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

In the Matter of	)	
	)	
Amendment of Parts 2 and 90 of the	)	**ET Docket No. 98-95**
Commission's Rules to Allocate the	)	**RM-9096**
5.850-5.925 GHz Band to the	)	
Mobile Service for Dedicated Short	)	
Range Communications of Intelligent	)	
Transportation Services	)	

To: The Commission

COMMENTS OF THE AMERICAN RADIO RELAY LEAGUE, INC.

THE AMERICAN RADIO RELAY LEAGUE, INCORPORATED
225 Main Street
Newington, CT 06111

BOOTH, FRERET, IMLAY & TEPPER, P.C.
5101 Wisconsin Avenue, N.W.
Suite 307
Washington, DC 20016-4120

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TABLE OF CONTENTS

SUMMARY

The American Radio Relay League, Incorporated, the national association of Amateur Radio Operators, submits its comments in response to the *Notice of Proposed Rule Making* (the Notice), 63 Fed. Reg. 35558, FCC 98-119, released June 11, 1998. The Notice proposes to allocate 75 megahertz of spectrum for use by Dedicated Short Range Communications ("DSRC") of Intelligent Transportation Systems ("ITS"), which would provide a short range, wireless link to transfer information between vehicles and roadside systems. The Notice also proposes basic technical rules establishing power limits and unwanted emission limits for DSRC operations, and seeks comment on, *inter alia*, the potential for DSRC operations in this band to share spectrum with other services. The interest of the Amateur Radio Service lies in the continued availability and use of the 5.850-5.925 GHz band for licensed amateur radio use.

The Commission has not adequately explored, or has not adequately explained its rejection of, alternative allocations for DSRC systems. The League does not oppose a reasonable allocation of spectrum for DSRC applications, and readily concedes the benefits of DSRC functions in the ITS architecture. However, it is not apparent on this record that an allocation of 75 MHz for DSRC, or any allocation at 5.9 GHz, is necessary at this juncture, given the short range applications of DSRC systems, the opportunities for frequency reuse that accompany it, and the availability of the 902-928 MHz band for some, though not all, DSRC functions. The European DSRC allocation at 5 GHz is only 10 MHz wide, and the wide disparity between that bandwidth and the claimed need for 75 MHz for unspecified future DSRC applications is inadequately explained by either ITS America or the Commission. Simply stating that the additional 65 MHz will accommodate future uses is untenable.

Notwithstanding the size of the proposed allocation, the proposed rules do not require use of "polite" protocols for DSRC systems. Any newcomer in a mature, multiple-use microwave band incorporating fixed and mobile uses, should be expected and required to utilize such protocols, or to conduct prior coordination with incumbent users. The League suggests that, if the Commission is inclined to make the extensive allocation proposed in the Notice, it should at the same time mandate either prior coordination between ITS America and the League, or otherwise restrict DSRC facilities to those which incorporate listen-before transmit protocols and frequency-agile transmitters with roaming channel selection.

In any event, viewing the 5 GHz amateur allocation as a whole, the Commission has largely disaccommodated the Amateur Service. Using ET Docket 94-124 as a model, the Commission should in any event elevate the remaining portions of the Amateur and Amateur Satellite allocation at 5.650-5.725 GHz and 5.825-5.850 GHz to non-government primary, to insure against future preemption by non-government services with higher allocation status.

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To: The Commission

COMMENTS OF THE AMERICAN RADIO RELAY LEAGUE, INCORPORATED IN RESPONSE TO NOTICE OF PROPOSED RULE MAKING

The American Radio Relay League, Incorporated, the national association of Amateur Radio Operators, by counsel and pursuant to Section 1.415 of the Commission's Rules (47 C.F.R. §1.415), hereby respectfully submits its comments in response to the *Notice of Proposed Rule Making* (the Notice), 63 Fed. Reg. 35558, FCC 98-119, released June 11, 1998. The Notice proposes to allocate 75 megahertz of spectrum for use by Dedicated Short Range Communications ("DSRC") of Intelligent Transportation Systems ("ITS"), which would provide a short range, wireless link to transfer information between vehicles and roadside systems. The Notice also proposes basic technical rules establishing power limits and unwanted emission limits for DSRC operations, and seeks comment on, *inter alia*, the potential for DSRC operations in this band to share spectrum with other services. In the interests of the Amateur Radio Service in the continued availability and use of the 5.850-5.925 GHz band for licensed amateur radio use, the League states as follows:

I. Introduction

1. As the Commission notes, the League submitted extensive comments and reply comments in response to the petition for rule making (RM-9096) filed May 19, 1997 by ITS America, which formed the basis for this proceeding. The Commission has reasonably summarized the League's position at paragraph 10 of the Notice, as follows:

> However, some parties with interests in this band question whether the allocation of the 5.850-5.925 GHz band is appropriate for DSRC applications. Specifically, the American Radio Relay League, Inc ("ARRL") claims that alternatives to this band have not been adequately explored and urges that frequencies above 40 GHz ("millimeter wave frequencies") are largely undeveloped and also have short range capabilities. Additionally, ARRL argues that millimeter wave frequencies provide significant frequency reuse capability, and DSRC applications in those frequencies would not receive interference because of the current dearth of commercial users in that spectrum. The ARRL also claims that the 5.850-5.925 GHz band is necessary for the future development of amateur wideband digital transmissions and video. It also states that, of the 275 megahertz of spectrum allocated to the amateur service in the 5.8 GHz range, 175 megahertz would be rendered significantly less useful to amateurs by ITS America's proposal in combination with our recent decision to allow unlicensed National Information Infrastructure ("U-NII") devices to operate in the 5.725-5.825 GHz band.[1] Additionally, ARRL argues that the DSRC spectrum allocations being considered in Europe and Asia operate on spectrum below 5.850 GHz and, thus, are not consistent with the allocation proposed in the Petition despite ITS proponents' contention to the contrary...

Furthermore, the League's position was that, while there certainly had not been demonstrated by ITS America any need for the allocation of 75 MHz of spectrum for DSRC applications, if there is to be an allocation for DSRC in the 5.850-5.925 GHz band, it should be wide enough to permit flexible channelization to avoid interference to and from incumbent and future Amateur operation in that band, to permit compatible, preferably coordinated, sharing.

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[1] *See Report and Order*, ET Docket No. 96-102, 12 FCC Rcd 1576 (1997).

2. Finally, the League argued that, though DSRC applications may not necessarily be incompatible with incumbent and future amateur use of the spectrum, and notwithstanding the fact that ITS America reassures all concerned that there is such compatibility, the record in this proceeding to date was insufficient to demonstrate such. Furthermore, no one has explored the impact on secondary Amateur use of the band if DSRC facilities are permitted to operate on a primary basis. Indeed, the Minnesota Mining and Manufacturing Company (3M) takes the position that the public safety nature and Part 90 status of this allocation implies that those operations will need to be interference free, and that secondary amateur operations will have to be removed from this band. The League argued that, if 3M is correct that DSRC public safety applications would be susceptible to interference from incumbent and future amateur operations, then a proposed DSRC allocation was unsuitable for bands below 6 GHz, which are fully allocated presently. The League noted that it is ready to work with ITS America and other ITS entities to resolve spectrum sharing issues, but until this issue is resolved any Commission action is premature.

3. The Commission is statutorily obligated now to make provision for ITS spectrum allocations, including DSRC operations, pursuant to the Transportation Equity Act for the 21st Century.[2] Section 5206(f) of this Act requires that "[t]he Federal Communications Commission shall consider, in consultation with the Secretary, spectrum needs for the operation of intelligent transportation systems, including spectrum for the dedicated short-range vehicle-to-wayside wireless standard. Not later than January 1, 2000, the Federal Communications Commission shall have completed a rulemaking considering the allocation of spectrum for intelligent

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[2] *See*, the Transportation Equity Act for the 21st Century, Pub. L.105-178, signed June 9, 1998.

transportation systems." The Commission has designated this proceeding as its vehicle for meeting the statutory requirements and deadline.

4. It remains to be determined, however, whether this band, at 5.850-5.925 GHz is the proper location for location-dependent DSRC systems, and if so, whether a primary DSRC allocation is compatible with incumbent users. The Commission's proposal places the Amateur Service in a position of having to accommodate any and all DSRC systems in the band (due to the secondary allocation status of the Amateur Service in that segment). Therefore, the issue of compatibility, and the related issue of alternative allocations, each deserve far more than the cursory assumptions made without any technical evaluation by the Commission, reflected in the Notice.

II. Less Burdensome Alternatives to the 5.850-5.925 GHz Allocation For DSRC Operations Have Been Inadequately Evaluated

5. It is understood that recently, the Commission became statutorily obligated to make spectrum available for DSRC operations. The Commission notes claims by ITS America that there is insufficient capacity at 902-928 MHz for all DSRC functions, and given the generic classification of these systems, the argument is not difficult to make that some additional spectrum is required. However, the Commission has apparently made no qualitative analysis of the extent of that incapacity, and simply adopts the conclusion of ITS America that additional spectrum is required. There are admittedly current, operational DSRC toll collection functions in the 902-928 MHz band, and the ITS national plan and architecture substantially incorporates use of existing communications infrastructure.[3] There is no quantitative analysis of the need for

[3] Notice, at 5.

the full 75 MHz of spectrum at 5 GHz proposed by the Commission in the record, as far as the League can determine. The ARINC report concludes that this amount of spectrum is required due to 5 to 10 MHz bandwidths of some experimental devices, and to support future systems. Yet, the Notice, at paragraph 14, states that the Commission doubts the claim that 6 MHz channels are necessary for DSRC applications, especially in the rapidly advancing age of digital communications. Furthermore, the Commission found unconvincing the proposals for use of active transceivers requiring wide bandwidth channels in terms of spectrum efficiency. It thus requested comment on whether the proposed allocation is excessive given that efficient spectrum use techniques exist and in view of the Commission's goal of promoting spectrum efficiency.

6. The League has suggested in its prior comments an alternative to use of the 5.850-5.925 GHz band, which is the use of bands above 40 GHz, where ample bandwidth exists for DSRC uses, and where there are not potentially incompatible incumbent users. The Commission states, rather tentatively, that "we believe that the development of DSRC equipment for the emerging millimeter wave band, as suggested by ARRL, might increase considerably production costs."[4] That conclusion, however, has absolutely no factual underpinnings, and prior to summary rejection of the suggestion, the cost differential should be analyzed. The benefits of a DSRC allocation above 40 GHz are obvious: (1) there is ample spectrum for current and emerging DSRC technology; (2) there are few Government and non-government incumbent users, and therefore there is far less potential for interference to and from other services; and (3) while some equipment operated in that band may involve increased equipment costs over the cost of equipment for 5 GHz, this is offset by the increase in frequency reuse and the wider

[4] Notice, at 8.

bandwidths available. If, as 3M would suggest, certain DSRC functions involve public safety communications, such as road condition information and railroad crossing warnings, the added safety resulting from the reduced interference potential of the bands above 40 GHz would seem to justify a small increase in production costs of equipment.

7. The League has stated throughout this proceeding that it does not oppose new allocations for DSRC functions, and it does not question the public interest justification for such. What has been puzzling thus far, however, is the issue of compatibility between incumbent amateur facilities at 5.850-5.925 GHz and DSRC uses. Because that issue has not been adequately evaluated,[5] the Commission should either mandate the testing that ITS America representatives offered to conduct in order to determine potential incompatibility, or choose an alternative allocation that will not suffer the possibility of incompatible sharing and interference to public safety communications. As the League has previously stated, it is not clear that there is a compatibility problem at 5 GHz between amateur stations and DSRC functions, but neither

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[5] The League's July 28, 1997 comments in response to the ITS America Petition stated in part as follows:

> ITS America asserts at page 50 of its Petition that representatives of the Federal Highway Administration and ITS America are "currently working" with the League's representatives to examine jointly any potential interference issues between amateurs and DSRC-based systems. That is partially correct, and the League hopes that empirical testing of DSRC devices and typical amateur station configurations will begin shortly. To date, League representatives have indeed met with ITS America representatives and agreed to pursue technical studies and tests of compatibility. That one meeting has been the extent of the matter to date, though the ITS America representatives have exhibited good faith and pledged cooperation, and the League looks forward to the conclusion of compatibility testing before the Commission concludes the public comment period on any Notice of Proposed Rule Making premised on the instant Petition.

Unfortunately, there has been no further communication from ITS America since prior to May of 1997. The referenced meeting between ITS America representatives and League representatives took place *prior* to the filing of the ITS America petition in May of 1997. Despite the League's offer of its laboratory staff and resources to conduct the testing, no such compatibility testing has occurred and none is scheduled. The League remains willing and able to accommodate ITS America, and would like to resolve this issue to the extent possible without further delay. If ITS America is serious about working with the League, however, it should have pursued the matter long before now.

is the League willing to have radio amateurs exposed to allegations of interference, where the interference will have adverse public safety implications. Therefore, to the extent that an allocation for DSRC systems above 40 GHz would avoid the issue entirely, and because the cost implications of that alternative are not shown to be a significant obstacle,[6] the League suggests either that the DSRC allocation be entirely above 40 GHz. Alternatively, the Commission should allocate a segment considerably less than 75 MHz at 5 GHz for non-safety based DSRC functions, and as well allocate a larger segment above 40 GHz for those DSRC functions that have public safety implications, such as emergency vehicle signal preemption, in-vehicle signing, and highway-rail intersection warning systems. This alternative can hardly be argued to impede the development of DSRC systems, because in Europe, the band allocated for DSRC operation, 5.795-5.805 GHz, selected by the *Committee Europeen de Normalization* (CEN), the governing body for European Telecommunications Standards, is only 10 MHz wide. It accommodates two, 5 MHz channels and short frequency reuse distances.

8. The League continues to believe that the Commission has inadequately evaluated spectrum alternatives to a 5 GHz allocation for DSRC. There are alternatives that solve the compatibility problem, and at the same time might accommodate some compatible sharing of a portion of the 5 GHz proposed allocation. It is understood that the Commission has a statutory deadline for firming up an allocation for DSRC systems, but that is no reason why less burdensome alternatives should be rejected without full consideration.

III. Compatibility and Coordination Issues

9. The Commission makes the assumption that the Amateur Service can accommodate

[6] It is noted that vehicular anti-collision radars are already being implemented in bands above 60 GHz worldwide, and cost is not an apparent obstacle to the development of such systems.

DSRC functions without causing interference to those systems, which may be a reasonable assumption, provided that advance coordination of DSRC operations is conducted. However, the Notice makes no reference to interference to amateurs, relying on the fact that the Amateur Service, as a secondary service in that band, would not be entitled to any interference protection from DSRC systems. The Notice, at paragraph 22, states as follows:

> We also note that the secondary amateur radio allocation which overlaps the band requested by ITS America appears to be lightly used. We acknowledge that amateur operations are permitted to operate at up to 1.5 kW PEP (footnote omitted) output with high gain antennas which could interfere with DSRC receivers if operated on similar frequencies in the same geographic area. Nevertheless, amateur operations have access to 275 megahertz in the 5.650-5.925 GHz band and we believe any amateur use of the 5.9 GHz range could be engineered to avoid DSRC operations. Also, amateurs may be able to continue use of these frequencies in rural areas where DSRC applications may not be extensively deployed. We anticipate that any interference problems that may develop between amateur stations and DSRC operations could be resolved by changing the frequency of the amateur operation in order to protect primary status operations or by other engineering techniques, such as power reduction or directional antennas.
>
> Accordingly, we tentatively conclude that DSRC-based ITS services can share spectrum with incumbent operations in this frequency range. We request comment on this issue and solicit further analysis of the spectrum sharing potential between DSRC-based operations and the incumbent use of the 5.850-5.925 GHz band.
>
> Finally, even with the apparent compatibility of DSRC applications with the existing operations in this band, we believe it is necessary to outline an order of responsibility in resolving interference problems, if they occur...Finally, secondary amateur operations would not be permitted to cause harmful interference to primary licensed operations in this frequency range. Nonetheless, to the extent that DSRC applications may operate on an unlicensed basis under Part 15, they would be required to avoid causing interference to and cannot claim interference protection from all operations with secondary and primary allocation status. We request comment on this issue and encourage suggestions for alternative approaches.

10. Taking these issues in order, the Commission may assume that current amateur use

of the 5.850-5.925 GHz segment is "light" in many areas of the country, though there is no record evidence of the extent of amateur loading in that segment. At the same time, however, it is unfair to compare current amateur uses of spectrum with future DSRC requirements. The only equitable evaluation of spectrum use for allocation decisions is future amateur uses versus future DSRC uses. Nonetheless, currently, the Amateur Service makes extensive use of the 5.850-5.925 GHz segment on the west coast for a microwave network used in emergency communications. It is used for linking lower-frequency amateur networks and for packet data transmissions over significant distances. In northern California, this system was linked to the California state Office of Emergency Services, and used in connection with the Loma Prieta earthquake disaster relief efforts and the Oakland fires. It has been in use since 1974. The investment in these systems on the part of amateurs is significant, and it is not frequency agile, since much equipment is converted from 6 GHz commercial systems, and because duplex operation requires significant frequency separation between transmit and receive frequencies. In the event that DSRC systems are permitted in the 5 GHz band, and to the extent that they preclude continued operation of the northern California amateur microwave system or similar systems, the Commission must require that the DSRC licensees reimburse the amateurs involved for their investment in the system, since there would be no other means of recovering the costs thereof.

11. In the near future, the segment 5.850-5.925 GHz will become more heavily utilized by amateurs due to the addition of U-NII devices in the 5.725-5.825 GHz band, which will have the practical effect of displacing amateurs from the band near 5.75 GHz. These uses include weak-signal terrestrial communications, amateur television, satellite uplinks and downlinks, and

amateur television and data.

12. Amateur uses of the 5.8 GHz segment are not necessarily precluded by DSRC signals operated on a terrestrial basis at ground level, with downward-pointing directional antennas, at transmitter power levels of 750 mW and antennas with 16 dBi gain.[7] However, the aggregate interference potential of ubiquitous mobile devices is inevitably substantial, especially in metropolitan areas, where DSRC uses will be most intensive. Though amateurs in ITU Region 2 utilize an allocation of 275 MHz at 5 GHz, 100 MHz of that spectrum will be rendered less useful by U-NII devices, and much of the band is subject to severe interference from government radars and Part 18 devices. Since inevitably, the proposed allocation will result in significant reduction in use of the 5.9 GHz segment by radio amateurs, the Commission should make a more substantial effort to accommodate incumbent and future amateur uses than is made in the Notice. There are several means of doing this, and several models based on past allocation decisions involving amateur spectrum. The following assumes that the entire 75 MHz would be allocated to DSRC functions as proposed.

13. One configuration would be to permit DSRC operations only under Part 15 on an unlicensed basis, rather than on a Part 90 licensed basis. The Notice currently proposes to create an allocation for DSRC devices, and the proposed Appendix to the Notice assumes that the devices would operate as a Part 90 licensed system. They would, in any event, operate unattended, with relatively low power, over short ranges, incorporating (for fixed facilities) directional transmit and receive antennas. If DSRC devices were classified as Part 15 devices,

[7] See the Notice, at Appendix A, Section 90.371.

amateur operations in the band would be unencumbered, since Part 15 devices would not be entitled to interference protection and would not be permitted to cause such. The Part 15 configuration works well for systems incorporating low power transmitters on a mobile and fixed basis, in a band in which there are already numerous licensed services which can tolerate some interference. The 902-928 MHz band is an example of this allocation plan, in which services that do not require substantial interference protection share a band compatibly. The Amateur Service is able to share compatibly with part 15 unlicensed services in numerous contexts, due to regulations limiting Part 15 device power densities and antenna gain. Part 15 classification of DSRC devices would provide more flexibility to ITS service providers in installing these systems without licensing, and it would encourage design of devices with interference rejection capability. Incorporation of roaming channel selection by DSRC systems, and listen-before-transmit protocols would help to insure that these systems neither suffer, nor cause, interference to incumbent users. Indeed, that would be the only real justification of an allocation for DSRC of this magnitude.

14. If the Commission is inclined to permit operation of DSRC devices in the 5.9 GHz band on a licensed basis under Part 90, it is urged that DSRC system licensees, through ITS America, be required to coordinate proposed facilities and systems operation with the League, to facilitate interference avoidance and to maintain a joint database that will at least promote compatible sharing of the band. This concept was utilized with some efficiency in ET Docket No. 93-40, when amateurs were accorded a secondary allocation in the 219-220 MHz band, which was occupied by incumbent Automated Maritime Telecommunications Service (AMTS)

licensees.[8] Amateurs, through the League, and AMTS users, through Watercom, were permitted to share the band, premised on coordination and notification requirements involving both parties. If any public safety communications are to be conducted by DSRC systems in this band,[9] it is reasonable and prudent to impose a coordination requirement on DSRC systems to facilitate interference avoidance. The League is willing to undertake a cooperative, voluntary coordination effort with ITS America, and can make amateurs aware of the locations and frequencies of new Part 90 DSRC systems. An alternative to prior coordination and database management would be the use by DSRC systems of polite protocols, including listen-before-transmit, as discussed above.

IV. Reaccommodation of Displaced Amateur Systems

15. An additional, and by no means alternative, option for reaccommodating displaced amateur radio operations in the 5 GHz band was suggested by the League in its July 28, 1997 Comments on the ITS America petition (but ignored in the Notice). As the League stated in those Comments:

> The Commission, in ET Docket 96-102, amended Part 15 of the Rules to make available 300 MHz of spectrum, including 100 MHz at 5.725-5.825 GHz, for unlicensed equipment known as Unlicensed National Information Infrastructure (U-NII) devices (footnote omitted). These will provide short-range, high-speed wireless digital communications on an unlicensed basis. These include wireless local area networks (LANs) and access to the National Information Infrastructure (NII). These devices are limited in terms of range and power density, but they are ubiquitous devices, as would be the DSRC devices sought to be accommodated

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[8] See, the *Report and Order*, 10 FCC Rcd. 4446, at 4449 (1995).

[9] At page 84 of Appendix H to the ITS America petition (the ARINC study), the conclusion is that the 5.850-5.925 GHz band "would provide a protected place for DSRC applications, many of which are safety-critical or safety-enhancing, to operate."

by the instant Petition. Thus, of the 275 MHz of spectrum that is available to radio amateurs on a secondary basis, 175 MHz of that stands to be rendered significantly less useful to radio amateurs than heretofore, by the combination of the Commission's action in Docket 96-102 and the instant proposal.

As noted above, the segment 5.830-5.850 GHz is utilized for amateur-satellite downlinks. As well, the segment 5.650-5.725 GHz will be necessary to reaccommodate displaced weak-signal narrowband amateur uses from the range 5.760 GHz because of anticipated noise from the U-NII devices at 5.725-5.825 GHz, and portions of it are necessary for amateur-satellite uplinks now. Given the small residual segment between the upper end of the U-NII band and the lower edge of the proposed DSRC band, consisting of 25 MHz, and the critical nature of the 5.830-5.850 GHz segment to the Amateur-Satellite Service, the League urgently requests that, in any rulemaking proceeding based on the ITS America Petition, the Commission propose *at the same time* the amendment of the Table of Allocations domestically to make the Amateur Service and the Amateur-Satellite Service primary at 5.825-5.850 GHz (subject only to protecting Government Radiolocation from interference, and to received interference from Government Radiolocation, and from ISM devices operating under Part 18). Furthermore, the League requests that the Commission modify the Amateur and Amateur-Satellite allocation at 5.650-5.725 GHz to primary status. These actions are necessary to accommodate the reduction in utility that will result as a practical matter from the U-NII allocation and the proposed DSRC uses in the 5 GHz band, notwithstanding the retention of the amateur secondary allocations at 5.725-5.825 GHz and 5.850-5.925 GHz.

Id., at 10-11.

16. The Commission, in ET Docket No. 94-124, was concerned that there might be incompatibility between vehicular radars in the 76-77 GHz band and ongoing secondary amateur operation in that segment. Accordingly, it suspended amateur operation in that segment temporarily in order to determine compatibility over time. However, to offset any potential impact on Amateur Service operations resulting from that suspension, the Commission amended its rules to establish a co-primary allocation for the Amateur and Amateur-Satellite Services in the 77.5-78 GHz band, which amateurs had previously occupied on a secondary basis.[10] This

[10] See the *Third Report and Order*, FCC 98-150, released July 15, 1998, at paragraph 9.

was a reasonable means of minimizing the impact of addition of a new primary user into spectrum in which the Amateur Service was a secondary user. The same circumstances exist in this case. Though the Commission has not proposed to preclude amateur use of the 5.850-5.925 GHz segment, amateur use of that band will in fact be limited if the Notice proposal is adopted. A reasonable accommodation would be the elevation of the Amateur and Amateur-Satellite Services status in the 5.650-5.725 GHz and 5.825-5.850 GHz segments to non-government primary, to insure against future preemption by non-government services with higher allocation status. *The Commission should accomplish this in this proceeding, if necessary by further notice of proposed rule making, if it decides to proceed with the proposed 75 MHz allocation for DSRC systems at 5 GHz.*

V. Conclusions

17. The Commission has not adequately explored, or has not adequately explained its rejection of, alternative allocations for DSRC systems. The League does not oppose a reasonable allocation of spectrum for DSRC applications, and readily concedes the benefits of DSRC functions in the ITS architecture. However, it is not apparent on this record that an allocation of 75 MHz for DSRC, or any allocation at 5.9 GHz, is necessary at this juncture, given the short range applications of DSRC systems, the opportunities for frequency reuse that accompany it, and the availability of the 902-928 MHz band for some, though not all, DSRC functions. Since the European DSRC allocation is only 10 MHz, and since the wide disparity between that bandwidth and the claimed need for 75 MHz for unspecified future DSRC applications is inadequately explained by either ITS America or the Commission, simply stating that the additional 65 MHz will accommodate future uses is untenable. The Notice states that

the Commission disputes the need for the bandwidths claimed to be necessary, given advances in digital technology, but the full 75 MHz allocation is proposed nonetheless.

18. Notwithstanding the size of the proposed allocation, the proposed rules do not require use of "polite" protocols for DSRC systems. Any newcomer in a mature, multiple-use microwave band incorporating fixed and mobile uses, should be expected and required to utilize such protocols, or to conduct prior coordination with incumbent users. The League suggests that, if the Commission is inclined to make the extensive allocation proposed in the Notice, it should at the same time mandate either prior coordination between ITS America and the League, or otherwise restrict DSRC facilities to those which incorporate listen-before transmit protocols and frequency-agile transmitters with roaming channel selection.

19. There have been promised by ITS America representatives compatibility studies which have not yet occurred. These should be mandated by the Commission prior to any decision in this proceeding. The record is incomplete, and will of necessity remain incomplete, unless and until these studies are concluded. Under the circumstances, ITS America's representations to the Commission on the subject of compatibility with incumbent services ring hollow, especially given the dissenting view of 3M Corporation. The same problem of an inadequate record exists relative to the use of bands above 40 GHz for DSRC functions. The League does not accept the rank speculation in the Notice that use of bands above 40 GHz for DSRC would escalate prohibitively the cost of DSRC devices over the cost of 5 GHz devices. While the League understands that other 5 GHz spectrum is used internationally for DSRC devices (in bands far smaller than those proposed by the Commission), and thus there are economies of scale, the tradeoff in the use of bands above 40 GHz is that the public safety

DSRC applications can be accommodated in those bands without interference concerns.

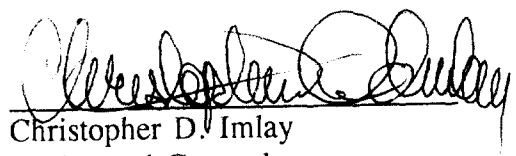
20. In any event, viewing the 5 GHz amateur allocation as a whole, the Commission has largely disaccommodated the Amateur Service. Using ET Docket 94-124 as a model, the Commission should in any event elevate the remaining portions of the Amateur and Amateur Satellite allocation at 5.650-5.725 GHz and 5.825-5.850 GHz to non-government primary, to insure against future preemption by non-government services with higher allocation status.

Therefore, the foregoing considered, the American Radio Relay League, Incorporated respectfully requests that the Commission modify its proposal contained in the Notice in the foregoing respects.

Respectfully submitted,

THE AMERICAN RADIO RELAY LEAGUE, INCORPORATED

225 Main Street
Newington, CT 06111

By: 
Christopher D. Imlay
Its General Counsel

BOOTH FRERET IMLAY & TEPPER, P.C.
5101 Wisconsin Avenue, NW
Suite 307
Washington, DC 20016-4120
(202) 686-9600

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