

# Independent Report of the ACT Cell

By  
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My observations from testing performed 2/26/14 - 2/28/14 at ACT Inc.'s main shop. I observed the ACT Cell in operation and using my own testing equipment, documented the following:

- Power going into the ACT Cell 17 Volts DC @ .45 Amps
- Power from the wall 220 Volts AC @ 7.5 Amps
- I observed a power supply. (TIG welding supply with frequency and pulse width adjustment). From past experience, I know that most of the power difference from the wall output to the cell input was lost in the heating and cooling of the power supply. Approximately 80% of wall outlet power was lost to the unit.
- The output from the ACT Cell was tested and measured by means of a water displacement monometer and spectrometer. The results were 66 Liters of gas per minute, 82% hydrogen and 18% oxygen. (The discrepancy in molar ratios of H<sub>2</sub>O as seen in the spectrometer I believe is explained by some of the H<sub>2</sub> being further broken down into monatomic hydrogen. The spectrograph analysis shows monatomic hydrogen, diatomic hydrogen, and oxygen.) There were 5 iterations of this test completed.

My Rating of the ACT Cell is as follows:

For a power input of 1650 Watts (1.65 kWh) the ACT Cell has a potential output of 9.6 kWh.

While these sounds like over unity, it is not.

To explain this, I must first set some background information as a basis.

As published by Michael Faraday in 1834:

- **Faraday's 1st Law of Electrolysis** - The mass of a substance altered at an electrode during electrolysis is directly proportional to the quantity of electricity transferred at that electrode. Quantity of electricity refers to the quantity of electrical charge.
- **Faraday's 2nd Law of Electrolysis** - For a given quantity of D.C electricity (electric charge), the mass of an elemental material altered at an electrode is directly proportional to the element's equivalent weight. The equivalent weight of a substance will be explained in the next paragraph.

I believe from my testing and observations that the ACT cell has come across a further unexplored principle in physics that there for requires us to rewrite Faradays first and second law of electrolysis to take into account the pressure inside of the reaction chamber. Faraday did not have the ability to generate the low operating pressure of the ACT cell and without taking account of the thermodynamics of electrolysis that is taking place in the cell, you can't account for the energy potential of the HHO gas that is generated by the ACT Cell.

## Resonance

In physics, resonance is the tendency of a system to oscillate with greater amplitude at some frequencies than at others. Frequencies at which the response amplitude is a relative maximum are known as the system's resonant frequencies, or resonance frequencies. At these frequencies, even small periodic driving forces can produce large amplitude oscillations,

because the system stores vibrational energy.

Resonance occurs when a system is able to store and easily transfer energy between two or more different storage modes (such as kinetic energy and potential energy in the case of a pendulum). However, there are some losses from cycle to cycle, called damping. When damping is small, the resonant frequency is approximately equal to the natural frequency of the system, which is a frequency of unforced vibrations. Some systems have multiple, distinct, resonant frequencies.

### Electrical Resonance

Electrical resonance occurs in an electric circuit at a particular *resonant frequency* when the impedance of the circuit is at a minimum in a series circuit or at maximum in a parallel circuit (or when the transfer function is at a maximum).

As observed, the ACT Cell cannot be electrolysis. It violates Faradays laws of electrolysis but it does fit resonance principles and math. The ACT Cell is not producing energy. It is resonating the substance in it and breaking the bonds of the molecules. All of the usable energy in substance was there the whole time, it was just bound up in the molecular bond and could not be utilized. But by breaking the bond it can be used as a fuel for creating energy.

The energy that is going into the ACT Cell is only the amount of energy that is needed to vibrate A molecule at its own resonate frequency. Think of a wine glass, if you tap it you hear a ringing sound. That is the resonate frequency of that glass. If you play that sound back at the glass, it will start to shake and then shatter. The ACT Cell does the same thing with liquid molecules.

What this means is that there is now a method of breaking down long molecules into smaller molecules or atoms.

**My Findings for the ACT Cell:**

Total operating current [A]	7.5	Testing was done at the wall plug interface with hand meter
Total operating voltage [V]	220.0	
<b>Total operating power [W]</b>	<b>1650.0</b>	
Operating current at cell [A]	0.2	Testing was done at Cell Interface with hand meter
Operating volts at cell [V]	17.0	
Total operating power at cell [W]	3.4	
System efficiency of cell	0.0021	Total Power in vs. Cell Power to operate
Volume per inch in manometer [CU in]	15.9	The Manometer was clear acrylic tube 43.25 inches tall and 4.5 inches wide. Utilizing water displacement at room temp and pressure we flowed the gas and displaced the water
Manometer height [in]	43.3	
Total Liters Produced in 10 Sec.	11.3	
Total CU IN Displaced	688.1	
CU IN in one liter	61.0	
Liters Produced over 1 Min.	67.7	
Cell output over 1 Min. [L]	67.7	
Hydrogen:Oxygen Gas Volume Ratio = 2:1		
1 Mole Hydrogen (as H <sub>2</sub> ) equals [L]	22.4	
Volume of Production Hydrogen [L/min]	45.1	
Moles of Hydrogen (as H <sub>2</sub> ) Produced	2.0	
Energy (HHV) of Hydrogen (as H <sub>2</sub> ) per Mole [286 kJ/mol]	286.0	
Potential energy from 1 min cell operation [kJ]	575.9	
Potential from cell per Min [kWh]	0.16	
<b>Total Energy Potential of Cell [kW]</b>	<b>9.6</b>	

The ACT Cell uses a principle of physics that has not been done to date. The ACT Cell does not produce power, it breaks down molecules into the smaller molecules and/or elements. They can be then exploited as a fuel. This is not over unity. It is resonance, a universal principle of Physics. The ACT cell does not produce power it is simply braking down molecular chains into smaller molecules and elements that then can be used as fuel to produce power an example of this is water is not a fuel but it is a combination of hydrogen and oxygen that can be used as a fuel. The applications of this new technology are so immense that I don't think the potential is yet known. This technology can change the very nature of energy as we know and understand it today.

## **About the Author**

Billy W. Helton is an independent consultant and inventor with patents in hydrogen production, combustor design, and reprocessing of AL<sub>2</sub>O<sub>3</sub> back into Aluminum.

### *CEO / CTO*

Hydratek Inc.

Hydrogen Production Company

### *CTO*

Lighting Inspired Technologies LLC

R&D Company with patents and designs in AL<sub>2</sub>O<sub>3</sub> to Aluminum Production

Hydrogen Gas Powered Torches

Combustor Design

Turbine Designs

### *Education Background*

Masters in High Energy Physics

MIT 1996

Masters in Computer Science

MIT 1998

### *CompTia Computer Certifications*

MSE

MSNE

CNA

CNE

CCNE

CNE

A+ Certificate