A9 - Legal and Regulatory Analysis

Year: 2025 Semester: Spring Team: 15 Project: αCassiopeiae 8800

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Assignment Evaluation: See the Rubric in the Brightspace Assignment

1.0 Regulatory Analysis

Our device will need a variety of regulatory certifications before we can sell it as a product.

1.1 FCC

We will need Federal Communications Commission (FCC) Class B consumer electronics certification for our device in order to sell it in the US. Our device contains a clock that emits high frequency radio waves and is thus an intentional emitter, so we would need to get our device certified to be sold.

The process is as follows:

1. Send device to FCC-approved testing laboratory and provide:
   1. Complete Form 731
   2. Get FCC ID label and label location
   3. Photographs and testing photographs
   4. User manuals
2. Then we will receive an FCC Grant
3. The product will be labeled with the FCC mark [1] [2]

1.2 UL/IEC

IEC/UL 60950-1 or IEC/UL 62368-1 (International Electrotechnical Commission) is needed to sell electronic products through retailers in the US. UL 60950-1 covers battery or mains-powered devices. [3] Although our devices are powered over USB-C it still is applicable. 62368-1 covers all consumer electronics. [4]

You can get IEC approval from a variety of certifiers.

A UL label can then be placed on the product to show conformity.

1.3 CE/RoHS

If we want to sell in the EU, the CE mark ensures our product meets European health, safety, and environmental considerations. A CE mark can be obtained through self-certification for electronics. [5] By self-certifying we accept liability if our product was to fail and not conform to standards. Technical documentation like diagrams, test results, and manuals must be compiled. The EU regulations that apply for our classification of product can be found on the European commission website. [6] The ones that would likely apply to our product would be EMC Directive (2014/30/EU) and RoHS Directive (2011/65/EU).

RoHS Directive is part of the certification for a CE mark. It ensures that a very low quantity of toxic materials is present in our product. We would need to calculate the amount of each regulated substance in each of our product’s parts and ensure together they are under RoHS requirements. XRF or ICP-MS screening can be done to ensure material compliance. Supply chains should be audited. RoHS is self-certifying. [7]

2.0 Legal Liability Analysis

Multiple patents are relevant to our design. They are all from early computer days, so they have expired and there is no possibility of infringement.

* 1. Analysis of Patent [US4214302A](https://patents.google.com/patent/US4214302A/en)

This is a patent by Texas Instruments for a modification of the de-facto S-100 bus. It was filed on 04/24/1978. It describes a 16 bit data line made up of the normal 2, 8 bit unidirectional data lines. The difference between this design and the original is that in the middle of the backplane, the data lines crisscross, allowing one memory card to read unidirectionally 1 set of the 8 bits, and another to read the other set of 8 bits. Our bus does not have this effect to get a 16 bit data bus. Instead, we just have an single 8 bit bi-directional data bus. The patent overall describes the similar S-100 control lines and 16 bit address line that our bus does have and thus describes the normal S-100 bus on its own. That overall design is not patented, however, and thus our design has no infringement.

A diagram of a circuit board

AI-generated content may be incorrect.

* 1. Analysis of Patent [US4010449A](https://patents.google.com/patent/US4010449)

This is the patent for Intel’s 8080 microprocessor patent. It was filed 12/31/1974. It describes various improvements to a typical MOS computer. This involves bidirectional data bus lines, ROM, and control signals, all of which are a part of our computer system as well. We just don’t employ the full set of 8080/S100 bus control signals. Our processor is emulated in software and this patent is expired so there is no possible infringement.

**A diagram of a computer system

Description automatically generated, Picture**

* 1. Analysis of Patent [US3419849A](https://patents.google.com/patent/US3419849)

This is a patent for a modular computer system filled by Burroughs Corp (producer of mainframes). It was filed on 11/30/1962. It discusses how a collection of modules can establish a computer system. They are unified over a bus and consist of memory and compute. Each module is memory addressed and can control the bus using interrupts. These were the key concepts of the Altair 8800 microcomputer design and thus a key concept of our replica as well. The patent has expired so we are at no risk of infringement.

A white sheet with black text

AI-generated content may be incorrect.

3.0 Sources Cited:

# References

|  |  |
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