



October 31, 2003

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Marlene H. Dortch, Secretary
Federal Communications Commission
Office of the Secretary
445 12th Street, SW
Room TW-A325
Washington, DC 20554

Re: *Ex Parte* Submission for the Record in WT Docket No. 01-90 and ET Docket No. 98-95: Amendment of the Commission's Rules Regarding Dedicated Short Range Communications Services in the 5.850-5.925 GHz Band (5.9 GHz Band)

Dear Secretary Dortch:

The Intelligent Transportation Society of America ("ITS America") hereby submits for the record the attached memorandum, "Licensing Options for DSRC in the 5.9 GHz Band", in the two proceedings referenced above. This memorandum was prepared at the request of the DSRC Standards Working Group of the American Society for Testing and Materials Working Group E17.51.

A copy of this letter and the attached memorandum will also be provided via email to the staff of the Wireless Telecommunications Bureau's Public Safety and Private Wireless Division as indicated below.

Please do not hesitate to contact me if you have any questions.

Sincerely,

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Neil Schuster
President and CEO

Attachment

cc: D'Wana Terry Greg Intoccia
Herb Zeiler Nancy Zaczek
Peter Daronco Gerardo Mejia

M E M O R A N D U M

To: Broady Cash, Chairman
DSRC Standards Working Group of the American Society for Testing and
Materials (“ASTM”) Working Group E17.51.

From: Robert B. Kelly
Mark D. Johnson

Date: October 29, 2003

Re: Licensing Options for DSRC in the 5.9 GHz Band

This Memorandum will address the applicability of three specific licensing methodologies to the use of the 5.85-5.925 GHz band (“5.9 GHz Band”) by ITS applications employing Dedicated Short Range Communications (“DSRC”) links. These are: (1) site-specific licensing modeled upon the traditional licensing of public safety and private wireless systems under Part 90 of the Federal Communication Commission’s (“FCC”) Rules; (2) non-exclusive geographic area licensing modeled upon the structure employed by the FCC in licensing the 4.9 GHz band for public safety use at 4.940-4.990 GHz (“4.9 GHz Band”); and (3) national licensing with site registration modeled upon the structure adopted by the FCC in three bands at 71-76 GHz, 81-86 GHz and 92-95 GHz (“70/80/90 GHz Bands”). We have also considered and address in Appendices to this Memorandum the applicability of spectrum intermediaries that have been utilized by the FCC in licensing public safety, private and commercial spectrum. These are (1) Regional Public Safety Planning Committees (Appendix 1); (2) Band Managers (Appendix 2); and (3) Frequency Coordinators (Appendix 3).

In conducting our analysis, we have reviewed relevant federal laws and FCC precedent and have consulted with both wireless and transportation industry experts regarding the objectives that must be achieved by the DSRC licensing process. In meetings held in our offices from October 21 through October 23, 2003, we presented the three licensing alternatives to the ASTM Working Group¹ that was responsible for drafting the ASTM Standard,² which the FCC is considering whether to adopt into its Rules for the 5.9 GHz Band. We requested that the Working Group consider the licensing alternatives and provide any comments on those alternatives that it deemed appropriate.

¹ DSRC Standards Working Group of the American Society for Testing and Materials (“ASTM”) Working Group E17.51. ASTM is a nationally accredited standards-setting organization.

² E 2213-3 Standard Specification for Telecommunications and Information Exchange Between Roadside and Vehicle Systems – 5 GHz Band Dedicated Short Range Communications (DSRC) Medium Access Control (MAC) and Physical Layer (PHY) Specifications (“ASTM Standard”).

BACKGROUND

In its Report and Order allocating the 5.9 GHz Band for use by DSRC, the FCC deferred the adoption of service rules to later proceedings.³ The FCC commenced that proceeding by its Notice of Proposed Rulemaking in WT Docket 01-90 (“*DSRC NPRM*”).⁴ In the *DSRC NPRM*, the FCC discussed several possible licensing approaches for DSRC use of the 5.9 GHz band, including site-specific licensing and geographic licensing. See Appendix 4 to this Memorandum.

Comments submitted in response to the *DSRC NPRM* generally supported the use of site-specific licensing for DSRC use of the 5.9 GHz Band.⁵ See Appendix 5 to this Memorandum.

Since the conclusion of the comment cycle on the *DSRC NPRM*, the FCC has adopted two Orders that are of special relevance to the DSRC licensing issue: these are: (a) the *4.9 GHz Order*;⁶ and (b) the *Upper 70 GHz Order*.⁷ The *Upper 70 GHz Order* has not yet been released.

³ *In the Matter of Amendment of Parts 2 and 90 of the Commission’s Rules to Allocate the 5.950-5.925 GHz Band to the Mobile Service for Dedicated Short Range Communications of Intelligent Transportation Services*, ET Docket No. 98-95, Report & Order, 15 FCC Rcd 18221 (1999) (“*DSRC Allocation Order*”).

⁴ *In the Matter of Amendment of the FCC’s Rules Regarding Dedicated Short-Range Communication Services in the 5.850-5.925 GHz Band (5.9 GHz Band), Amendment of Parts 2 and 90 of the FCC’s Rules to Allocate the 5.850-5.925 GHz Band to the Mobile Service for Dedicated Short Range Communications for Intelligent Transportation Services*, WT Docket No. 01-90, ET Docket No. 98-95, Notice of Proposed Rulemaking, 17 FCC Rcd 23136 (2002) (“*DSRC NPRM*”).

⁵ See Comments of American Association of State Highway and Transportation Officials; Comments of ARINC, Inc.; Comments of Delaware Department of Transportation; Comments of E-Z Pass Interagency Group; Comments of International Bridge, Tunnel and Turnpike Association; Comments of Intelligent Transportation Society of America; Comments of The Johns Hopkins University Applied Physics Laboratory; Comments of Maine Turnpike Authority; Comments of MTA Bridges & Tunnels; Comments of New York State Thruway Authority; Comments of North Texas Tollway Authority; Comments of Port Authority of New York & New Jersey; Comments of National Radio Astronomy Laboratory; Comments of Sirit Technologies; Reply Comments of Florida Turnpike Enterprise, Florida Department of Transportation; Reply Comments of Mark IV, Industries, LTD, I.V.H.S. Division; Reply Comments of TransCore. Comments and Reply Comments on the *DSRC NPRM* were filed in WT Docket No. 01-90 on March 17, 2003 and April 15, 2003, respectively.

⁶ *In the Matter of the 4.9 GHz Band Transferred from Federal Government Use*, 18 FCC Rcd 9152 (2003) (“*4.9 GHz Order*”).

⁷ *FCC Opens 70, 80 and 90 GHz Spectrum for Deployment of Broadband “Millimeter Wave” Technologies*, WT Docket 02-146, News Release (rel. October 16, 2003).

OBJECTIVES OF DSRC LICENSING PROCESS

Based on our analysis and discussions with the ASTM Working Group and other industry stakeholders, we have identified five goals to be used in measuring the trade-offs in selecting a licensing approach for DSRC use of the 5.9 GHz Band. These are:

1. Consistency with FCC Statutory Authority. The FCC derives its authority to license radio facilities from Title III of the Communications Act of 1934, as amended.⁸ Section 303 of the Communications Act grants the FCC general powers to issue licenses, establish service rules, prescribe the nature of the service to be offered and establish license areas.⁹ Section 309 of the Communications Act¹⁰ addresses the licensing processes that the FCC may employ to resolve instances of “mutual exclusivity” between license applicants. Section 309 conveys upon the FCC the authority to issue exclusive licenses to commercial entities through the use of competitive bidding procedures for the provision of either commercial or private mobile radio services.¹¹

In a rulemaking proceeding, a federal agency generally must comply with the notice and comment requirements of the Administrative Procedures Act.¹² An agency, such as the FCC, may make changes in its proposed rules based on comments or internal agency consideration without having to start another round of notice and comment where the changes are a “logical outgrowth” of the proposal and previous comments.¹³ For a final rule to be a “logical outgrowth” of a proposal, however, it is first necessary that the agency has alerted parties to the

⁸ 47 USC §§ 301-350.

⁹ *Id.* at § 303.

¹⁰ *Id.* at § 309.

¹¹ The FCC’s authority to utilize competitive bidding procedures does not extend to the issuance of licenses to the public safety radio services under Section 309(j)(2)(A). *Id.* at § 309(j)(2)(A). Nor may the FCC utilize competitive bidding procedures to award licenses issued on a non-exclusive basis, *e.g.*, where sharing is effected through the use of frequency coordination or other spectrum management technique that avoids the creation of mutual exclusivity. Section 309(j)(6)(D) further states that the grant of competitive bidding authority does not relieve the FCC “of the obligation in the public interest to continue to use engineering solutions, threshold qualifications, service regulations and other means in order to avoid mutual exclusivity in application and licensing proceedings.” *Id.* at § 309(j)(6)(D).

¹² 5 USC § 553(b), (c).

¹³ *Sprint Corp. v. Federal Communications Commission*, 315 F.3d 369, 375-76 (D.C. Cir. 2003); *Public Service Commission of District of Columbia v. Federal Communications Commission*, 906 F.2d 713, 716 (D.C. Cir. 1990).

possibility of the agency adopting a rule different from the one proposed.¹⁴ The test for “logical outgrowth” can also be articulated as whether a reasonable commenter should have anticipated that the final rule would be promulgated or whether there was sufficient notice to have informed interested parties that comments regarding that aspect of final rule at issue should have been made.¹⁵

2. Compatibility with the ASTM Standard. The U.S. Department of Transportation (“US DoT”), ITS America, Alliance of Automobile Manufacturers, several state departments of transportation, operators of electronic toll collection (“ETC”) services, chipset and radio equipment manufacturers, and others, have requested that the FCC adopt the ASTM Standard in order to promote the interoperability of DSRC devices in the 5.9 GHz Band and hence the interoperability of the national ITS infrastructure. This is a key goal established by Congress in its 1991 Intermodal Surface Transportation Efficiency Act¹⁶ and reaffirmed in its 1998 Transportation Equity Act for the 21st Century.¹⁷ Selection of a licensing method that is inconsistent with the ASTM Standard could defeat the adoption by the FCC of the ASTM Standard and significantly impair the attainment of national DSRC interoperability.

3. Promotion of Robust ITS Public and Private Deployment. Congress has planned for the deployment of both public and private sector ITS services. The FCC stated in its *DSRC Allocation Order* that its definition of DSRC “should allow for a broad range of commercial, private, and safety-related services...without permitting unintended use.”¹⁸ The ITS National

¹⁴ *Sprint Corp. v. FCC*, 315 F.3d at 376.

¹⁵ *First American Deposit Corp. v. Commodity Futures Trading Commission*, 222 F.3d 1008, 1015 (D.C. Cir. 2003).

¹⁶ Section 6054 (a)(2)(D), Pub. L. No. 102-240, 105 Stat. 1914, 2191 (1991).

¹⁷ Section 5206(a)(2), Pub. L. No. 105-178, 112 Stat. 107, 456 (1998).

¹⁸ *DSRC Allocation Order*, 15 FCC Rcd at 18236. The FCC has adopted the following definition of Dedicated Short Range Communications:

The use of non-voice radio techniques to transfer data over short distances between roadside and mobile radio units, between mobile units and, and between portable and mobile units to perform operations related to the improvement of traffic flow, traffic safety and other intelligent transportation service applications in a variety of public and commercial environments. DSRC systems may also transmit status and instructional messages related to the units involved.

47 CFR § 90.7.

The FCC is considering several proposed modifications to the DSRC definition in connection with its *DSRC NPRM*.

Program Plan¹⁹ identifies key user applications that are anticipated from both the public and private sector. The DSRC services described in the *DSRC NPRM* also identify both public sector and private sector applications. The ASTM Working Group confirmed at its October 2003 meeting that the ASTM Standard contemplates the sharing of the DSRC spectrum between public sector and private entities. The 5.9 GHz Band DSRC allocation is intended for, and limited to, the provision of DSRC-based ITS services.

4. Spectrum Management, Coordination and Efficiency. The chosen licensing method should promote maximum utilization and availability of the 5.9 GHz Band for DSRC services. The limited range of DSRC communications will promote frequency reuse and the availability of spectrum for many potential licensees and band uses. In addition, DSRC shares the 5.9 GHz Band with both Government uses and other non-Government uses. A sharing protocol between DSRC and Government use has been established in Section 90.371(a) of the FCC's Rules.²⁰ ITS America and others are participating in discussions with representatives of the satellite community regarding the sharing of the 5.9 GHz Band between DSRC uses and Fixed Satellite Service ("FSS") "extended" C band operations.²¹ The parties are discussing possible understandings regarding the coordination of DSRC and FSS operations in the 5.9 GHz Band.²² Frequency coordination to avoid interfering uses between DSRC and other band incumbents and between DSRC users may be desirable to minimize the costs of disruption and dislocation from harmful interference. Such coordination will also facilitate the development and use of best practices spectrum guidelines to further the use of the 5.9 GHz Band by DSRC.

5. Conservation of Public and Private Resources. The costs and burdens of licensing incurred both by the FCC and license applicants must also be considered. Although public safety organizations are exempt from FCC licensing and regulatory fees, they are not exempt from the costs of system design, application preparation and prosecution and frequency coordination. These costs will tend to rise both over time and according to the complexity of the planned system. Private entities will incur both these costs and the FCC license and regulatory fees. These fees will offset to some degree the costs incurred by the FCC in administering a licensing regime but it is unknown whether the FCC may fully recover its costs given the public safety usage of the 5.9 GHz Band. In addition, added complexity in FCC licensing may result in the

¹⁹ National ITS Program Plan, US Department of Transportation and Intelligent Transportation Society of America (March 1995). This document was updated in 2002. Copies of the 1995 and 2002 editions are available from either the US DoT's electronic document library at www.its.dot.gov/itsweb/welcome.htm or ITS America at www.itsa.org.

²⁰ 47 CFR § 90.371(a).

²¹ These discussions are a matter of public record. See *Ex Parte* Notices of the Intelligent Transportation Society of America, WT Docket No. 01-90 (filed May 5, 2003 and August 11, 2003).

²² In addition, the DSRC and FSS representatives have exchanged technical information regarding the potential for interference to DSRC operations in the 5.9 GHz Band from FSS operations in the adjacent C Band (5.925-6.425 GHz).

need for more resources on enforcement issues. The FCC's Universal Licensing System ("ULS") appears to be a far more powerful tool for managing significant licensing databases than previously available to the FCC.

ANALYSIS OF LICENSING ALTERNATIVES

1. Site-Specific Licensing

Under site-specific licensing, applicants seek authorization to operate at certain frequencies at an identified location. Service rules for the band will also typically specify eligibility and service restrictions, power limits, build-out requirements, and other rules.

Under site-specific licensing, identified frequencies at specific locations are assigned to individual licensees. The applicant must be qualified as an eligible licensee to provide the service authorized for the band. For shared licensing under Part 90 of the FCC's Rules, a frequency coordinator will review the application and, if appropriate, recommend to the FCC that the license be granted for the requested frequencies and location. The frequency coordinator ensures that the applicant's proposed operations would not cause harmful interference to existing licensees, such as by assigning different channels within the band to different licensees or by imposing technical limitations. Typically, first-in-time licensees have priority rights to frequencies and locations and are protected by the frequency coordinator from harmful interference according to the technical specifications in the FCC's Rules. Examples of shared Part 90 licensing subject to frequency coordination include the public safety and business/industrial land transportation services (with certain exceptions for trunked systems) in the private land mobile radio bands below 512 MHz.

Exclusive site-specific licensing under Part 90 of the FCC's Rules generally does not require the involvement of a frequency coordinator. Instead, exclusive licenses are issued by the FCC and receive protection from co-channel operations based upon geographic separation requirements, or other technical parameters, established by the FCC. Examples of exclusive Part 90 site-specific licensing include the Phase I 220 MHz Band service and the 800 MHz and 900 MHz Specialized Mobile Radio services. With the advent of competitive bidding as a means to resolve mutual exclusivity, however, the FCC has not issued such exclusive site-specific licenses since its licensing of the Phase I 220 Band service in 1993.

Consistency with FCC Statutory Authority. Both shared and exclusive site-specific licensing under Part 90 of the FCC's Rules have been employed by the FCC for many years. The FCC's legal authority under Section 303 of the Communications Act to issue site-specific licenses by this method is well established. The FCC, however, appears to be required to resolve any instances of mutual exclusivity between site-specific commercial or private license applicants through competitive bidding. Conversely, the FCC may not use either random selection or

competitive bidding to resolve instances of mutual exclusivity between public safety applicants.²³

The FCC presented for comment the possible use of site-specific licensing in the DSRC NPRM and many parties, in fact submitted comments in support of this approach. See Appendices IV and V, respectively.

Accordingly, the use of either exclusive or shared site-specific licensing for DSRC appears to be consistent both with the FCC's general licensing powers and with the *DSRC NPRM*. However, the use of exclusive Part 90 site-specific licensing may engender licensing difficulties for both private and public safety applicants in the event of mutually exclusive applications. To this end, exclusive Part 90 licensing may create a need to resolve even minor possible instances of exclusivity between private applicants (and may not even be able to resolve exclusivity between public safety applicants) that could be better managed through frequency coordination.

Compatibility with ASTM Standard. The ASTM Standard does not specify the selection, or preclude the use, of any particular licensing method. We have been advised that the ASTM Working Group contemplated during its deliberations on the ASTM Standard that site-specific licensing would be utilized given the limited range of DSRC communications and that it did not view geographic licensing as an option since it had not been used for public safety services at that time. The ASTM Standard contemplates individual stations, whether public safety or private, to be located in close proximity for maximum spectrum reuse. The ASTM Working Group contemplated open access to spectrum by any public or private parties desiring to operate DSRC stations and thus the standard was optimized to accommodate that licensing approach. Both the 4.9 GHz Band geographic licensing model and the national license/site registration model were adopted by the FCC subsequent to the balloting by the ASTM Working Group. We do not suggest, however, that these or other licensing approaches are precluded by the ASTM Standard.

Promotion of Robust DSRC Public and Private Deployment. Congress has established the deployment of a nationwide, interoperable ITS infrastructure as a national priority. The deployment of a robust, interoperable DSRC backbone has been identified as a key to meeting this goal by the ITS National Architecture and the National Program Plan. ITS America anticipates that the private sector will take a leading role in deploying devices and stations to transmit both private and public safety messages. For example, the automobile manufacturers are contemplating installing in each new vehicle a single transceiver that can process both private and public safety messages. The cost for such a device may be included in the price of the vehicle. Thus, the public sector would "piggyback" off of this and other private DSRC investment, reducing the infrastructure it would need to build out. By combining the public safety and private DSRC markets, it is also more likely that the sufficient economies of scale can be achieved more quickly and further reduced equipment costs for both sectors. Both public and

²³ As a practical matter, given the short range of DSRC communications with site-specific licensing and first in time priority, there may only be limited instances of mutual exclusivity between site-specific applicants.

private sector interests have committed many resources to attaining this goal and have participated on the ASTM Working Group. All parties acknowledge that the DSRC backbone must serve both public safety and private applications. Given the substantial investment expected from the private sectors to attain a critical level of DSRC build out, ITS America and others have advised that attraction of private capital to DSRC investment is essential to meeting Congress's goals. The availability of DSRC spectrum (and licenses) in turn is key to this capital formation. This consideration appears to preclude licensing approaches that would classify private licenses as "secondary" to public safety licenses. Shared licensing would allow the DSRC spectrum to be made available, subject to any necessary frequency coordination, to any interested party, public or private. Shared licensing also tends to deter speculative ventures in spectrum (and spectrum warehousing) since the licenses do not award an exclusive right.

Spectrum Management, Coordination and Efficiency. The ASTM Standard and related technical characteristics of DSRC services in the 5.9 GHz Band will permit licensees to be closely located. DSRC stations will operate at relatively low power and at short ranges associated with a defined "communications zone." Adjacent licensees can use different channels and significant frequency reuse may be possible with relatively small geographic separation between transmission sites.

The names of all licensees, their locations, utilized channels, and other information, are included in a database (or multiple databases) that is available to frequency coordinators. When considering an application, a coordinator is able to refer to this database to determine the most appropriate locations and channels for a new licensee. Once a license is granted, the database is updated to ensure that future coordinations are based on the most accurate and up-to-date information. Frequency coordinators can also act as an eligibility "filter" of an applicant's qualifications to hold a license in the 5.9 GHz Band. Moreover, this database information can be accessed to determine the source(s) of harmful interference if any such reports are filed with the FCC.

FCC Rule 90.371(b)²⁴ specifies that DSRC operations are not protected from interference caused by certain existing government radar sites. DSRC operations must be coordinated within 75 kilometers of these radar sites. In addition, fixed satellite services ("FSS) licensees are co-primary in the 5.9 GHz Band and active coordination between DSRC and FSS operations may be necessary.

Conservation of Public and Private Resources. An applicant must submit a separate application for each site. Moreover, as recognized by the FCC, site-by-site licensing may be cumbersome for systems that include several hundred sites while denying a licensee the flexibility to move sites throughout its defined service area without prior FCC approval.

ITS America proposed that public safety applicants should be authorized to seek a single license for multiple sites along a highway corridor or other wide area relating to an applicant's transportation facilities. Authorizing this type of applicant should alleviate some of the FCC's concerns regarding the administrative burdens associated with site-specific licensing. Moreover,

²⁴ 47 CFR § 90.371(b).

the identification of multiple sites on a license will provide the needed information to conduct frequency coordination.

At its October meetings, the ASTM Working Group also concluded that it would be advantageous to consider other measures to minimize the burdens of site-specific licensing. Consistent with the ASTM Working Group's guidance, consideration should be given to expanding the number of sites a private entity may request in a single application and to permitting private entities to submit "corridor" applications. This step would reduce the number and administrative burdens associated with filing multiple license applications submitted to the FCC from private applicants. It would also give greater flexibility to private licensees, so long as individual sites are identified in the application. However, we note that this measure requires further study.

Finally, recent technical innovations have reduced the administrative burdens of processing license applications. The FCC's web-based Universal Licensing System ("ULS") has significantly increased the efficiency of applying for licenses. ULS can also serve as a source database for frequency coordination.

2. Geographic Area Licensing for Public Safety

The FCC has used geographic area licensing for many years to award licenses for commercial services. 800 MHz band cellular licenses were awarded by Metropolitan Statistical Areas and Rural Service Areas; 2 GHz PCS licenses were awarded by Major Trading Areas and Basic Trading Areas as defined by Rand McNally Corp. With the advent of competitive bidding authority, the FCC began to award Part 90 exclusive licenses for commercial services by geographic area in 1994.

In 1999, Congress ordered that 50 MHz of spectrum at 4.940-4.990 GHz ("4.9 GHz Band") be transferred from federal government use for non-governmental use. The FCC in 2002 determined that the public interest would best be served if the 4.9 GHz Band were designated for public safety use. In 2003, the FCC released licensing and service rules for the 4.9 GHz Band that, for the first time, specified that public safety licenses would be awarded on a geographic basis rather than by the more traditional site-specific basis.²⁵

The 4.9 GHz Band is not intended to replace existing public safety bands; rather, the FCC allocated the band for public safety to encourage the development of more innovative wireless communications systems, particularly fixed and mobile wireless broadband systems, which could not otherwise be realized in the traditional public safety bands because of insufficient available bandwidth. The FCC expects that the 4.9 GHz Band will be used by public safety entities for high-speed digital technologies and wireless local area networks for incident scene management, dispatch operations and vehicular operations. It is also believed that the band will lead to greater

²⁵ *In the Matter of the 4.9 GHz Band Transferred from Federal Government Use*, 18 FCC Rcd 9152 (2003) ("4.9 GHz R&O").

interoperability between the wide variety of public safety entities utilizing these wireless broadband technologies.

Elements of Geographic Licensing in the 4.9 GHz Band. With the support of leading public safety associations, the FCC adopted a geographic licensing approach wherein a public safety entity would receive a non-exclusive license for a geographic service area consistent with its legal/political jurisdictional area of operation (state, county, city, etc., or corresponding to the jurisdictional area of the public safety entity authorizing nongovernmental users). These licenses are available in any geographic area that has an established public safety entity.²⁶

All frequencies are to be shared among licensees. Adjacent, co-located and overlapping licensees must cooperate and coordinate their spectrum use.²⁷ Moreover, shared frequency use and coordination would be enabled by sharing arrangements between and among licensees, permitting all licensees to use the entire 50 MHz, frequency utilization procedures (*i.e.*, a channelization plan), low power transmitter limits, naming of licensees and the nature of public safety operations in general.

To facilitate this shared use and coordination, the FCC further required that the existing 700 MHz Regional Planning Committees (as further described in Appendix I) take on the responsibility of developing coordination plans and procedures for the 4.9 GHz Band.²⁸ Within 12 months of the effective date of these rules, the Regional Planning Committees should submit to the FCC a coordination plan that includes mechanisms for incident management protocols, interference avoidance and interoperability. The plans must also establish the procedures for an “incident manager” to take control of emergency operations, including communications, at an incident.

Consistency with FCC Statutory Authority. The FCC is prohibited from auctioning public safety licenses, but there is no statutory prohibition precluding the FCC from granting geographic area licenses to public safety entities. Further, the FCC has avoided the potential for mutual exclusivity in the 4.9 GHz Band by specifying that the public safety licenses are granted on a

²⁶ Licensees seeking to deploy fixed, point-to-point operations are required to obtain a separate license for each station.

²⁷ See 47 CFR § 90.137(b) (requiring that licensees and users cooperate with one another in the selection and use of frequencies so as to reduce interference and maximize spectrum usage).

²⁸ While the public safety community generally supported geographic licensing for the 4.9 GHz Band, one petition for reconsideration has asked that the FCC make compliance with such regional plans mandatory for all licensees in that area. The petition argues that specifying only mandatory coordination among users in the same geographic area does not provide adequate assurance to public safety entities that spectrum will be available at critical times. See *Petition for Reconsideration of the National Public Safety Telecommunications Council*, WT Docket No. 00-32 (submitted July 30, 2003). To date, the FCC has not ruled on the petition.

non-exclusive basis.²⁹ As this is the first time the FCC has decided to award geographic area licenses to public safety entities, there may yet be unresolved issues regarding the FCC's authority that have not been addressed.

In its *DSRC NPRM*, the FCC discussed the possible benefits of employing a geographic licensing approach. The FCC suggested, for example, that it might employ geopolitical boundaries for public safety licensing or Economic Area licenses for non-public safety licensing.

Accordingly, use of the geographic licensing model for DSRC appears to be consistent with the FCC's legal authority and with the *DSRC NPRM*. There is little precedent for the use of geographic licensing for public safety services and, as such, may be somewhat more open to legal challenges than would the use of site-specific licensing. We have not identified any party who may be likely to make such a challenge.

Promotion of Robust DSRC Public and Private Deployment. The FCC expressly adopted a geographic licensing model for the 4.9 GHz Band to encourage the deployment of public safety services in the band. Any public safety entity can obtain a license consistent with its geographic jurisdiction. Moreover, according to the FCC, experience with geographic area licensing in the commercial wireless sector often results in the rapid development and deployment of new and innovative services, facilitates interoperability and operational standards and economies of scale that lead to lower cost equipment.³⁰

The FCC allocated the 4.9 GHz Band exclusively for public safety use. Commercial or private wireless services are not permitted in the band. It is unclear how this model would be deployed with shared public safety and private licensing. Use of geographic licensing by both public safety and private interests on an equal basis would appear to require frequency coordination and a database of site locations and frequency use comparable to that which would be developed through site-specific licensing in any event. In addition, absent coordinator or FCC involvement, the licensing of mutual geographic licenses would require coordination between public safety and private interests on a scale never before attempted and for which there is no model. To avoid this, private licenses could be issued on a secondary basis to the public safety licensing. However, this would raise concerns over the attraction of private capital to the DSRC build-out.

Spectrum Management, Coordination and Efficiency. The FCC has generally concluded that geographic area licensing provides greater flexibility to licensees, whether public safety, commercial or private.³¹ A single license can cover multiple transmission sites; thus, a licensee

²⁹ See 47 USC § 309(j)(6)(D).

³⁰ See *Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010*, WT Docket No. 96-86, Third Memorandum Opinion and Order and Third Report and Order, 15 FCC Rcd 19844, 19879 (2000)

³¹ See generally *id.* at 19867-70.

can modify, move, or add to its facilities within its geographic area without seeking prior FCC approval. In the 4.9 GHz Band, public safety entities will need to conduct wireless communications on an *ad hoc* basis to respond to emergency incidents whenever and wherever they may occur within their jurisdictional area. By their very nature, these emergency events cannot be predicted. Granting public safety entities the ability to relocate their 4.9 GHz operations within their jurisdictional area on such an *ad hoc* basis would appear to maximize these licensees access and utilization of the band.

DSRC roadside stations (public and private) are contemplated for the most part as fixed transmitters designed for long-term, continual use at known locations. It should be noted that the FCC is requiring that fixed stations in the 4.9 GHz band be licensed individually on a site-specific basis.

Licensees in the 4.9 GHz Band will coordinate their spectrum use through sharing arrangements and plans and procedures developed by the appropriate Regional Planning Committee. Shared spectrum access and use among and between public safety and private licenses operating on geographic licenses in the same band, however, has not been previously addressed by the FCC. Such a band structure, if approved, would appear to require a more defined (operationally and technically) coordination process to ensure that all licensees have equal access to the band, and also that public safety licensees have reliably access to sufficient spectrum when needed. In addition, coordination between DSRC and FSS operations, if necessary, would appear to be significantly more complicated and costly employing a geographic licensing model.

Conservation of Public and Private Resources. An applicant need only apply, and the FCC need only grant, a single license. There is also only a one-time license application fee. The licensee can move its facilities within its licensed service area without seeking prior FCC approval or paying additional fees. Further, the FCC need not maintain a large database of detailed information on site locations and operational parameters for each license.

3. National Licenses and Site Registration

The FCC very recently authorized a hybrid licensing method for frequencies at 71-76 GHz, 81-86 GHz, and 92-95 GHz (“70/80/90 GHz Bands”) for new communications services employing “pencil-beam” transmission technologies for wireless point-to-point and broadband Internet access (also called broadband “millimeter wave” technologies).³²

Because of the “pencil-beam” characteristics of this new technology, the transmission sites of the point-to-point links can operate in close proximity to each other without causing harmful interference. To reflect these characteristics and to simplify the administrative

³² *FCC Opens 70, 80 and 90 GHz Spectrum for Deployment of Broadband “Millimeter Wave” Technologies*, WT Docket 02-146, News Release (rel. October 16, 2003). As of the date of this memo, the Commission has yet to release the its Report and Order.

processing of license applications, the FCC will issue an unlimited number of non-exclusive, nationwide licenses authorizing non-Federal Government entities to use the entire allocated spectrum in the three bands. Traditional frequency coordination will not be utilized. Licensees will instead register their links in a database or databases to be operated by third parties. Registered links will be entitled to interference protection from the date of their registration. This licensing method, according to the FCC, will achieve greater spectrum efficiency by permitting a maximum number of users to share these bands.

Consistency with FCC Statutory Authority. The national license/site registration model is novel and combines elements of both site specific and geographic area licensing. The FCC has used sharing of licenses to avoid the creation of mutual exclusivity. This service does not appear to contemplate the issuance of public safety licenses. Section 303 of the Communications Act generally grants to the FCC the authority to determine licensing areas and rules unless otherwise expressly withheld. There is no express provision in the Communications Act that would prohibit the use of this licensing approach for DSRC. However, we caution that since this is a novel approach under which no licenses have yet been issued, and indeed on which the FCC has issued only a News Release, the FCC's apparent authority to employ this approach is untested.

The FCC did not address this licensing approach in its *DSRC NPRM*. No party suggested this approach for DSRC in their Comments or Reply Comments. We believe an argument can be made that this approach is a "logical outgrowth" of the issues raised in the DSRC NPRM and thus consistent with Section 553 of the Administrative Procedures Act. However, absent further notice and comment proceedings on this licensing approach, there may be a greater possibility of a legal challenge on this issue.

Compatibility with the ASTM Standard. Site registration, in effect, acts as a streamlined form of the FCC's traditional site-specific licensing. Site registration may enable DSRC stations to be located in close proximity to one another, which appears consistent with the ASTM Working Group's intent.

Promotion of Robust ITS Public and Private Deployment. National, non-exclusive licensing of private licensees would appear to make it relatively simple for private applicants to apply for and be granted licenses, leading to quick and comprehensive deployment of services in the 70/80/90 GHz Bands. Public safety services are not authorized in the 70/80/90 GHz Bands. Public safety services possibly could share the 5.9 GHz Band with private services under this hybrid licensing approach, perhaps by employing the geopolitical boundaries of the public safety agency as its licensed area.

Spectrum Management, Coordination and Efficiency. A single license can include an unlimited number of stations located throughout the country. Stations belong to different licensees may be located in very close proximity to one another. The site registration mechanism is an untested tool for identifying and creating protection rights. While it may be possible in some instances to simply register a DSRC station and, accordingly, gain interference protection rights from the date of registration, such a process would appear to work only for locating DSRC stations in proximity to one another. It is not clear how DSRC to FSS station frequency coordination, which requires a more comprehensive and sophisticated analysis not available from just a

registration database, would be conducted under this method. In addition, site registration does not appear to provide the applicant eligibility filter that is contemplated for the DSRC licensing process. These are open questions that would need to be addressed if site registration is adopted for the 5.9 GHz Band.

Conservation of Public and Private Resources. The FCC need only consider a single application. The application itself can be a fairly short and simple document because little or no technical information about the proposed service and operating characteristics are needed. The FCC will also avoid the administrative burden of creating and maintaining the site registration database, which will be outsourced to private entities.

SUMMARY AND REPORT ON WORKING GROUP REVIEW

The selection of a licensing method for the DSRC allocation in the 5.9 GHz Band by necessity involves a balancing of the benefits and costs of each approach. There is no licensing approach that will meet all of the objectives set forth in this Memorandum better than all of the other approaches. The choice of a licensing model is thus an exercise in weighing the trade offs that must be accepted under each approach.

Based upon its discussion of the licensing alternatives at its October 2003 Meeting, the ASTM Working Group has indicated its view that, having weighed the identifiable trade offs, shared site-specific licensing continues to be the best alternative for DSRC licensing. This is due to its belief that site-specific licensing will better realize the deployment of DSRC-based ITS applications that is envisioned by the ASTM Standard, including most significantly the issuance of both public safety and private licenses on a primary, and equal, basis. The Working Group further expressed the view that site-specific licensing would best accommodate the efficient management of the DSRC spectrum by ensuring the availability of an accurate and reliable spectrum use database and by providing a filter through frequency coordination to ensure the meaningful application of the eligibility limitation incorporated in Rule 90.7.³³ The Working Group further noted its view that site-specific licensing would more precisely enable the coordination of DSRC roadside units with both Government and FSS incumbents (if necessary) in the 5.9 GHz Band and would maximize the number of public and private parties that may build DSRC facilities.

The Working Group agreed with the concerns articulated by the FCC over the potential loss of licensee flexibility and additional licensing costs and burdens that may be associated with the use of site-specific licensing. Accordingly, the Working Group suggested that further consideration be accorded to measures that would minimize these burdens. Our analysis reflects that modification to the site-specific licensing approach to permit private organizations to submit wide area or corridor license applications may serve this purpose. The current proposal advanced by ITS America suggested that such applications be permitted from public safety organizations. Permitting such private applications may have the dual benefit of reducing the number of license applications received by the FCC (and the associated licensing costs borne

³³ 47 CFR § 90.7.

both by the FCC and the private sector) and increasing licensee flexibility subject to the identification of specific sites at which the applicant intended to place RSUs. This approach would address the concern over insincere private applications and private sector spectrum warehousing through the application of more stringent construction timetables than that available for public safety wide area systems.

The Working Group further expressed its view that the national license/site registration model coupled with site registration showed some promise for DSRC licensing. Subject to the release of the *Upper 70 GHz Band Order* by the FCC, however, it does not appear that this model would provide for any meaningful eligibility filter for DSRC use. In addition, pending release of that Order, it is unclear whether this model would facilitate any active frequency coordination that may be required between DSRC stations and in band incumbents. The Working Group recommended further study of this model upon release of the Order.

Finally, the Working Group expressed its concern that the non-exclusive geographic licensing model adopted by the FCC for the 4.9 GHz Band would not accommodate the expected build out of DSRC stations by private organizations. Since this is a primary objective of the ITS program and is envisioned by the ASTM Standard it was accorded a high priority in the selection of a licensing model.

APPENDIX I

Regional Planning Committees

In 1987, and then again in 1998, the FCC established Regional Planning Committees to oversee the use and coordination of public safety operations in the re-allocated 800 MHz band (821-824 MHz and 866-869 MHz)³⁴ and 700 MHz band (764-776 MHz and 794-806 MHz),³⁵ respectively. Deciding that the needs of public safety entities in these bands could best be addressed at the state and local levels, the FCC divided the country into geographic regions (55 regions divided primarily along state lines) and called for the creation of planning committees in each to assess the spectrum needs of local public safety entities and develop plans for how best to use the available frequencies in the 800 MHz and 700 MHz bands. The FCC also established minimum, national technical standards (*i.e.*, channelization, trunking, loading requirements) to ensure efficient spectrum use and foster interoperability between users.

Makeup of Regional Planning Committees. For the 800 MHz band, membership in the Regional Planning Committees is available to any entity (public safety or non-government but not commercial entities) that is eligible for a license. The Association of Public-Safety Communications Officers, Inc. (“APCO”), which is a certified public safety frequency coordinator, was asked by the FCC to identify a local “convener” to publicize and organize the first meeting of the committee in each region. At this first meeting, a chair is elected, whose name APCO then provides to the FCC. Moreover, officials responsible for national security and emergency preparedness are to be notified of the initial meeting and invited to attend. (Although distinct committees, the membership and structure of the Regional Planning Committees for the 700 MHz band is essentially the same.) The current list of chairpersons for both the 800 MHz band and 700 MHz band Regional Planning Committees lists representatives of state police and sheriff departments; state, county and local governments; emergency management authorities; universities; and transportation agencies.

Role of Regional Planning Committees. The primary function of each Regional Planning Committee is to develop a regional plan to maximize use and interoperability in each band for public safety operations. The plans must generally seek to maximize spectrum efficiency and accommodate the spectrum needs of local public safety communications. The plans must specifically include:

³⁴ *In the Matter of Development and Implementation of a Public Safety National Plan and Amendment of Part 90 to Establish Service Rules and Technical Standards for Use of the 821-824/866-869 MHz Bands by the Public Safety Services*, Report and Order, Gen. Docket No. 87-112, 3 FCC Rcd 905 (1987).

³⁵ *In the Matter of Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010*, First Report and Order and Third Notice of Proposed Rulemaking, WT Docket No. 96-86, 14 FCC Rcd 152 (1998).

- An explanation of how all eligible entities within a region were given notice and an opportunity to participate in the planning process;
- A general description of how the spectrum is to be allocated among those eligible users in a region and an explanation of how the requirements of these users were met, to the extent possible;
- Evidence of how the plan had been successfully coordinated with adjacent regions.
- An explanation regarding how needs were assigned priorities in areas where not all eligible entities could receive licenses;
- A description of how the plan encourages the efficient and effective use of the spectrum (i.e., system flexibility and capacity to improve and grow to meet future needs); and
- A description of the planning procedures, present and future.

The plan is submitted to the FCC for review and approval. After FCC approval, license applicants are submitted to the Regional Planning Committee and, if accepted, forwarded to the FCC for filing.

The FCC established the regional planning structure for the 800 MHz and 700 MHz bands because it believed that this approach would provide the flexibility and autonomy to accommodate the wide variety of local public safety communications needs, which are not the same in all parts of the country. Moreover, the FCC concluded that each region would be in the best position to meet their different communications needs and encourage uniformity and broader coordination among public safety entities in a region. The FCC also concluded that the Regional Planning Committee process eases the burden on the licensees to conduct coordination as the licenses are submitted to and approved by the committee in each region.

For DSRC, there are several concerns regarding the applicability of the Regional Planning Committee process. First, this structure has been used for spectrum allocated only to public safety entities. Second, DSRC licensees may coordinate with in-band FSS earth station operators. Private, non-Part 90 frequency coordinators, which already coordinate these licensees with fixed microwave operators, may be in a better position to conduct the necessary coordination between the DSRC and FSS services, which is not a coordination concern in either of the 800 MHz or 700 MHz Bands.

APPENDIX II

Band Managers

The FCC has recently authorized a new licensing concept for the licensing of spectrum for commercial and private wireless services, called “band managers”. According to the FCC, a band manager acts as a “spectrum broker” with the ability to lease the rights to use its licensed spectrum through private, contractual arrangements without having to secure prior approval by the FCC. FCC rules have previously required that the authorized license holder maintain legal and actual control over its license and associated operations. The band manager concept has been applied to date only to commercial and private wireless services and not public safety services.

The band manager concept is intended generally to improve public access to and benefits from the use of radio spectrum. The FCC believes that the development of a “secondary market” for spectrum through leasing will facilitate greater access to spectrum, improve spectrum management and efficiency and support the deployment of new wireless services. Moreover, band managers can respond to market conditions more quickly and efficiently than can the FCC through its regulatory authority, thus ensuring that spectrum is more likely to be put to its highest and most productive use.

Application of Band Manager Concept. To date, the FCC has authorized band managers in only a small number of bands. In 2000, the FCC reallocated 36 MHz of spectrum in the 700 MHz band from television broadcasting to commercial wireless use. Of this 36 MHz, the FCC set aside 6 MHz in two sets of channel pairs (746-747 MHz/776-777 MHz and 762-764 MHz/792-794 MHz) for new “Guard Band Managers” authorized to utilize the band manager concept.³⁶ Guard Band Managers are to be in the business of leasing spectrum to third parties on a for-profit basis and may subdivide its spectrum in any manner and lease it for fixed or mobile communications. The Commission also decided to award Guard Band Manager licenses through the auction of exclusive, geographic based licenses.

In 2002, the Commission adopted a variant of the band manager concept in 18 MHz of paired and unpaired spectrum in the 1 GHz and 2 GHz bands (1392-1395/1432-1435 MHz, 1390-1392 MHz, 1670-1675 MHz and 2385-2390 MHz).³⁷ Because these bands are not adjacent

³⁶ *In the Matter of Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission’s Rules*, Second Report and Order, WT Docket No. 99-168, 15 FCC Rcd 5299 (2000). Because these six MHz are immediately adjacent to 24 MHz of public safety spectrum, these “guard bands” are intended to protect the public safety spectrum from potential interference from commercial operations. Specific requirements on out-of-band emissions, network architecture and frequency coordination are also required of Guard Band Managers and their lessees.

³⁷ *In the Matter of Amendments to Parts 1, 2, 27 and 90 of the Commission’s Rules to License Services in the 216-220 MHz, 1390-1395 MHz, 1427-1429 MHz, 1429-1432 MHz, 1432-1435 MHz, 1670-1675 MHz, and 2385-2390 MHz Government Transfer Bands*, Report and Order, WT Docket No. 02-8, 17 FCC Rcd 9980 (2002).

to public safety spectrum, the Commission adopted more flexible rules for managers and lessees to provide a variety or combination of fixed, mobile, common carrier and non-common carrier services. The Commission again decided that exclusive geographic area, band manager licenses in these bands would be made available through auction. These bands are not available for public safety services but only for commercial services.

Most recently, in early October 2003, the Commission released a Report & Order that clarified several outstanding questions regarding the band manager concept and broadened its applicability.³⁸ However, the Commission again affirmed that band managers are available only in commercial and private wireless services and not for public safety services.

As described above, the Commission views the band manager concept as an effective means for increasing access to spectrum and overall spectrum efficiency, and leads to the deployment of new wireless services. The Commission has also concluded that the use of band managers reduces the burden on the end users to conduct frequency coordination.

For DSRC, there is some question as to how band managers would work for public safety licensees. The Commission has not yet authorized band managers for public safety services. (The concept was considered and rejected for the 50 MHz of spectrum in the 4.9 GHz band recently allocated for exclusive public safety use.) It is also unclear how band managers could be used only for the private licenses proposed for DSRC where these licensees would share the band with public safety licensees. Applying the band manager concept to public safety entities is untested and does not appear to fit easily within the proposed structure and limitations for DSRC services.

³⁸ *In the Matter of Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets*, Report and Order and Further Notice of Proposed Rulemaking, WT Docket No. 00-230, FCC 03-113 (rel. Oct. 6, 2003).

APPENDIX III

Frequency Coordinators

The FCC recognizes two general methods for conducting frequency coordination. First, under Part 90 of the FCC's rules, FCC-certified coordinators conduct coordinations for public safety and private wireless services authorized under this Part. The second method involves non-FCC certified private companies that are in the business of providing coordination services to a variety of commercial and private wireless and satellite service providers. Private coordinators are utilized by fixed microwave licensees and FSS licensees operating pursuant to Parts 101 and 25, respectively, of the FCC's Rules.

Part 90 Frequency Coordinators

Part 90 of the FCC's Rules pertains to public safety services and certain private wireless services used to support the business operations of licensees. Starting in the 1980s, the FCC began certifying outside organizations to analyze and recommend the most appropriate frequencies for license applicants in these services. The FCC's Rules require that applications for new frequency assignments, changes to existing frequencies or operations at temporary locations must include a showing that frequency coordination has been conducted.³⁹

Currently, there are six FCC-certified coordinators for public safety services and 12 for private wireless. In some bands, specified coordinators are authorized to provide coordination services for only one type of service (*i.e.*, for fire, police, emergency medical, railroad, power, or petroleum, etc.) In other bands, an applicant may use any certified coordinator regardless of the service to be offered. The FCC's Rules identify which coordinators are authorized in particular bands and for what types of services.⁴⁰

The coordination process under Part 90 involves two steps. A Part 90 coordinator will first act as an eligibility "filter" to determine whether the applicant qualifies as a licensee for a particular service. The coordinator can refuse to forward an application to the FCC if the applicant is deemed unqualified. If an applicant meets the relevant eligibility requirements, the coordinator will next identify and recommend to the FCC the appropriate frequency or frequencies for that applicant. An applicant must provide a coordinator with proposed site coordinates and any necessary technical parameters (*i.e.*, antenna height, output power, emissions, etc.) to enable the coordinator to make its recommendation. A coordinator's "showing" of coordination and recommended frequency or frequencies are then provided to the FCC for purposes of granting the license.

³⁹ See 47 CFR § 90.175.

⁴⁰ See *id.* at § 90.20 (public safety coordinators) and § 90.35 (private wireless coordinators).

Part 101 and Part 25 Frequency Coordinators

Applicants for licenses under Part 101 (fixed microwave) and Part 25 (FSS) are also required to go through frequency coordination as part of the FCC's licensing process. In contrast to Part 90 coordinators, coordinators of fixed microwave and FSS applicants are not certified by the FCC, but are private organizations in the business of providing coordination services. There is no limit on the number of these private coordinators.

Fixed microwave licensees and FSS licensees have co-primary status in the satellite C band at 5.925 to 6.425 GHz. (FSS licensees also operate in the 5.9 GHz Band and are co-primary to DSRC services.) As a condition of their licenses, applicants in both services must present evidence to the FCC that a proposed station has been prior coordinated with incumbents in the band. Part 101 and Part 25 are cross-referenced to require specifically that a proposed station in one service must be prior coordinated with incumbent stations of the other service.⁴¹

A fixed microwave or FSS license applicant will hire a private coordinator to conduct the required coordination analysis and try to resolve any objections to the proposed station. (In some instances, the same private coordinator will be hired by an incumbent licensee to "protect" it from potential interference.) First, the coordinator will conduct a technical analysis of those incumbent licensees that could potentially suffer interference from the new station. Next, the coordinator will notify those licensees of the proposed station and request their concurrence and try to "clear" any objections they may raise. Once these steps are completed, the coordinator will prepare a report indicating that the required coordination has been completed. This report must be included with the license application that is submitted to the FCC. The FCC will not grant a new fixed microwave or FSS license without this evidence of prior coordination.

Unlike Part 90 coordinators, Part 101 and Part 25 private coordinators do not also serve as eligibility filters of an applicant's qualifications to hold a license in either service. They have no authority to review and judge an applicant's fitness to be a licensee. The FCC determines a licensee's qualifications when it reviews the application.

DSRC Coordination

The DSRC licensing and service rules will be included in Part 90 of the FCC's Rules, and the proposed public safety and private services for the 5.9 GHz Band are generally consistent with currently authorized by Part 90. There may be three frequency coordination tasks associated with shared licensing of DSRC systems. These are: (1) DSRC to Government Radiolocation services (to be coordinated through NTIA pursuant to Section 90.371); (2) DSRC to DSRC; and (3) DSRC to FSS (if necessary).

⁴¹ *Id.* at § 101.103 (coordination of proposed fixed microwave stations) and § 25.203 (coordination of proposed FSS stations).

Among the considerations that must be addressed in selecting the appropriate frequency coordination model for DSRC licensing are:

Single Point of Contact. All necessary frequency coordination should be available through a single coordinator. Any process that would require an applicant to coordinate through two or more sources likely would impose unreasonable costs and delay in the licensing process.

Eligibility Filter. The DSRC frequency coordinator(s) should be familiar with the eligibility restrictions and be able to identify applications that do not meet them. This will conserve FCC resources in the application review process.

Coordination Method. Part 25/101 coordination generally relies upon licensees to respond to coordination notices and thus to have expertise available to them to review the notices and identify problems. Many DSRC licensees may be unlikely to have this expertise readily available possibly resulting either in an inadequate review of coordination notices or additional “hidden” coordination costs.

Public Safety and Private Sharing. Part 90 coordinators typically are certified for either the public safety or business/industrial land transportation pool. Part 101 coordinators coordinate for public safety and private/commercial uses.

Availability of FSS Database. In the event of coordination between DSRC and FSS operations sharing the 5.9 GHz Band, access to the existing databases and expertise of the Parts 25/101 coordinators may be valuable.

In sum, there are elements of both coordination models that may be useful and/or necessary in resolving the coordination tasks associated with DSRC licensing in the 5.9 GHz Band.

APPENDIX IV

Notice of Proposed Rulemaking: Description of Licensing Methods

In the *DSRC NPRM*, the FCC describes and asks for comment on several potential licensing methods for the fixed, DSRC stations.⁴² Site-specific licensing, according to the FCC, may be cumbersome for radio systems comprised of several hundred sites. Site-specific licensing also does not provide licensees the flexibility to relocate their transmitter sites within a defined service area without first gaining the FCC's approval. On cost, the FCC notes that there is a fee for each application, a regulatory fee for each license (although some governmental and non-profit licensees are exempt), and the additional cost of frequency coordination associated with each new station or to relocate an existing station.

In contrast, the FCC describes several potential advantages from using a geographic area licensing method for DSRC stations. Under this method, licensees are authorized to operate within a defined geographic service area and can operate individual stations within that area without having to file an application with the FCC. Licensees can also modify, move or add to its facilities within its service area without obtaining prior FCC approval. Thus, a licensee has greater flexibility to manage its spectrum while reducing its administrative and operating burdens and costs. The FCC also notes that geographic area licensing facilitates interoperability and operational standards, which permit economies of scale that lead to lower cost equipment.

The FCC asks for comment on whether it should adopt site-specific or geographic area licensing for the RSUs. If it were to adopt geographic area licensing, the FCC then asks how it should identify the appropriate geographic service areas. The FCC has used a variety of methods in the past, but notes that in any methodology it might use, it must balance the need to provide sufficiently large service areas with the need to ensure that licenses will be available to a wide variety of licensees. The FCC further asks if it should license public safety and private licenses using different geographic service areas. For example, public safety entities could be licensed by geopolitical area, such as by a state or metropolitan area. Private licenses could be awarded service areas based on market size or other economic factors, or even awarded national licenses.

Second, the FCC asks whether it should award public safety licenses to a state-level agency responsible for transportation facilities in that state. The FCC has previously found that state-level licensing also reduces the administrative burden on the FCC and the public safety community. State licensing, however, has several disadvantages, according to the FCC. State agencies would be responsible for additional spectrum management duties. States may also decide not to apply for a license; thus restricting the access of other eligible entities to the

⁴² *In the Matter of Amendment of the FCC's Rules Regarding Dedicated Short-Range Communication Services in the 5.850-5.925 GHz Band (5.9 GHz Band), Amendment of Parts 2 and 90 of the FCC's Rules to Allocate the 5.850-5.925 GHz Band to the Mobile Service for Dedicated Short Range Communications for Intelligent Transportation Services*, WT Docket No. 01-90, ET Docket No. 98-95, Notice of Proposed Rulemaking, 17 FCC Rcd 23136, 23162-67 (2002) ("*DSRC NPRM*").

spectrum. The FCC asks for comment on what should happen to such state licenses if a state fails to acquire a license.

Fourth, the FCC asks for comment on licensing public safety DSRC operations through the use of regional planning committees. As described in Appendix I, regional planning committees have been used for public safety bands in the 700 MHz and 800 MHz bands. Under this method, the country is broken up in to regions that are given the authority to develop their own plans to meet their public safety needs. The FCC also asks whether unlicensed operations should be permitted in some of the 5.9 GHz Band under Part 15 of its Rules.

APPENDIX V

The Public Record in WT Docket No. 01-90

Comments and Reply Comments (collectively, “Comments”) submitted to the FCC regarding the *DSRC NPRM* voiced consistent and strong support for the licensing and services rules proposed by ITS America and adoption of the ASTM Standard.⁴³ Comments were received from a broad cross section of the ITS community and interested stakeholders: automobile manufacturers, toll authorities, the national and state departments of transportation, public safety organizations, local governments, equipment manufacturers, system integrators, transportation associations, engineering consultants and research institutions.

Regarding the possible licensing options, the majority of commenters supported using site-specific licensing for RSUs over geographic area licensing.⁴⁴ Operators of electronic toll collection (“ETC”) services showed consistent support for site-specific licensing.⁴⁵ Mark IV and TransCore, manufacturers of ETC tags, also advocated site-specific licensing.⁴⁶ Other supporting comments were submitted by Sirit Technologies, a maker of chipsets for radio devices,⁴⁷ the national organization of state departments of transportation, and radio astronomers.

⁴³ Comments and Reply Comments on the *DSRC NPRM* had to be submitted to the FCC in WT Docket No. 01-90 by March 17, 2003 and April 15, 2003, respectively.

⁴⁴ See Comments of American Association of State Highway and Transportation Officials (“AASHTO”); Comments of ARINC, Inc.; Comments of Delaware Department of Transportation (“Delaware DOT”); Comments of E-Z Pass Interagency Group (“E-Z Pass IAG”); Comments of International Bridge, Tunnel and Turnpike Association (“IBTTA”); Comments of Intelligent Transportation Society of America; Comments of The Johns Hopkins University Applied Physics Laboratory (“Johns Hopkins”); Comments of Maine Turnpike Authority (“Maine TA”); Comments of MTA Bridges & Tunnels (“MTA”); Comments of New York State Thruway Authority (“NYS Thruway”); Comments of North Texas Tollway Authority (“North Texas TA”); Comments of Port Authority of New York & New Jersey (“Port Authority”); Comments of National Radio Astronomy Laboratory (“NRAL”); Comments of Sirit Technologies (“Sirit”); Reply Comments of Florida Turnpike Enterprise, Florida Department of Transportation (“Florida Turnpike Enterprise”); Reply Comments of Mark IV, Industries, LTD, I.V.H.S. Division (“Mark IV”); Reply Comments of TransCore.

⁴⁵ See Comments of Delaware DOT; Comments of E-Z Pass IAG; Comments of IBTTA; Comments of Maine TA; Comments of MTA; Comments of NYS Thruway; Comments of North Texas TA; Comments of Port Authority; Reply Comments of Florida Turnpike Enterprise.

⁴⁶ Comments of Mark IV; Comments of TransCore.

⁴⁷ Comments of Sirit; Comments of AASHTO; Comments of NRAL.

Several commenters suggested that public transportation agencies be able to apply for corridor licenses covering multiple sites along a highway or other transportation facility.⁴⁸ The Texas Department of Transportation would go a step further by having the FCC authorize the responsible public agency to grant or approve private use of channels in its transportation corridor(s).⁴⁹

A few commenters, however, suggested that public safety and other governmental licensees could be licensed for geographic services areas.⁵⁰ For example, the American Association of State Highway and Transportation Officials advocated that all public safety licenses be authorized at a state agency level.⁵¹ While generally supportive of site-specific licensing, the Public Safety Wireless Network, a public safety organization, contended that in some instances state, regional or even national licenses may be appropriate for licensing public safety services.⁵² Siemens, an integrator of commercial telecommand and data telemetry control systems for vehicle control systems, offered that a geographic area license may be more appropriate for public-related ITS services, such as transit, that operate on a state-wide basis or regional basis across political jurisdictions.⁵³ The National Association of Telecommunications Officers and Advisors/National League of Cities also expressed support for geographic licensing for public safety at the state, metropolitan or district levels.⁵⁴

Some comments discussed the drawbacks of geographic area licensing. The Association of Automobile Manufacturers, representing the largest manufacturers of vehicles sold in the United States, expressed the view that, given the nature of the anticipated DSRC services and their relatively small service areas, granting geographic area licenses would be inappropriate if such areas would be exclusive to a licensee. The Johns Hopkins University Applied Physics

⁴⁸ See Comments of Comments of Delaware DOT; Comments of 3M; Comments of IBTTA; Comments of Maine TA; Comments of MTA; Comments of NYS Thruway; Reply Comments of Florida Turnpike Enterprise; Reply Comments of Texas Department of Transportation (“Texas DOT”).

⁴⁹ Reply Comments of Texas DOT.

⁵⁰ See, e.g., Comments of AASHTO; Comments of National Association of Telecommunications Officers and Advisors/National League of Cities (“NATOA/National League of Cities”); Comments of National Emergency Number Association; Comments of Public Safety Wireless Network (“PSWN”); Comments of Siemens Transportation Systems (“Siemens”); Comments of 3M.

⁵¹ Comments of AASHTO.

⁵² Comments of PSWN.

⁵³ Comments of Siemens.

⁵⁴ Comments of NATOA/ National League of Cities.

Laboratory noted that the contemplated provisioning of DSRC services will be localized, which is more consistent with site-specific licensing.

The National Telecommunications & Information Administration (“NTIA”) within the U.S. Department of Commerce also criticized the use of geographic area licensing.⁵⁵ NTIA is responsible for managing spectrum used by federal government entities, such as the Department of Defense. According to NTIA, licensees authorized by geographic area would be able to locate stations anywhere within their service area without prior coordination or identification of locations, making station sites unknown to others. Thus, it would be difficult to coordinate with incumbent Department of Defense radar installations in the 5.9 GHz Band if NTIA is unable to know the locations and technical characteristics of individual DSRC stations.

Intersil, a maker of chips for radio transmission devices, favors site-specific licensing procedures for RSUs it terms, “frequency-coordinated licensing by rule,” which would reduce the overhead and administrative delays associated with traditional site-specific licensing. Coordination would be conducted through an Internet-based database.⁵⁶ Once coordination is complete, transmission could begin immediately. Individual DSRC stations would not be licensed.

⁵⁵ *Ex Parte* Comments of National Telecommunications & Information Administration (June 6, 2003).

⁵⁶ Comments of Intersil Corporation.