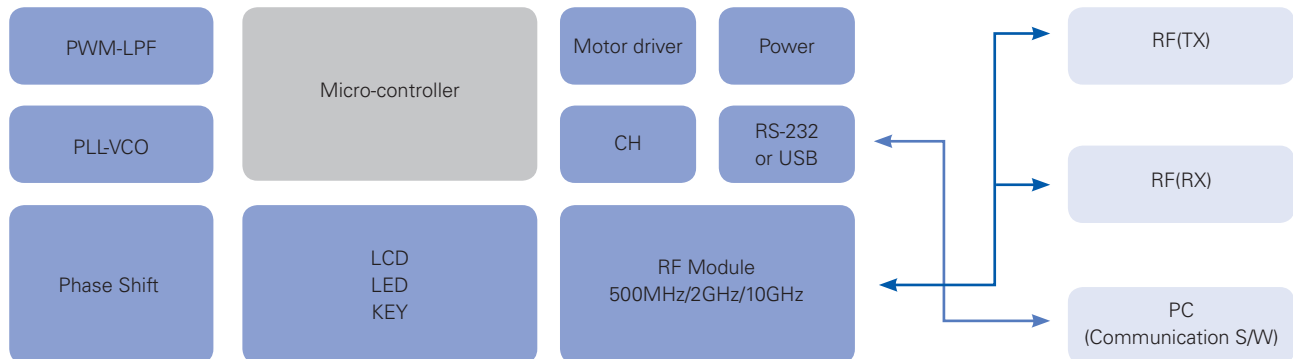
The CPE-TC5010 Wireless Communication & Antenna Trainer is a 2-in-1 training system designed to help understand the principles of antenna and wireless communication. The Wireless Communication & Antenna Trainer can operate automatically as standalone or manually using the computer and software provided. It enables students to plot the radiation of an antenna and provides experiment on the propagation characteristics of antenna in a small area. The software in CD format has capability to simulate the radiation pattern and characteristics of antenna as well as PWM and VCO experiments.

EXPERIMENTAL CONTENTS

- Principles of different types of antenna
- Understanding RC Passive Filter
- R-C Low Pass Filter (LPF)
- R-C response to square-wave inputs.
- Understanding PLL-VCO
- Basic PLL configuration and theory
- Principles of Low-Pass Filter
- Principles of Loop Filter
- Principles of Voltage Controlled Oscillator (VCO)
- Understanding of Phase Shift
- Gain and Radiation Pattern



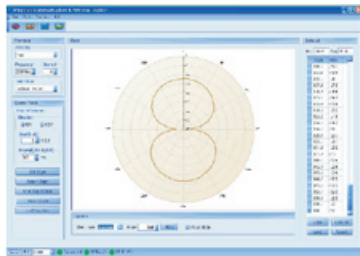
System block diagram: CPE-TC5010



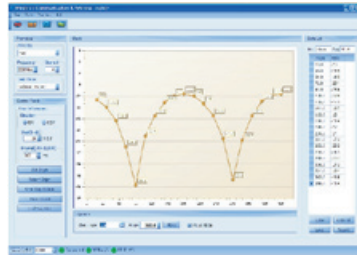
SPECIFICATIONS

RF Generator	Frequency range	Standard: 500MHz, 2GHz (COMMUTENNA-102) and 10GHz (COMMUTENNA-110)
	Power range	10mW (nominal)
	Modulation frequency	1kHz ±3%
	Channel	500MHz (32-CH)
	Output impedance	50 Ohm (nominal)
	Type of antenna	Yagi, Dipole, Loop, Monopole, Spiral, Helical, Horn and Micro strip
RF Receiver & Main Controller	Angle step	400 steps (0.9°/step)
	Control motor	2-phase stepping motor
	Angle range	0 ~ 360 degree
	User Display	16 x 2 text LCD back light
	User LED	5mm LED : 10ea
	Keys	Tack switch : 9ea
	PC interface & control	RS232C & 19200bps-8-N-1
	Channel switch	8-bit dip switch
	PLL-VCO lock	5mm LED (yellow color)
	EXT. input	EXT-PWM, EXT-Freq (SMA)
	INT. output	PWM, VCO, Phase Shift, Ref-Frequency
	AC power input	AC 90~240V / 50~60Hz
	DC power output	DC -5V, +5V, +12V
Antenna Transmitter Unit	Fixation (for polarized wave)	Horizontal / Vertical
	Directional control	Manual
Antenna Receiver Unit	Fixation	Horizontal / Vertical
	Directional control	Manual / PC interface (RS232C or USB)

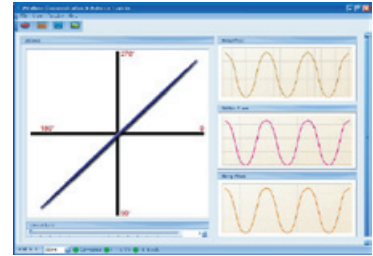
Antenna & Communication Engineering Software



Radiation pattern analysis: polar coordinate representation



Radiation pattern analysis: cartesian coordinate representation



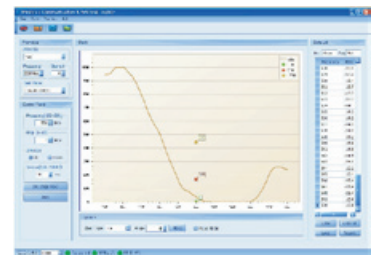
Impedance analysis by changed frequencies



PWM experiments

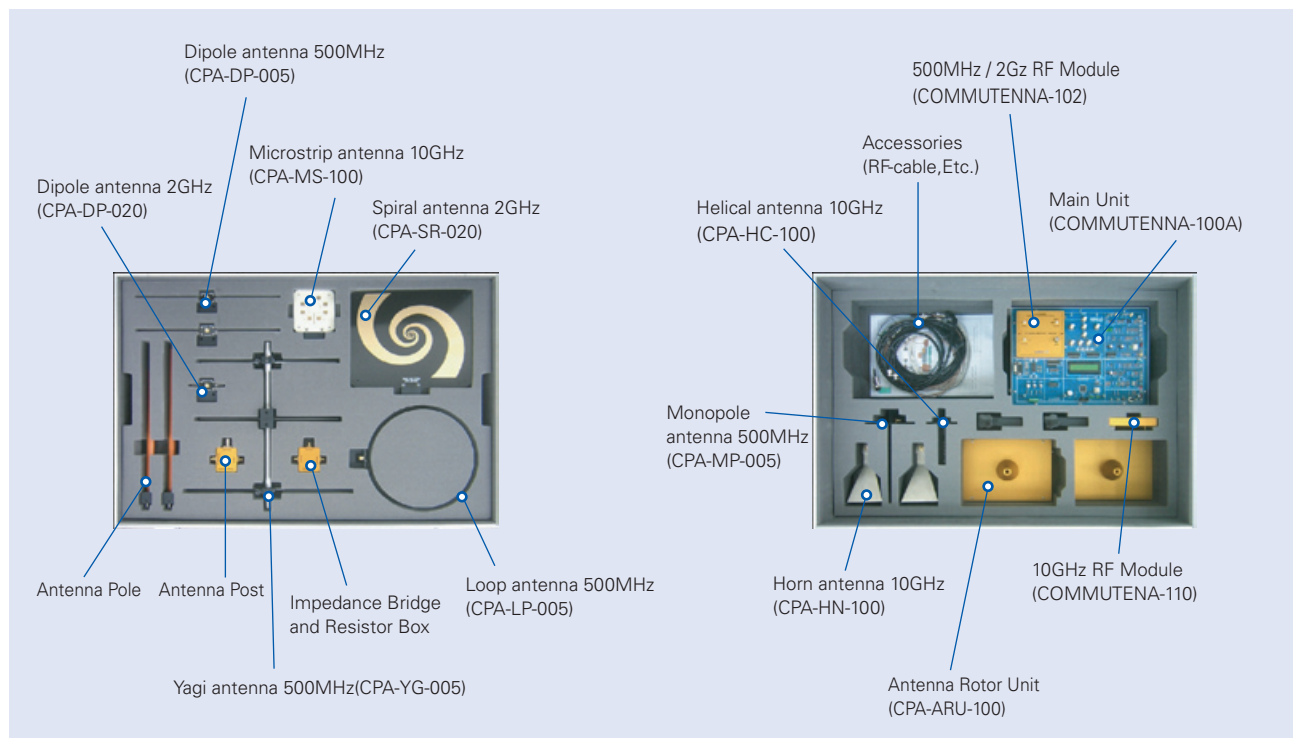


VCO experiments



Phase shift analysis

PRODUCT COMPOSITION



STANDARD ACCESSORIES

- Power cord : 1ea
- Basic antenna : 8ea
- RF cable (SMA to SMA) [1.5 meter]: 1ea
- RF cable (SMA to SMA) [3 meter]: 1ea
- BNC-SMA cable [1.5 meter] : 2ea
- Motor cable : 1ea
- Serial cable : 1ea
- PC software CD : 1ea
- User's guide manual : 1ea

OPTIONS

- Worktable: 1500(W) x 800(D) x 850(H) mm