

# ARGENTUM LAW

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**BY EMAIL: [regulations@ccb.nv.gov](mailto:regulations@ccb.nv.gov)**

Tyler Klimas  
1550 College Parkway, Suite 142  
Carson City, Nevada 89706

Dear Mr. Klimas,

Thank you for the opportunity to submit comments related to the Cannabis Compliance Board's ("CCB") discussion on potential changes or amendments to NCCR 12.065 during the CCB's noticed meeting on January 21, 2021. I am providing these comments on behalf of our client NuLeaf, Inc. ("**NuLeaf**").

We are thrilled and excited that the CCB will be reviewing changes to NCCR 12.065, and we are hopeful that we can be included in any future discussion on any revisions to this particular regulation. For reasons more thoroughly discussed below, we feel strongly that NCCR 12.065 should be amended to remove notice requirements that cannabis has been treated with radiation when the only radiation the cannabis product has been exposed to is non-ionizing radiation. This is consistent with established guidance from the Food and Drug Administration, which only requires notice and the use of the Radura symbol when items have been exposed to ionizing radiation. *See* 21 CFR 179.26.

Non-ionizing radiation is safe, and individuals are commonly exposed to this radiation throughout the day from all types of electronic devices such as WiFi routers, cell phone signals, microwaves, etc. In fact, the machines that NuLeaf uses to treat some of its cannabis products expose the cannabis to non-ionizing radiation that is much less than a household microwave. Because exposure to non-ionizing radiation is safe, we believe the current notice requirement contained in NCCR 12.065 is misleading to consumers and does a disservice to the industry. In effect, it would be like requiring restaurants to provide notice to their customers that their food has been exposed to radiation if the restaurant heated the food in a microwave.

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In reality, there is little, if any, difference between the RF Machines used by NuLeaf to treat cannabis from the microwaves used by restaurants, and for this reason, NuLeaf strongly supports an amendment to NCCR 12.065 that would reflect the safety of treating cannabis with non-ionizing radiation.

Now, for your benefit and review, I would like to provide a more thorough explanation of the difference between ionizing radiation and non-ionizing radiation.

The term radiation often brings to mind hazardous energy when in fact, it describes all energy emission or transmission from a source in the form of a wave. Low energy frequencies such as radio waves, cellphone signals, WIFI signals, magnetic fields, and visible light are all radiation, as are high energy forms such as UV-light, X-rays, and gamma rays. To distinguish between the different affects resulting from radiation, the CDC, World Health Organization, and FDA categorize all radiation as either ionizing, or non-ionizing.

Non-ionizing radiation is the term given to radiation in the part of the spectrum where there is insufficient energy to cause ionization, while Ionizing radiation emits enough energy to remove tightly bound electrons from an atom thus creating ions (i.e., atoms with a charge). In other words, ionizing radiation alters items on a molecular level. Per the FDA (21 CFR 179.26), labeling is required when product has been treated with ionizing radiation. (must be labeled with the radura symbol and with the statement “treated with radiation” or “treated by irradiation.”). This labeling requirement does not apply to the treatment with non-ionizing radiation (i.e. microwaves).

The Microwave from Radio Frequency Co. is a thermal process caused by a non-ionizing electromagnetic form of energy just like an FM radio transmitter, WIFI or cell phone signal. The frequency of the machine utilized by NuLeaf is 40.68 MHz RF, which is 60 times lower in energy than household microwave ovens that function at 2.45ghz (2,450 MHZ), and 123 time lower than most WIFI routers at 5ghz. This is even lower than the 5g band of Verizon which operates at 28 GHz and 39GHz.

How does radio frequency heating work then and why do we not have detrimental effects from using cellphones or browsing the internet?

Unlike WIFI and cellphone signals emitted from a constantly orientated source, a microwave creates an alternating electric field between two electrodes. This alternating magnetic field causes the polar water molecules (present in food and cannabis) caught between the electrodes to rapidly reorient themselves, creating friction, and in turn heat the product rapidly. When this alternating signal is stopped, the water molecules no longer rapidly re-orient, and all heating stops. Just as rubbing your hands together to stay warm does not cause your hands to be radioactive, neither does using a microwave.

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Use of a Radura symbol on anything other than ionizing radiation is contrary to the established standards of the FDA and the science used to determine those standards.

Thank you for your time and consideration.

Very truly yours,

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/s/

John P. Sande, IV