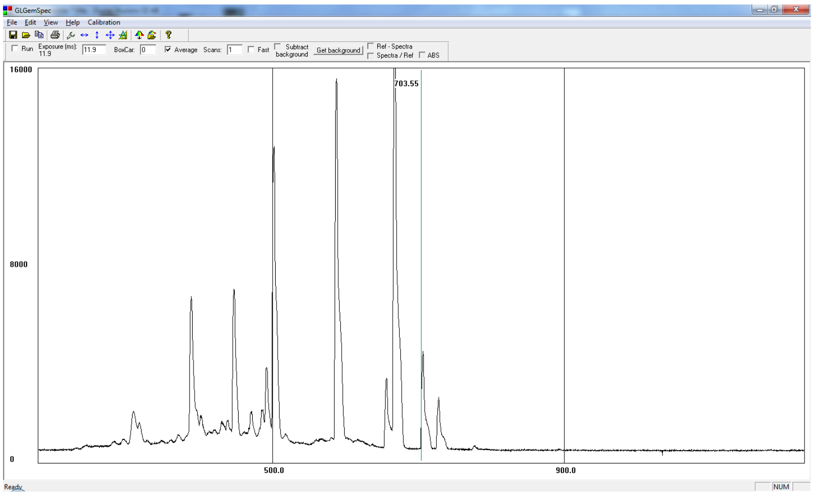
MORs vs Absolute MORs in R. Rife’s Machine #3

By Fabrizio del Tin – RifeLab at eUniversity.pub – 2020-05-30

Machine #3 couples a diathermy machine with a frequency generator in a parallel configuration with a plasma tube.
A diathermy machine is simply a Tesla coil with very basic circuitry. Rife rewound the main transformer so that it would output 5,000 V. Therefore, the machine was feeding the tube with the typical high voltage pulsed underdamped wave of Tesla coils at a PFR a little over 1,000 Hz.
The frequency (MOR) was amplified, so that it could reach a significant fraction of the diathermy machine voltage (expectedly around 600-800 V).
It was the diathermy machine furnishing the lamp all the required energy and current, as it has a power rating around 1,000 W. Therefore, the energy transfer to the plasma tube had to be strictly calibrated, to have the proper spike rise time and length. The MOR was just voltage with almost no current.
As the plasma tube was very low pressure (14 Torr of helium, which is practically the same pressure that “vacuum tubes” had in the ‘20s), ignition was practically immediate. The MOR and the quick repetition rate did not allow the plasma to de-ionize and rest, acting as a Simmer current.
It is expected that the diathermy machine caused in the plasma tube an initial current density (*Dipk*) of around 1500 A/cm^2.
Once the pulsed high voltage frequency and the MOR are superimposed in the plasma tube, the state of the helium plasma transits swiftly from glow-discharge to arc-discharge, in which the high voltage drops to a minimal value and is entirely transformed into current. At this point, a stable plasma forms. The high frequency produced by the Tesla coil causes the plasma to keep stable and the MOR prevents it from de-ionization.
As a base current density is maintained in the plasma tube, a base spectral output is obtained. The emitted spectrum changes with current density in an inversely proportional manner.

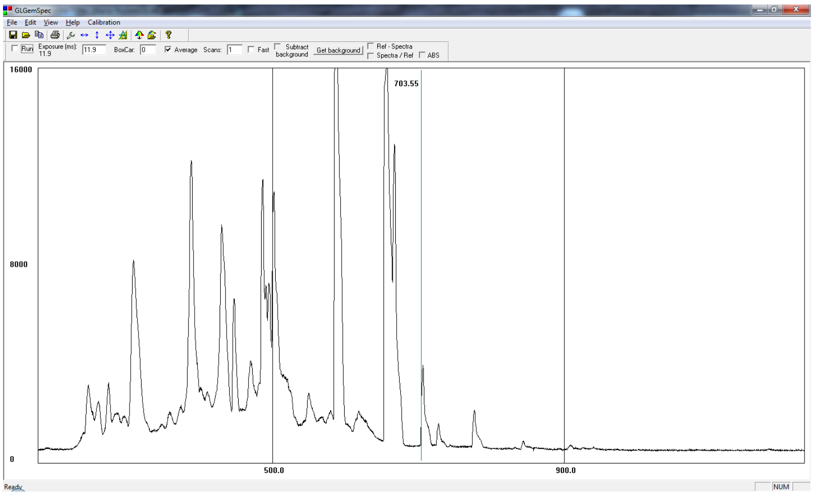
To demonstrate this effect, the following is a picture taken from my Machine #3 at a low current density. The gas fill is helium, the glass envelope is quartz, and the electrodes are tungsten.

The recorded spectrum is as following.



As it can be seen, we have a strong peak centered around 500 nm. As current density increases, another scenario takes place. The change in color of the plasma in noticeable, as it turns from a pink to a blue color.

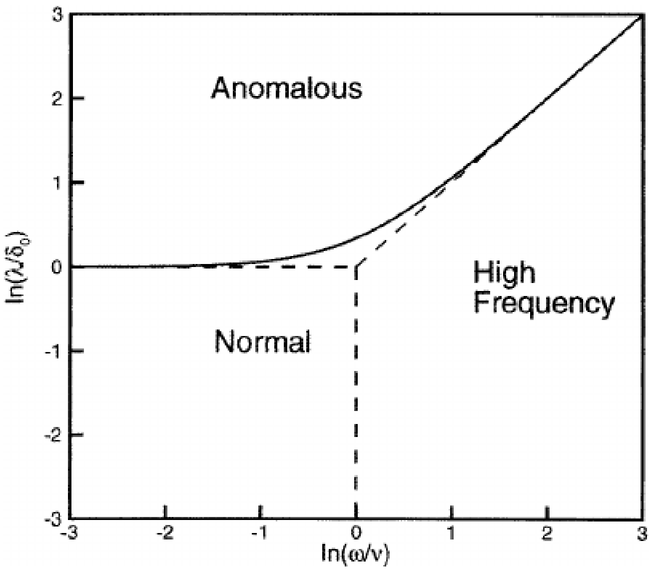
Now, the centered wavelength moved down to 350-400 nm. We also have a strong peak below 300 nm, which is a left peak.



To understand what happens in the plasma column when the MOR is superimposed, the current density on the electrode surface is driven in closed loops. This is called skin effect. The higher the MOR gets, the more the discharge concentrates in the external loops of the electrode disc. This results in an increase in current density. The following picture takes what happens on the electrode disc.

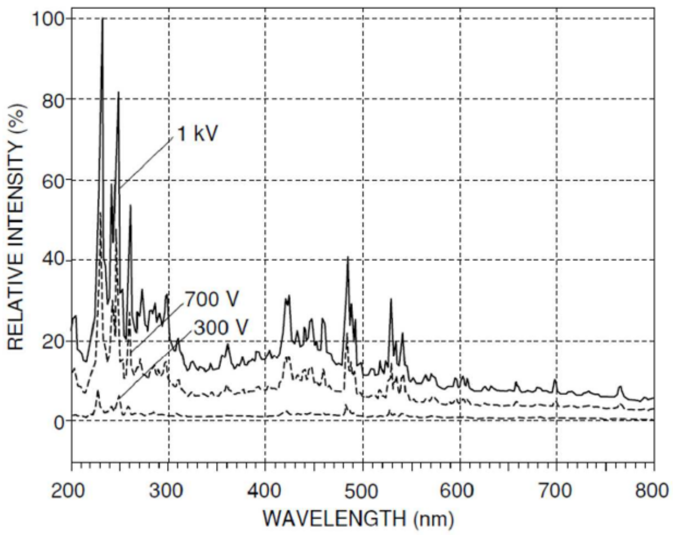
This variation is not perceived by the outside observer, as he cannot see what happens inside the plasma column. However, in this picture we clearly see that the current flow is moved to the external layers of the electrode. Therefore, we have a hollow plasma column. As the effective area of the plasma column decreases, current density increases. Therefore, the MOR causes a shift in the spectral output.
The thickness of the skin layer decreases with increasing plasma conductivity and increasing frequency of variation of the fields.

We also have another phenomenon to take into account. The RF from the diathermy machine does not penetrate into the plasma and is damped within it. The electric field of the wave and plasma current are concentrated near the plasma boundary in a skin layer. Electrons can transport the plasma current away from the skin layer due to their thermal motion. As a result, the width of the skin layer increases when electron temperature effects are taken into account. This phenomenon is called plasma anomalous skin effect.



The anomalous skin effect also shows us that the diathermy machine practically only serves the required current, as its RF component is damped. The only effective component acting on current density becomes the MOR, which must compensate to counteract the anomalous skin effect at full regimen.

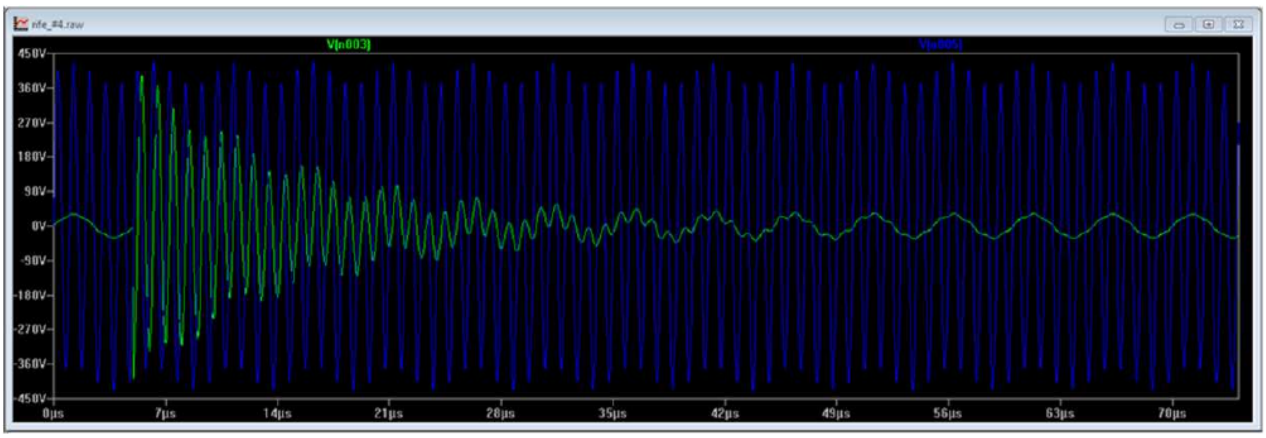
A plasma tube is not a laser, which can select a specific spectral line to output. It is alwasy broadband. Howerer, the intensity of a spectral slice can be enhanced over the others by varying current density. The following graph depicts this principle.



MAIN DISCHARGE CAPACITOR:0.1 μF

INPUT ENERGY	MAIN DISCHARGE VOLTAGE
0.05J	1 kV
0.024J	700 V
0.0045J	300 V

In a Rife configuration, not only intensity is varied, but the MOR also effects inductance (and the inductance match between machine and plasma tube). This enhances the spectral shift, characterizing it more precisely, but has also an effect on pulse rise time and length.
The following is the waveform of Machine #3 as it combines (multiply voltage by 10 to have real values).



We now know that a MOR is just a setting that is calculated based on lamp and machine parameters. Each machine has its own MOR list, which will not work with another machine, because the spectral output will not be the same.
MORs hide the real working principle, which I called Absolute MORs – i.e. the effective wavelength that achieves microbial inactivation. The Absolute MOR never changes and machines must be calibrated in order to emit it.

Modern replicas of Hoyland machines are not calibrated and are not able to work in Rife mode, thus achieving no significant result.

Now, the open question is, which is the range of Absolute MORs? Do they fall into the visible spectrum?

The answer comes from Dr Stafford. He carefully experimented and treated patients with a late Hoyland machine. He found that it was working very well with many microorganisms, but failed entirely with others (for example the BX – that is the smaller microorganisms that require lower wavelengths). He tried hard to obtain an answer from Crane and was certain that something was missing.

The issue is that he was given a Pyrex plasma tube instead of a quartz one. Pyrex cuts every wavelength below 280 nm. Thus, we know with certainty that all Absolute MORs revolve around 280 nm – which is in the UV part of the spectrum.
As Rife used to say, "*An electronic gun and a reflector target" (Rife/Thompson patent application 1956, page 15)*, he was shooting at microbes with ionizing radiation (UV) and concentrating the beam as it happens in lasers. The "reflector" was simply the 45° polished platinum electrode so that it acted as a reflecting and concentrating mirror.

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References:

For complete technical explanations, equation, materials, machine construction and calibration, "*The Cancer Cure That Works*" by Fabrizio del Tin

For the Absolute MORs, "*Absolute MOR Determination*" by Fabrizio del Tin