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August 12, 1994

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

EX PARTE

William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

Re: PR Docket No. 93-61
Automatic Vehicle Monitoring Systems

Dear Mr. Caton:

On Friday, August 12, 1994, a copy of the attached letter was delivered to Richard B. Engelman, Chief, Technical Standards Branch of the Office of Engineering and Technology, as well as to the Commission personnel listed at the end of the letter.

Two copies of this letter are being submitted to the Secretary of the Commission pursuant to § 1.1206(a)(1) of the Commission's Rules.

Please contact the undersigned if you have any questions or require additional information concerning this matter.

Sincerely yours,

Henry M. Rivera

Henry M. Rivera

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Richard B. Engelman
Chief, Technical Standards Branch
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Office of Engineering and Technology
Federal Communications Commission
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Re: PR Docket No. 93-61
Automatic Vehicle Monitoring Systems

Dear Mr. Engelman:

On Wednesday, August 3, 1994, you telephoned the undersigned as counsel for Metricom, Inc. and Southern California Edison Company. You explained that the Staff of the FCC's Office of Engineering and Technology was contacting various parties in the above-referenced proceeding to receive feedback on an informal OET Staff plan which attempts to resolve various issues in the proceeding. You said that you wanted a written response to this verbal proposal no later than August 12. The following is submitted on behalf of our clients in response to your telephone call.

Our understanding of the informal proposal is as follows:

I. The Band Plan:

902-904 non-multilateration systems

904-910 multilateration systems

910-920 non-multilateration systems (the Staff is also considering multilateration systems in this band)

920-926 multilateration systems

926-928 non-multilateration systems

902-928 Part 15 devices, provided, however, that in the two 6 MHz allocations, special rules, or "thresholds," would apply to the operation of Part 15 devices for

> purposes of attempting to identify the party primarily responsible for resolving interference to LMS operations. In the 10 MHz allocation, the Commission is considering a plan whereby the thresholds would not apply if multilateration systems were using the band, and the multilateration systems would not be awarded a hierarchical status over Part 15 devices.

[Note: You stated that the Staff believes this plan should not present a problem for Part 15 operations because the non-multilateration systems apparently do not cause interference to, or receive interference from, Part 15 devices.]

II. Interference

Part 15 devices must accept interference from LMS operations.

If multilateration LMS systems operating in the two 6 MHz allocations experience harmful interference from Part 15 devices, Part 15 operators are responsible for resolving the interference if the Part 15 devices cross the following thresholds:

A. The Part 15 device is using outdoor antennas which are more than 5 meters above ground; or,

B. The Part 15 device is using equipment that does not meet the June, 1994, Section 15.247(b) rules regarding antenna gain;

C. The Part 15 device is a field disturbance device operating pursuant to Section 15.245 of the rules.

Resolution of interference can be by negotiation; crossing a threshold does not automatically mean that Part 15 devices must immediately cease operation.

BACKGROUND

Our clients continue to firmly believe that if Part 15 devices and LMS are to develop to their full potential, both cannot co-exist in the 902-928 MHz band. Our clients are on record indicating that Part 15 operations will cause harmful interference to the vast majority of multilateration systems. Therefore, if

Section 15.5 of the rules were applicable to the new LMS service, multilateration systems would have the right to terminate Part 15 operations. If this were not a real concern to our clients and the rest of the Part 15 community, the time, energy and expense that have been devoted to this proceeding would never have been undertaken.

The wideband LMS proponents go to great lengths to attempt to demonstrate that Part 15 will not cause harmful interference to their LMS operations. However, the record is clear and convincing that the wideband LMS proponents do not really believe this and, based on the Staff's informal proposal, neither does the Staff. If the wideband LMS proponents were not concerned about interference from Part 15, they would accept the proposition that Part 15 operations be deemed not to cause interference to LMS operations. This, the LMS proponents will not do. As for the Staff's informal proposal, if the Staff believes that Part 15 will not cause harmful interference to LMS operations, there is no need for the proposed thresholds. It is difficult to understand why the Staff is attempting to establish a new service that it knows will receive harmful interference from an existing service.

In addition, the Staff's informal proposal contains no recognition or discussion about the potential for interference from LMS to Part 15 operations. Any proposed solution to the Part 15 and AVM/LMS problem is no solution unless it deals with both harmful interference to Part 15 from AVM/LMS, and harmful interference to AVM/LMS from Part 15.

LMS is a new service. It is proposed to operate in a part of the spectrum which is shared by various radio technologies. As such, it must be carefully considered. This proposed new multilateration LMS is not a good spectrum sharer. Multilateration LMS cannot share well with existing Part 15 devices operating in the band and, in fact, it cannot even share with the same licensed service -- it needs an exclusive allocation.

Reduced to its essence, what the Staff is proposing to do is to place a licensed service that requires an exclusive allocation (the most restrictive situation) into an unlicensed, shared band (the least restrictive situation). Such a proposal appears to turn the Commission's spectrum allocation policies on their head. Despite the concerns expressed by our clients and other Part 15 interests throughout this proceeding, if the Commission believes that it will serve the public interest to create LMS in some form similar to your informal proposal, our clients offer the following comments, without prejudice to their established position in the

record of this proceeding, and their right to pursue all of their legal remedies relating to this proceeding.

COMMENTS ON THE INFORMAL PROPOSAL

1. Introduction. The Administrative Procedure Act requires additional Notice and Comment in this proceeding if the Commission is to adopt rules similar to those in the informal proposal. It is virtually impossible to comment on a verbal proposal raising substantial new issues, without an opportunity to study a written proposal, and in only nine days in August.

Any LMS rules must be structured so that LMS operations do not significantly impair existing Part 15 operations. This is not a case where our clients are requesting additional prerogatives. This proceeding is about a new service, and our clients are commenting on the parameters of that new service in order to minimize the potential for harmful interference to both the new service and the existing Part 15 services.

2. No Harmful Interference to LMS From Part 15 Devices. The Commission must ensure that there continue to be equal opportunities for all users of this shared band, and that the best and most efficient technology is encouraged in this shared band so that regulatory intervention is not necessary to protect an inferior service. To achieve this goal, the Commission should specify in any LMS rules adopted that it will not consider any interference to LMS operations from Part 15 devices to constitute harmful interference. Despite the Part 15 industry's concerns, the wideband LMS proponents are on record numerous times indicating that Part 15 harmful interference is minimal, at most. Therefore, there should be no concern by either the Commission or LMS proponents about Part 15 operations causing harmful interference to multilateration systems.[1/]

[1/] Moreover, with respect to the proposed band segmentation, it would be a serious mistake for the Staff to believe that the interference problems associated with multilateration LMS systems can be resolved by confining the operation of such systems to discreet, but significant, portions of the band (i.e., 904-910 MHz and 920-926 MHz) without specifically dealing with the interference problem. Segmentation of the band does absolutely nothing to resolve interference problems from the millions of Part 15 devices which currently operate throughout the entire 902-928 MHz band. Moreover, the proposal would lead to the rapid deterioration of the

(continued...)

3. No Wideband Forward Links. While the Teletrac-type multilateration systems' forward links do not appear to pose a serious interference threat to Part 15 operations, the Pinpoint-type operations with wideband forward links do pose a significant potential for interference to Part 15 and other operations in the band. Pinpoint has not demonstrated exactly why a wideband forward link is necessary to its operation. Our clients believe that prohibiting wideband forward links will not impact the functionality of any multilateration systems because the forward link is essentially a paging channel and it does not play a part in the actual location function.

4. Narrowband Forward Links. Narrowband (no more than 25 kHz) AVM/LMS forward links should be permitted only between 927.500 and 928.000 MHz. Locating these forward links at the upper edge of the band will make them easier to avoid. Locating the forward links at the upper band edge will not unduly restrict other sharers of this band because there are already paging operations at 929 MHz, and 902-928 MHz band users have to design their equipment to tolerate those high power signals near the band edge.

5. Reverse Link Limits. It will be necessary to develop power limitations and duty cycle limitations for the LMS reverse (i.e., mobile) links. Because these reverse links are wideband transmissions, some limits must be placed on their operations so that they do not negate the possibility of Part 15 devices being able to share the band.

6. No Thresholds For Part 15 Should Be Established. The proposed thresholds present several problems. First, establishing thresholds on Part 15 operations makes Part 15 operate like a licensed service. This is antithetical to the philosophy underlying the creation of an unlicensed service. If a Part 15 operator is faced with location-sensitive limitations on its operations,

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[1/] (...continued)
band in the future because the potential for spectrum overcrowding in the band will, almost immediately, force Part 15 manufacturers to cease producing unlicensed products which operate in the band. These issues were previously addressed by our clients in their formal comments.

In any event, in order to permit the continued operation of field disturbance sensors, the 902-905 MHz band should not include any AVM/LMS operations. The field disturbance sensor manufacturers and users have already moved once to avoid interference with AVM operations.

then each location must be scrutinized as if it were a licensed location. This is particularly difficult because of the mobile nature of many Part 15 devices, and the lack of any definitions in the Part 15 rules relating to mobile or fixed operations.

Location-sensitive limits placed on Part 15 operations will immediately increase the administrative, overhead and engineering costs of Part 15 operations. Therefore, the relatively inexpensive nature of Part 15 operations, a major consumer benefit and one which has made them so popular, is eliminated, and demand for the service will be significantly impacted.

Moreover, thresholds will create potentially insurmountable administrative, enforcement and legal burdens for the Commission. The major problem facing the Commission will be how to identify which signal, assuming there is only one, is actually causing the alleged harmful interference to AVM/LMS operations when there are thousands of Part 15 devices, many of which are sporadically operated and nomadic, operating in the area. Just because one device is operating "above the threshold" does not mean that it is that particular device which is, in fact, causing the harmful interference. If the Commission assumes that the "above the threshold" device is the device causing the problem and orders that device to cease operation, then there appear to be serious questions of arbitrary and capricious action and due process of law issues raised by the Commission's application of the rules; it is submitted that such Commission action would not withstand judicial scrutiny.

There should be no above ground height restrictions (thresholds) on Part 15 outdoor antennas. In addition to the reasons stated above, this particular threshold is meaningless in a technical sense as it fails to consider terrain and surrounding natural and man-made structures. For example, an antenna which is only 5 meters above the ground at a height of 1,000 feet above average terrain would have a much greater potential for causing interference to LMS operations than an antenna which is 50 feet above ground at 0 feet above average terrain; or, the signal from "indoor" antennas located several stories above ground "in" a parking garage or inside a building next to a window would similarly have the potential to cause more interference than an "outdoor" antenna located 5.1 meters above the ground. (If the Staff is indicating that each Part 15 antenna location will have to be analyzed, then such action would modify the Part 15 rules.)

Another serious problem which presents itself is how the Commission would deal with a device such as a cordless phone or a

bar code reader being operated from an "outside" location when the antenna is more than 5 meters above the ground in a multi-story building and there is alleged interference to an LMS system. Would the Commission limit the operation of these devices to outside locations which are less than 5 meters above the ground? In the case of alleged harmful interference to an LMS system, how could the Commission allow the operation of some devices outside above 5 meters, and not the operation of others?

In addition, the Commission must consider that this meaningless outdoor antenna height above ground threshold could have a devastating impact on a significant portion of the Part 15 industry for no discernable reason. Many Part 15 operations depend on outdoor antennas transmitting at heights more than 5 meters above ground. To limit these operations could cause the demise of many Part 15 services which are currently being provided in the public interest. This is true even though not all outdoor antennas would be affected. It is not possible to develop and operate a business when a necessary component of the service may not be offered at arbitrary times and places. This would cast a severe chilling effect on all operations.

One final point with relation to thresholds involves the alleged "threshold" concerning Section 15.245 Field Disturbance Sensors. As proposed, this is not a threshold at all because it is an outright prohibition on field disturbance sensor operations. For the same reasons stated above, this proposal would have a severe chilling effect on the entire field disturbance sensor industry.

CONCLUSION

Metricom and Southern California Edison hope that the foregoing comments on the Commission's informal proposal will be helpful to the Commission in developing an expeditious and sustainable resolution of this Rule Making proceeding.

Respectfully submitted,

Henry M. Rivera/LSS

Henry M. Rivera
Larry S. Solomon
Counsel to
Metricom, Inc.
Southern California Edison Company

cc: Chairman Hundt
Commissioner Quello
Commissioner Barrett
Commissioner Ness
Commissioner Chong
Ralph Haller
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