

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554

In the Matter of	)	
	)	
Amendment of Part 0, 1, 2, 15 and 18 of the Commission's Rules regarding Authorization Of Radiofrequency Equipment	)	ET Docket No. 15-170
	)	
Request for the Allowance of Optional Electronic Labeling for Wireless Devices	)	RM-11673
	)	

1. I am a technology professional, holding a degree in electrical engineering, with over 35 years experience in the semiconductor, devices, and software industries. I currently am employed as a software engineer in the communications industry. I have been active in the community on technology policy and initiatives, including 12 years of service as an appointed commissioner on the City of Austin (Texas) Community Technology and Telecommunications Commission. I have been active in emergency response efforts, including being one of the few community volunteers to be granted a City of Austin access badge during the Hurricane Katrina relief effort. I hold a technician class amateur radio operator license KE5VHV.

2. I support responsible use of wireless spectrum. I acknowledge and appreciate the FCC role to manage this valuable resource.

3. I am concerned that rules under consideration will cause wireless equipment makers to "lock down" their equipment, preventing use of alternate, open source versions of firmware. I am concerned they will do so because locked firmware may be the most expeditious and least risky approach for a manufacturer to address the requirements in the NPRM.

4. An inability to use open source firmware on my personal devices would impact me in three ways: personal use, professional development, and emergency services.

5. Impact on personal use. For many years, starting with the venerable Linksys WRT54G<sup>1</sup>, I have installed custom firmware on the consumer wireless routers I have acquired for personal use. I have done so to provide advanced features not otherwise available in vendor firmware. Much like a hot-rodder might soup up their car (subject to legal limits, of course!), I'd like the ability to tinker with my network gear. The creativity and innovation that comes from individuals tinkering with technology is an essential value that should be cultivated and supported. Locked firmware would be an impediment to this culturally and economically significant endeavor.

6. Impact on professional development. One reason my current employer hired me was my skills in software development in embedded environment (i.e. devices). Before this job, I had no professional experience working on embedded devices. I developed those skills by building software for my home router. For instance, I developed a simple dynamic DNS<sup>2</sup> client to run on my router<sup>3</sup>. I also acquired experience using a cross-compilation toolchain<sup>4</sup>. Open source firmware has provided professional development opportunities to me, resulting in skills my current employer found valuable.

7. Impact on emergency services. Broadband Hamnet<sup>5</sup> is an alternative router firmware that amateur radio operators can use to build resilient mesh networks<sup>6</sup>. A licensed amateur radio operator, such as myself, is authorized to use a portion of the 2.4GHz WiFi spectrum at an increased power level. Broadband Hamnet takes advantage of this, which provides improved performance in critical and emergency scenarios.<sup>7</sup>

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<sup>1</sup> The original Linksys WRT54G firmware was based on Linux, and the community developed alternate firmware distributions for this device. This became so popular that later even as the product evolved, the manufacturer maintained a WRT54GL version that was open to support user-provided firmware. [https://en.wikipedia.org/wiki/Linksys\\_WRT54G\\_series](https://en.wikipedia.org/wiki/Linksys_WRT54G_series)

<sup>2</sup> DNS is the directory of the Internet, which identifies the names we commonly use such as [www.google.com](http://www.google.com).

<sup>3</sup> Typically, residential broadband providers allocate a "dynamic" network address that may change from time to time. A "dynamic DNS" service creates a static name, such as *home.example.com*, that statically identifies a network connection, even if the dynamic network address changes. This can be used to allow a roaming user to access files and network services on their home network.

<sup>4</sup> A toolchain is the collection of software (compiler, linker, libraries, etc.) used to produce executable programs. A cross-compilation toolchain allows the programs to be created in one environment (such as a desktop computer) and execute in another (such as on a router or other embedded devices).

<sup>5</sup> <http://www.broadband-hamnet.org/>

<sup>6</sup> A mesh network is created by joining multiple, cooperating transmitting nodes, thus providing reach and reliability exceeding what would be obtained with a single transmitter.

<sup>7</sup> An additional example of open source firmware used in the amateur radio community is AREDN (Amateur Radio Emergency Data Network) <http://www.aredn.org/>

8. For the reasons cited, I request that the FCC defer action on the proposed rules and instead engage the community to identify ways to achieve spectrum compliance without creating impediments to the use of third-party firmware.

Respectfully submitted,

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25 September 2015