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BY ELECTRONIC FILING

Ms. Marlene M. Dortch, Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: Ex Parte Comments in ET Docket 05-183 from Cisco Systems

Dear Ms. Dortch:

On October 11, 2005, Mary Brown of Cisco Systems Inc. ("Cisco") provided comments on the waiver request of Remington Arms Company, Inc. ("Remington") that is the subject of ET Docket 05-183. Ms. Brown provides a relatively accurate accounting of the areas in which Cisco and Remington have encountered disagreement and the extent to which they have worked cooperatively to identify common solutions for those disagreements. However, Remington does not believe that the arguments presented in Ms. Brown's comments present the full picture regarding the areas in which they were not able to agree. It is Remington's desire to fill out that picture, explain why it was unable to agree on Cisco's final points and why the balance should be struck in its favor.

Extent of Interference. While Remington and Cisco agree that when the Remington device is active, WLANs will experience harmful interference, the parties have not agreed on the degree of harmful interference. While Remington did say that interference could occur up to a distance of about 60 – 100 feet, those estimates were based on laboratory tests designed to simulate worst-case situations. Remington has also demonstrated that the real world interference problems would occur only when both devices are "on channel" and that a simple channel change in the Eyeball or WLAN will correct the situation. Further, in a real world demonstration conducted on the FCC's premises, Remington showed that even on-channel actual interference disappears within about 20 feet through common construction materials like sheetrock, wood and concrete, and that adjacent WLAN channels were unaffected. An overlay of the channels utilized by WLAN's and the Eyeball R1 shows that the only danger of interference is on WLAN channels 1, 6 and 11. The other WLAN channels are untouched by the Eyeball R1 channelization at 2.4 MHz. See Figure 1. Thus, Cisco misstates Remington's position – Remington has demonstrated that interference will occur only if (1) the Eyeball and a wireless

LAN operate co-channel and (2) they are in reasonably close proximity.

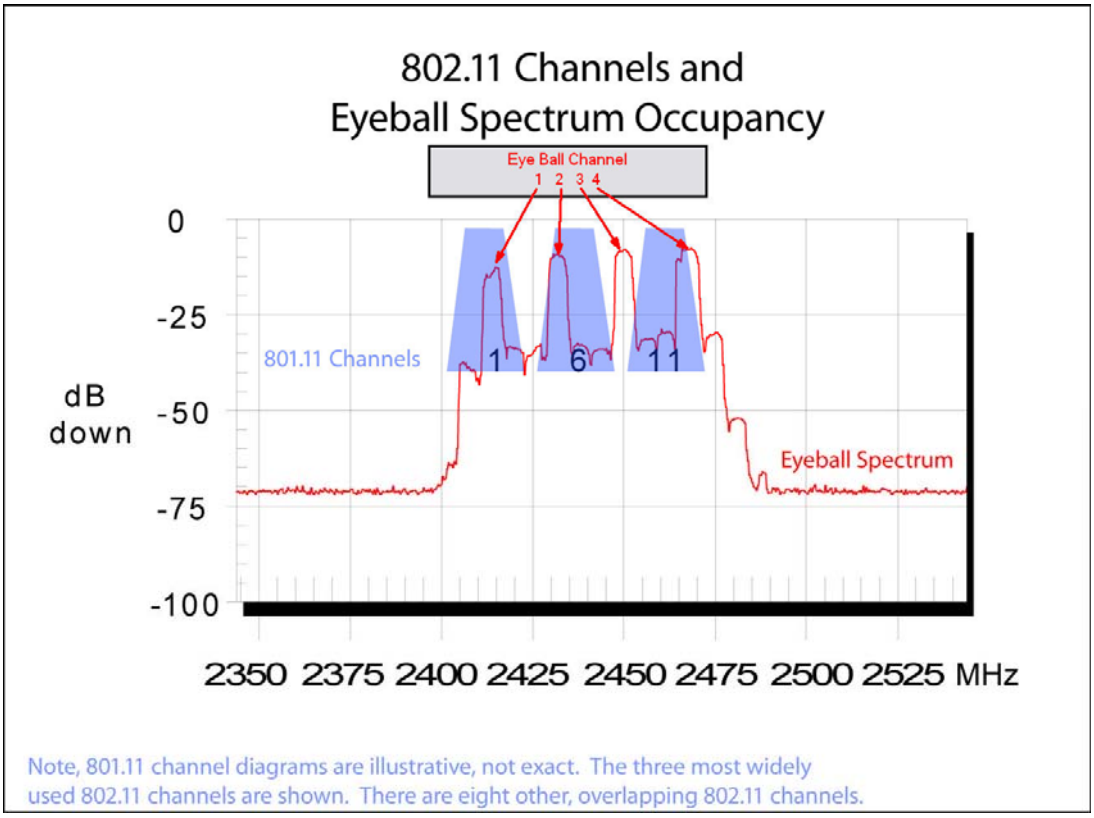

Figure 1
Note: Figure 1 references to 801.11 should be corrected to read 802.11

Cisco offers hypothetical calculations of possible impairments. Remington submitted data on impairments. Specifically, Remington filed the results of tests done by Alion Science and Technology, a firm well-known to the FCC for its work in radio spectrum management and EMC engineering.[1] Remington also brought an Eyeball R1 to the FCC and allowed FCC staff to measure the separation required to permit wireless LAN operation. Remington presented *facts*, whereas Cisco offered only speculative, theoretical predictions. Indeed, examination of Cisco's calculations shows that they assumed (1) free-space propagation, (2) no-multipath fading of the interfering signal, and (3) no antenna diversity at the receiver. In most real-world situations most or all of these assumptions are violated. Consequently, it is hardly a surprise that Cisco's calculations do not match Alion's measurements. In a scientific proceeding such as this, evidence rules – or at least spurs one to examine the theory for omitted or incorrect factors in

[1] Cisco complains that Remington has not provided it with the emission spectrum of the transmissions from the Eyeball. Remington observes that Figure 1 of the Alion report shows the emissions from the Eyeball as measured by Alion using a spectrum analyzer.

hypothetical speculation. As Feynman said, "The sole test of the validity of any idea is experiment." [2]

Cisco further contends that police are deploying mobile WiFi networks in their cruisers and that the Eyeball R1 could interfere with those networks. Remington has responded to this argument on repeated occasions. First, Remington has agreed to educate its users about interference potential and to train its technical support team to sensitize allowed users to the issue and how to avoid such interference, which is easily avoidable with a simple channel change. Second, it would be a rare situation indeed, where such interference would occur, since most deployment of the Eyeball R1 will be in the interior of buildings, well out of interference potential to police cruisers parked on city streets. Undercutting its own argument, Cisco admitted that the current equipment being sold to police departments for this purpose is only a temporary fix and that new equipment for police is being developed in a short time frame of three years or so that will employ special frequencies not generally available for civilian use. Thus, it appears that Cisco's concern regarding interference to police WiFi will vanish in the near future, leaving only civilian WiFi units in their area of concern. The remote possibility of a civilian surfing the Internet with a police stand-off or terrorist activity in close proximity to his computer surely must cede to the intense public interest in the far greater need for public safety personnel to have access to all necessary tools to save life and property. We also observe that, with education as Remington has agreed to, police can make any necessary tradeoffs (such as pushing the channel button on the Eyeball unit twice) between Eyeball use and LAN use. Remington submits that police rather than Cisco are better situated to make this tradeoff.

The simple conclusion is that real interference is small and avoidable by the user of the device and Remington has agreed to Cisco's demands for educational information on this issue in the device user guide and to training its on-line support personnel in frequency interference avoidance.

Eligible Users. Cisco next addresses the issue of eligible purchasers and users. As Cisco acknowledges, Remington has no desire to sell this product broadly to the public. Indeed, while affordable for police, fire and other first responders, it cannot be manufactured at prices that are attractive for a consumer product. Moreover, and more importantly, to do so would emasculate the product's utility as a law enforcement tool. Even so, Remington has already addressed a similar concern raised by an *ad hoc* group of manufacturers and users of fixed microwave technology also operating in this band of frequencies known as the Fixed Wireless Communications Coalition (FWCC). To meet their concern that sale of the device be limited to the safety and security community and others where interference would not be a problem, Remington agreed that that user community would be limited to eligible users of the Public Safety Pool under Section 90.20 of the Commission's rules,[3] federal government agencies that

[2] Richard Feynman, *Lectures on Physics*, Vol. 1, Ch. 2, p. 7.
[3] 47 CFR §90.20

would be eligible users were they state government agencies, and state licensed security and investigative service providers.[4] *See* Remington Comments filed June 6, 2005.

This definition was arrived at because it is the narrowest way to definitively describe a group of users that might have legitimate need of the device in the service of the public interest as opposed to a private interest. The effort was to find a "bright line" user group definition. Research could not find another appropriately more narrow well-defined class of users. Further, simple observation demonstrates that this definition is indeed appropriate. Cisco seems to believe that the definition relates to those licensed to carry firearms. Although most such users do carry firearms, that fact has nothing to do with the definition. Other groups of Americans can be licensed to carry firearms but Remington has not asked for them to be considered eligible users or to sell them the Eyeball R1. Indeed, Remington has no interest in doing so.

The bottom line is this – as Remington has previously submitted in this docket, many important locations and even government offices are secured by private sector security firms. Federal buildings around the country – even the Federal Communications Commission itself, and Department of Defense offices in the Washington area – are secured using private sector security services. Interviews with these security guards in the FCC lobby and at DoD buildings reveal that, in a crisis situation, they are heavily involved and often the first to respond. It is reasonable to expect that such private security personnel might be the first line of response and have need for the Remington Eyeball R1 even before government employees with law enforcement authority or military service responders appear on the scene or can respond to a 911 call, as Cisco suggests. If policies will continue to encourage government to rely on the private sector where possible rather than grow the size of the government itself, we cannot then discriminate against those contractors in a manner that hampers their performance, particularly where they are licensed by government agencies to perform those functions. The proposed definition provides a reasonable and easily definable class of eligible purchasers that is, indeed, consistent with a valid public interest purpose.

Nevertheless, Cisco claims that this proposal, accepted by another group of spectrum users in the same band, is overbroad and unrelated to the justifications Remington has offered. Cisco says that there is no reason to ". . . expand its availability to thousands of firms." But there *is* reason. Border patrols might find the device very useful is a variety of situations. Many of the

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4 The majority of States and the District of Colombia require private detectives and investigators to be licensed. Web site of the Bureau of Labor Statistics http://bls.gov/oco/ocos157.htm#training, last visited on June 6, 2005. Most States require that guards be licensed. To be licensed as a guard, individuals must usually be at least 18 years old, pass a background check, and complete classroom training in such subjects as property rights, emergency procedures, and detention of suspected criminals. Drug testing often is required, and may be random and ongoing. Web site of the Bureau of Labor Statistics, http://www.bls.gov/oco/ocos159.htm#training, last visited on June 6, 2005.

users of the Public Safety Pool operate in rural areas where the device could provide a quite useful and practical solution without any fear of a WiFi network in the nearby vicinity. Why should those law enforcers be denied access to this technology? There is no reason to believe that this device will be simultaneously by "thousands" of users across the country or in the same vicinity.

The Commission's conclusion must be that there is indeed a compelling reason to place this device in the hands of first responders and law enforcers and licensed protective services when lives are at stake, even if there is a potential to slow or temporarily stop the use of the unlicensed band by compliant devices, a situation that in reality is unlikely to happen in the vast majority of instances.

Analog Waveform and Authorized Power. Cisco gives short shrift to the fact that Remington is asking for no more power than would be allowed were it a digital device. While Cisco has offered no scientific analysis to demonstrate conclusively that an analog device will provide significantly more interference at the same power as a digital device, Remington has convincingly explained its reasons for retaining the analog waveform. As explained in Remington's July 15 comments in this docket:

> The Remington Eyeball R1 was designed as an analog device, specified by the Israeli Ministry of Defense and developed by former Israeli Intelligence Officers who considered both analog and digital solutions. A digital solution had two shortcomings. First, a digital design requires more power — specifically the power required for an analog/digital conversion chip and a video compression chip together with the supporting circuitry. Increased power consumption implies either (1) reduced battery life or (2) increased battery size in the remote unit.
>
> Because the battery life of the design was based on the user's needs, the appropriate response to increased power consumption would be to increase battery size. Keeping battery life constant would require an 80 to 100% increase in battery size. Such increased battery size would enlarge the device — including enlarging all the structure, motors, gears, etc. Such enlargement and increased weight would, in turn, require considerably increased mechanical cushioning and enclosure. The cushioning requirements grow non-linearly — faster than the increase in weight or volume. Thus, the consequence of an increase in power consumption would be a substantial increase in the weight and volume of the unit.
>
> A second shortcoming of a digital design is the cliff effect. A reasonable digital design — one with constant bit-rate video coding and a conventional coding/modulation system — would be subject to the cliff effect. That is, as the signal got weaker or interference got stronger, the picture quality would remain unimpaired or only slightly impaired until either it suddenly failed completely or delivered staccato like delayed images that could easily confuse the operator or, worse, mislead the operator to believe that a picture taken several to many seconds ago represented the current situation. In contrast, analog signals fail

> gracefully — with quality degradations warning the use that signal strength is beginning to decline below usable levels. Such user feedback is judged to provide significant value in the interactive environment envisioned for the Eyeball R1.
>
> The designers were aware of these issues with a digital design and chose analog as the safer route under the operational circumstances it is anticipated for the Eyeball R1. Consequently, an analog design is the only route to getting this product to the market in the short term.
>
> Given the design differences of a digital device, it was estimated that a digital design would also increase the delivered cost by a factor of as much as 50%, an important consideration for police and sheriff departments on limited budgets. Such an increase in cost could deny the device to as many as 40% of the law enforcement organizations, particularly those in more rural areas with tighter budgets.

Finally, Cisco complains that the Eyeball R1 should be limited to battery power only. That would be fine if we could guarantee that siege and standoff situations would all be limited to two hours, or that a critical surveillance of a terrorist suspect might gather all the required information in a two-hour time frame. However, law enforcement interviews suggest that such guarantees cannot be made. In such situations, law enforcement would be careful to avoid a WLAN channel in use, anyway, in order to avoid their own detection.

We need to keep open the possibility that a critical need may be presented where law enforcement requires a longer lasting power source. That, however, does not negate the fact that the device is designed for most situations to last only two hours or less and that the circumstances where an authorized user needs to connect a power source should be rare. In such a situation, a user of a residential WLAN may have to change to another frequency. Cisco claims that residential WLAN users are not conversant with the technology, but that is rapidly changing. Unprecedented numbers of WLAN units are being sold and many residential areas have many neighbors with WLANs in their homes. These units interfere with each other. Most WLANs ship with the default channel set at channel 6. Are we really to believe that every residential user keeps to channel 6 and is oblivious to the fact that there are other channels that can be set by their wireless unit? Most laptops now come with WLAN search programs that identify the channels in use. This writer has found four networks from neighbors in his own home and set his router to another channel. The Commission's policy for the 2.4 GHz band has always been one of live and let live—devices are expected to be robust and to work even if there is a microwave oven or a cordless phone in the house. Cisco appears to be asking for a partial repeal of this policy, rather than continued consumer education.

Conclusion. Clearly, the Remington waiver request is meritorious. Indeed, recent events accentuate the need for relief. When one thinks of the natural disasters that have occurred in the last 60 days, it is difficult to avoid pondering the uses to which the Eyeball R1 could have been put in New Orleans or Houston for example, or in earthquakes, even aside from terrorist or

criminal situations, for the purpose of finding survivors in wreckage where human ears and eyes cannot go. Thus, it is clear that there is no reason to delay a grant of the requested waiver for even another day.

Sincerely,

Gregg P. Skall
Counsel to Remington Arms Company, Inc.

cc: Chairman Kevin J, Martin
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