User Commands (3 in total, use lower case letters). Invalid input triggers audible alert. No need to ever press the <enter> key. After self-tuning these commands are available:

freq xxxx

xxxx is in the range 0000 to 0031:

0000 = 4.55 MHz	0016 = 6.30 MHz
0001 = 4.65 MHz	0017 = 6.45 MHz
0002 = 4.80 MHz	0018 = 6.60 MHz
0003 = 4.85 MHz	0019 = 6.70 MHz
0004 = 4.95 MHz	0020 = 6.75 MHz
0005 = 5.10 MHz	0021 = 6.90 MHz
0006 = 5.20 MHz	0022 = 7.05 MHz
0007 = 5.30 MHz	0023 = 7.20 MHz
0008 = 5.45 MHz	0024 = 7.30 MHz
0009 = 5.55 MHz	0025 = 7.40 MHz
0010 = 5.60 MHz	0026 = 7.60 MHz
0011 = 5.75 MHz	0027 = 7.75 MHz
0012 = 5.85 MHz	0028 = 7.90 MHz
0013 = 5.95 MHz	0029 = 8.05 MHz
0014 = 6.05 MHz	0030 = 8.25 MHz
0015 = 6.15 MHz	0031 = 8.35 MHz

Typical values **freq**=4.6161*exp(0.0193***xxxx**)
Example: typing "freq 0017" results in 6.45 MHz

read returns power reading 0 to 1023, at frequency **xxxx.** Reading could be inaccurate if transmitter is too close to the receiver.

help displays the above frequency table.

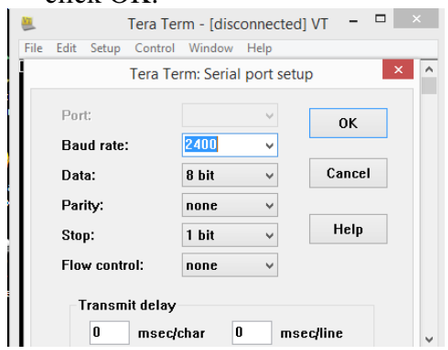
The included Electromagnetic Radiation Tester is useful to examine the fields on or near the transmitter and receiver units.

A tuned system is tolerant of placing one's hand near the receiver without much change. If the system is tuned while in contact with a body, the body becomes part of a resonant system. Once tuned, (~1.3x the fundamental frequency) the receiver LED is brightest.

Teraterm [1] can store activity to a text file (specified with its file->log feature). This is useful for storing inputs and collecting data.

Getting Started

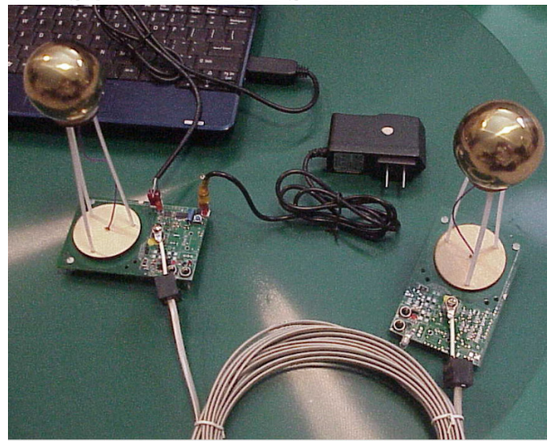
1. Install Teraterm free software from https://ttssh2.osdn.jp/index.html.en
2. Attach PL2303 cable from computer to transmitter, download **HX** or **TA** http://prolificusa.com (find Drivers).
3. Confirm the Serial 'COM port' functions (Teraterm's Serial radio button becomes selectable).
4. Click "Setup" and enter baud rate 2400 (8,N,1 protocol below), then click OK:



5. Attach either the 14-foot or 25-foot cable provided to the Yellow banana plug inputs of both transmitter and receiver (adapters are provided).
6. Connect 5-Volt power also provided, then observe on-screen messages.
7. Observe the receiver LED blink briefly as the transmitter cycles through its receiver tuning sequence (pressing the transmitter's Reset button invokes self-tuning to repeat).
8. Type **User Commands** (see Page 7). For additional questions, contact [4].

It is not necessary to connect with Teraterm for automatic tuning to occur (see Self-Tuning on Page 2).

SCALAR WAVE STARTER KIT



Contents

1. Transmitter (powered by 5V, active circuitry)
2. Receiver (no power to apply, passive circuit)
3. Transmit/Receive Scatteron pair, spheres
4. Electromagnetic Radiation Tester and Battery
5. Banana-plugs connecting wire, 44 inch length
6. RJ-11 Connecting Wire, 25 ft phone cord
7. Two Banana jack to RJ-11 jack adapters
8. USB-to-RS232 Cable (white=Windows7 PL2303**HX**, yellow=Win8or10 PL2303**TA**).
9. 5V Power source (>5V will damage the unit)
10. Memory stick includes Application Notes

Not Included

Laptop Computer with Windows and USB port

Recommended Additions

1. Extra Cable Length
2. Webcam for remote tuning
3. Oscilloscope, Analyzer, other test equipment

An interesting feature is the ability to power the receiver LED with a one-wire (earthing [1]) connection, from a significant distance e.g. floor 1 to floor 3 of a building. The received power is indicated by the receiver's LED intensity, and after tuning, remains substantially constant when the distance from transmitter to receiver is increased (unlike conventional radio systems).

Introduction

This Educational kit is suitable for university or individual research. It introduces the discipline of scalar waves to students, physicists and engineers with the use of a computer. The unit is self-contained and digitally controlled via its user interface. It contains a microprocessor chip generating variable frequencies and fixed amplitude. It is capable of lighting an LED through more than 100 feet of one physical wire in conjunction with a free-floating wireless connection.

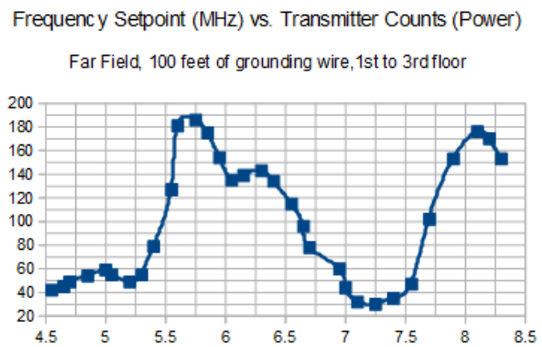
Self-Tuning

When connected to its miniature 5-Volt power supply, the transmitter scans 32 available frequencies, maximizing the receiver's power in an attempt to illuminate the receiver's LEDs. The transmitter is able to "feel" (sense the receiver's wireless power consumption; the receiver contains no other power source) the transmitter's presence during the automatic tuning cycle. Hence, the transmitter can under some conditions find the setting which lights the receiver LEDs in correspondence with its tuned condition. Automatic tuning occurs upon power-up; and in all subsequent uses where the "Reset" button is pressed (Reset is located next to the power input connector). The user can over-ride auto-tuning to select one of 32 frequencies.

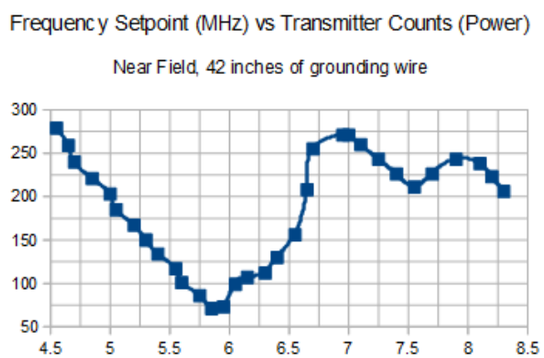
User-Tuning

After the transmitter automatically cycles through 32 frequencies the operator can type-in commands with Teraterm [2] . The transmitter generates responses to operator input (see Page7, three User Commands).

Measured Frequency Response through 100 feet, and 42 inches of one-wire connection.



Output from Teraterm user interface above: First peak of power level 190 at 5.6MHz (does not light receiver LEDs). Second peak level 180 at 8.1MHz illuminates receiver's LEDs. Interesting the ratio of these two frequencies is not 2.0 as predicted by conventional wisdom, rather it is 8.1MHz/5.6MHz=1.4. Hence longitudinal wave is the second maximum, and transverse wave is the first maximum. Transverse wave decreased strength at a distance, longitudinal did not.



Output from Teraterm user interface above: In near field (42 inches transmitter to receiver), the receiver LED remains illuminated above 6MHz.

Additional frequency response measurements can be made using an external sine wave generator and scope to examine t broader frequency range of e.g. 2 to 15 MHz (scalar wave frequency of the system is near 8 MHz), note applying this external sine wave source requires removal of jumper P13 (refer to Schematic on Page 6).

Scientific Principle

The following analysis requires familiarity with vector calculus and electromagnetic (EM) waves.

Two of the four canonical Maxwell's Equations are shown below, and both are incorrect:

curl(E) = -dB/dt
div B = 0

where t has units of Seconds, E has units of Volts per meter and B has units of Teslas. Div is the divergence operator and curl is the rotational operator.

The corrected relationship was ingeniously derived by Dr. Konstantin Meyl [3] as follows.

Faraday's Law states that a body moving with velocity v through a magnetic field B will experience an electric field E and hence,

v x B = E where x is the cross product operator.
Taking the curl of both sides,

curl(v x B)=curl(E)
or
curl(E) = -dB/dt + v div B
Konstantin hence proved v div B <> 0

Therefore, One is not to assume that v div B is zero, as text books wrongly claim, and it is this term that is responsible for the longitudinal or scalar wave vortex phenomena. A 'magnetic monopole' is thus associated with a B field line entering a volume prior to becoming a stable vortex structure (a particle). Meyl further demonstrates an electron is such a structure.

Discussion

Nikola Tesla built a large-scale version of this technology patented in 1900 [1]; his described earthing for low voltage requires one wire (Page 4 explains why his conducting air strata is unnecessary).

Scalar waves are longitudinal EM or electromagnetic waves, analogous to sound waves. Instead of vibrating up and down, left and right like transverse (Hertzian) waves the longitudinal wave vortexes vibrate forward and reverse. EM waves are generally thought of as transverse, decreasing intensity proportional to the distance squared outside of 1/6 part of the wavelength (the far field). Transverse EM waves behave differently and do not obey the 'inverse square law'.

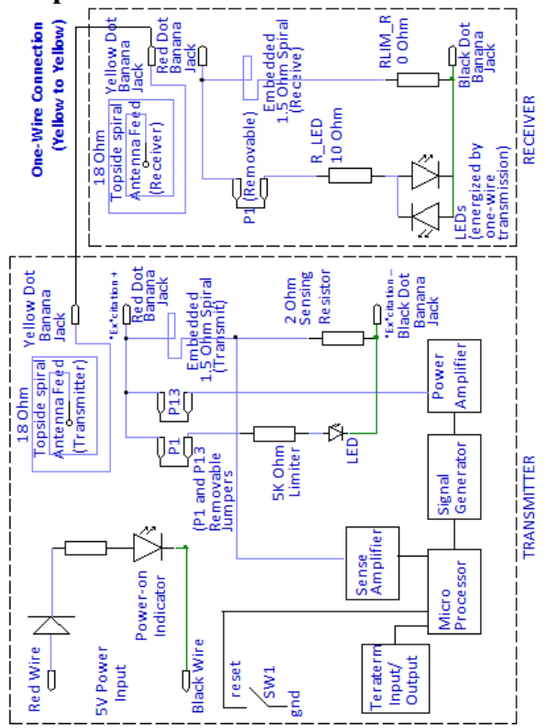
Many claims have been made about scalar waves and it is up to the operator to verify or deny each claim separately. The use of this starter kit promotes rapid learning by eliminating complex connections and measurement equipment. The transmitter contains an on-board amplifier input, equivalent to an oscilloscope. It also contains an on-board variable frequency power source. The transmitter infers the frequency-dependent receiver power and reports its measurements via Teraterm [1]. These features can absolve the operator from having to connect test equipment.

Monitor the receiver LED while tuning the transmitter frequency using the Teraterm connection (do not reverse the USB-to-RS232 connector or it will damage the transmitter's communication link). The transmitter's LED is purposely weak and can serve as an indicator of transmitted power.

More Advanced Features

The receiver contains few components compared to the transmitter which has many. Removal of jumper P13 will disconnect the on-board amplifier allowing One to input an external signal to be transmitted (applied between Red and Black banana plug input jacks indicated by colored markings). If an externally applied signal exceeds 0.5 Amp, expect the unit to fry and smoke. Removal of jumper P1 will protect the LEDs from over-current during such experimentation. It is the Operator's responsibility to avoid damage due to the type of failure described above. When in doubt, please contact [4] to avoid damaging the Starter Kit.

Simplified Schematics



References

1. Patent 645,576 (Tesla's energy transmitter)
2. Teraterm for serial communication, see page 8
3. www.meyl.eu
4. Contact griffin.adam.h@gmail.com