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**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

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JUN 16 1997

Federal Communications Commission
Office of Secretary

In the Matter of)
)
CHECKPOINT SYSTEMS, INC.)
)
For Amendment of Part 15 Rules)
Regarding Swept Field Disturbance)
Sensors)

RM-9092

To: The Commission

COMMENTS OF THE AMERICAN RADIO RELAY LEAGUE, INCORPORATED

The American Radio Relay League, Incorporated (the League), the national non-profit association of amateur radio operators in the United States, by counsel and pursuant to Section 1.405(a) of the Commission's Rules [47 C.F.R. §1.405(a)], hereby respectfully submits its comments in response to the Petition for Rulemaking (Petition) filed on or about April 28, 1997 by Checkpoint Systems, Inc. (Checkpoint). The Checkpoint Petition seeks amendment of Section 15.223 of the Commission's rules to permit operation of swept field disturbance sensors constituting anti-pilferage devices between 1.705 and 30 MHz, at radiated field strengths up to 1,000 uV/m, measured at 30 meters, and conducted emission levels of 3,000 uV/m. In response to this Petition, the League states as follows:

1. Checkpoint is a manufacturer of anti-pilferage devices which operate currently in the 1.705-10 MHz band. The rules regarding these devices are currently straightforward. Though the frequency range of the devices includes a number of

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restricted bands, the devices are permitted to operate in the entirety of the 1.705-10 MHz band pursuant to Section 15.205(d)(1), provided that they continuously sweep, and remain outside the restricted band segments 99 percent of the time the device transmits, without reference to duty cycle.

2. As to the maximum radiated emission limits under current regulations, intentional radiators are generally permitted field strengths of not more than 30 uV/m measured at 30 meters on frequencies between 1.705 and 30 MHz, according to Section 15.209 of the Commission's Rules (47 C.F.R. §15.209). The Checkpoint anti-pilferage devices are, however, subject to a limited exception for certain intentional radiators specified in Section 15.223 of the Rules (47 C.F.R. §15.223) which permits maximum radiated emissions of 100 uV/m measured at 30 meters, provided that certain bandwidth minima are met, for operation in the band 1.705-10 MHz. *Operation of any intentional radiator on frequencies between 10 and 30 MHz is limited to 30 uV/m measured at 30 meters.* This would include the Checkpoint swept field disturbance sensors. Conducted emissions are limited to 250 uV/m throughout the band 450 kHz to 30 MHz, per Section 15.207 of the Rules (47 C.F.R. §15.207).

3. Checkpoint, therefore, requests that it be permitted to operate its swept field disturbance sensors at ten times the current permitted field strength between 1.705 and 10 MHz, and 33.3 times the current maximum radiated field strength permitted under Part 15 rules.

4. There is some history behind the field strength limitations for anti-pilferage devices. In 1977, the Commission issued a *Report and Order* in Docket 20620, 65

FCC 2d 802 (1977), establishing maximum radiated emissions and other regulations regarding wide-band swept RF equipment used as anti-pilferage devices. The Commission had proposed in that proceeding that such devices be limited in radiated emissions to field strength of 50 uV/m at 30 meters within the bands of operation specified, with all emissions outside those bands to be limited to 5 uV/m at 3 meters. Comments in that proceeding, including those of Checkpoint, sought higher field strengths. Checkpoint, in particular, requested a field strength of 100 uV/m at 30 meters. Other entities, including Schlage, supported that field strength limit. The Commission found that a field strength of 100 uV/m measured at 30 meters can be considered to be acceptable and not likely to cause interference to licensed radio services. It noted that the devices operate on a non-interference basis to licensed services, and in the event of interference, it would be local to the interfered service and thus identifiable and correctable.¹ At that time, the frequency sweep for these devices was limited to 1.7-2.3 MHz, 4.05-4.95 MHz, and 7.4-9.0 MHz, and thus included only the amateur 1.8-2.0 MHz band.

5. In 1989, the Commission rewrote the Part 15 regulations, but did not change significantly the rules governing swept field disturbance sensors at 1.705-10 MHz, or those operating at 10-30 MHz. It believed that the rules governing field strengths of swept field disturbance sensors were adequate and did not pose a significant interference threat to licensed radio services such as the Amateur Service. *See, the*

¹ The source of that conclusion is not provided, and the conclusion is difficult to follow, given the skywave propagation at HF frequencies and the low signal levels used for licensed communications in the MF and HF bands.

First Report and Order, 4 FCC Rcd. 3493 (1989) in Docket 87-389. Of the general limits on radiated emission limits for intentional radiators (30 uV/m at 30 meters), the Commission stated:

The limits proposed were based on our experience as to the level that could be permitted without undue risk of interference to authorized radio services.

4 FCC Rcd. at 3496.

6. In that proceeding, the League objected to the proposed field strength maxima, stating that its technical studies indicated that at frequencies below 30 MHz, the general radiated emission limit for Part 15 intentional radiators would create an interference area ranging from 78 meters (at 14 MHz) to 102 meters (at 28 MHz). The Commission noted similar comments, and similar studies, regarding Part 15 interference to shortwave broadcast receivers, land mobile receivers and domestic broadcast receivers. It suggested that the record showed that the proposed radiated emission limits were appropriate:

We continue to believe that the proposed general radiated emission limits are appropriate for guarding against interference to authorized services by Part 15 services. The limits for emissions between 1.705 and 30 MHz will provide essentially the same protection to authorized services as the existing rules. We observe that part 15 devices are already permitted to operate in the 1.705-10 MHz band at higher limits without known interference problems to the authorized radio services. We also believe that interference distances calculated by the League and others for frequencies below 30 MHz are overly optimistic and that the actual potential for interference from Part 15 devices is significantly less. This is due to the high background noise levels and the large number of authorized high power stations below 30 MHz. In this regard, we note that the majority of Part 15 devices operating on the frequencies between 1.705 and 30 MHz are field disturbance sensors for control of entry into buildings or tag sensors for deterring shoplifting that have an effective range of a few feet and normally are used in buildings that

attenuate the range of the emissions. Thus, the risk of interference to shortwave broadcasts and ARS transmissions by Part 15 devices operating below 30 MHz at the new emissions levels appears to be very low.

4 FCC Rcd. at 3497.

7. Given the foregoing, it is incorrect for Checkpoint to claim that the Commission did not in 1989 consider "whether there was a need to relax the technical restrictions on the operation of anti-theft equipment in the 1.705-30 MHz band." (Checkpoint Petition at 5). That is *exactly* what the Commission did consider, and it found the 100 uV/m radiated emission level at 1.705-10 MHz and 30 uV/m level at 10-30 MHz for these devices to be a reasonable balance between flexibility for unlicensed intentional radiators and protection of licensed services against interference. Checkpoint's instant petition is completely devoid of any technical justification for the proposed exponential increase in power to 1 *millivolt* per meter, measured at 30 meters.

8. In fact, what Checkpoint is seeking to do is to permit increases in the separation of the exit "gates" in these swept HF field disturbance sensors, and thus increasing their marketability (relative to newer technology at 900 MHz which already accommodates wide gates) without making them non-functional. Contrary to Checkpoint's representation, however, it is not just inside shopping malls and in interior doorways that these devices are used. Rather, they may be expected at exit doors of stores or warehouses² proximate to residential areas, and in areas where

² Checkpoint's Petition, at 8, specifically makes reference to "warehouses and distribution centers" which cannot use Checkpoint's system due to the gate

there would be no significant attenuation at all. Nor is it a sufficient answer to concerns about significant, regular interference to amateur HF operation that walls and buildings will attenuate signals. Finally, it is not possible in most cases to identify the source of interference to an HF receiver where the signals carry no identification, they consist of noise, and are swept continuously. Finally, even if the devices were identified by a radio user as a source of significant interference, the Commission cannot be relied upon to take any enforcement action with respect to it, and neither the user of the device nor Checkpoint has any incentive whatsoever to resolve the interference complaint. The fact is, interference has to be prevented by the rules governing Part 15 devices prior to sale, because once the devices are in place, post-installation interference resolution, or cooperation in the same by a Part 15 device user, is unlikely in the extreme.³

9. The Checkpoint Petition claims that since 1977, when the limits for such devices were established, there have been "continuous refinements in technology" (*Petition, at 7*) which allegedly have "made it possible to reduce even further the risk of harmful interference" but the reader is left to wonder of what those refinements

requirement. However, there is no representation, and there cannot be, that other manufacturers' systems, which incorporate newer technology, could not be substituted for the older Checkpoint system.

³ The Commission noted this in its revision of the Part 15 rules in 1989. It stated that the interference potential of Part 15 devices below 30 MHz is controlled principally by the limit placed on conducted emissions. The Commission considered higher limits, but decided that the level adopted was sufficient to permit development of cost-effective Part 15 products, and at the same time limit interference to licensed users. 4 FCC Rcd. at 3496.

consist, and how they might reduce interference. The fact is, this is not new technology that is being proposed; it is old technology at higher field strengths, with no refinements whatsoever. The rule changes are unnecessary in view of newer technology devices, which operate at much higher frequencies and do not require the signal strengths that the Checkpoint HF system does. Neither do the newer systems operate in bands that are heavily used by amateur radio operators. Checkpoint also notes an increase in ambient noise in commercial establishments, and suggests that this is a justification for escalation of that noise by the proposed radical increase in RF fields by the swept field disturbance sensors of Checkpoint. However, ambient RF only impairs RF anti-pilferage devices, which constitute antiquated technology at present. The fact is, nothing has changed in the past 20 years that would reduce the interference potential of these devices to licensed radio services such as the Amateur Service, and nothing has changed that necessitates the further increases in radiated or conducted RF fields requested by Checkpoint. As Checkpoint itself notes at page 9 of its Petition, ambient RF was acknowledged to be the problem that led to the significant power levels permitted for such devices then. 65 FCC 2d at 804. There is no evidence offered whatsoever that would tend to show that ambient noise has increased to the point that further increases in radiated emission levels are justified. If power increases are justified on that basis, in any case, it is a problem that feeds upon itself, and the same was noted in 1989 in the Part 15 rewrite proceeding.⁴

⁴ See, 4 FCC Rcd. at 3497, 3502, and 3503.

10. Checkpoint claims that other countries have relaxed or no limits on radiated emissions from unlicensed intentional radiators in HF frequencies. Its cites a 1994 *Interim European Telecommunication Standard, 7.2.1.3*, prepared by the European Telecommunications Standards Institute (ETSI), a voluntary standards setting organization, for the proposition that such devices operating between 4.78 and 30 MHz should be allowed to operate at or approximately 1,000 uV/m measured at 30 meters. However, as far as the League can determine, no national regulatory authority in Europe or otherwise, has adopted the standard, and in fact, it is a temporary standard in any case. Furthermore, because of the apparent rejection of the ETSI standard, ETSI has drafted a new final standard which has been circulated for comment, that contains radiated emission levels remarkably similar to that of the Commission's current limitations. The League has reviewed a copy of that standard (*Working Draft pr ETS 300 330, Reference RE/RES-08-0108, May, 1997*) but has not attached the same hereto for copyright reasons. The interim ETSI standard was apparently the only basis for the radically high radiated emission levels proposed by Checkpoint. Since the citation of the ETSI interim standard is baseless, there is no technical basis whatsoever for the Checkpoint Petition.

11. Neither is there any justification whatsoever for any increase, much less an increase from 250 uV/m to 3,000 uV/m, in conducted emissions from these devices. Nor, since the conducted emission levels often determine interference potential, can the Commission proceed further with this petition absent some indication of the interference potential of these devices to licensed radio services.

12. Finally, the Petition fails to take into account the increases in use of the HF amateur allocations in the interim between 1977, when the radiated emission levels for the Checkpoint device was increased, and the present time. In 1978, for example, there were approximately 350,000 amateur licensees authorized to utilize the HF amateur bands. In 1997, the number of such licensees has increased to 550,000. The interference potential of the Checkpoint devices to amateur stations has therefore increased significantly.

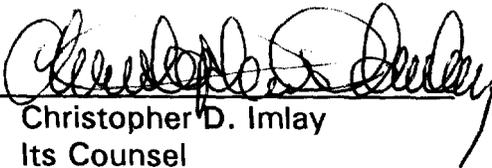
13. In summary, the Commission has been presented in this proceeding with a petition which asks for radical increases in authorized conducted and radiated emissions for unlicensed devices at HF frequencies which are extremely heavily used by radio amateurs, using exceptionally sensitive receivers and high-gain antennas. The purpose of the increase sought is exclusively to increase the marketability of one manufacturer's outdated technology rather than from any real necessity. Not only is the proposal technically baseless, it fails to account for the extremely high interference potential. This issue was adjudicated as recently as 1989, and there is no reasonable justification offered in the Petition for any change now. Finally, the petition is based on the simply bad policy of increasing RF emissions of Part 15 devices as a means of combatting alleged increases in ambient noise levels. Such escalation is at the expense of licensed radio services, such as the Amateur Service, which depends heavily on the HF bands for reliable communications on a 24-hour per day basis, 365 days per year.

Therefore, because the Petition fails the test of Section 1.407 of the Commission's Rules, in that it does not contain sufficient justification to commence a rulemaking proceeding, the American Radio Relay League, Incorporated respectfully requests that the Petition be dismissed without further action.

Respectfully submitted,

**The American Radio Relay
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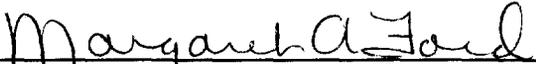
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June 16, 1997

CERTIFICATE OF SERVICE

I, Margaret A. Ford, Office Manager of the law firm of Booth, Freret Imlay & Tepper, P.C., do certify that copies of the foregoing Comments of the American Radio Relay League, Incorporated were mailed this 16th day of June, 1997, via U. S. Mail, postage prepaid, first class, to the offices of the following:

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