

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
Amendment of the Commission's Rules)	WT Docket No. 01-90
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)	ET Docket No. 98-95
Commission's Rules to Allocate the)	RM-9096
5.950-5.925 GHz Band to the Mobile)	
Service for Dedicated Short Range)	
Communications of Intelligent)	
Transportation Services)	

**Comments of the
Intelligent Transportation Society of America**

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SUMMARY

The Intelligent Transportation Society of America (“ITS America”) hereby submits its Comments in response to the Commission’s *Notice of Proposed Rulemaking* released on November 15, 2002 in WT Docket No. 01-90 and ET Docket No. 98-95 regarding proposed licensing and services rules for the use of the frequency band at 5.850-5.925 GHz (“5.9 GHz Band”) for Dedicated Short Range Communications in the Intelligent Transportation Systems (“ITS”) Radio Service. DSRC-based ITS services will provide the traveling public access via a wireless link to a wide variety of public safety and non-public safety services and information. Through an installed transceiver unit in a vehicle, for example, a driver could pay tolls, pay for parking, receive traffic and road condition updates and hear public safety warning messages. This vision, however, is premised on achieving nationwide interoperability of DSRC-based ITS services and devices in the band.

In July 2002, ITS America submitted to the Commission proposed licensing and services rules designed to make this vision for the 5.9 GHz Band a reality. Fundamental to these proposal is a request that the Commission adopt into its Rules a single wireless transmission standard for the band: ASTM E2213-02, 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) (“ASTM E2213-02 DSRC Standard”). This standard, written under and approved by the American Society for Testing and Materials, is designed to achieve interoperability in the band. By the Commission adopting the ASTM E23213-02 DSRC Standard, all users – both public safety and non-public safety – and all transmission equipment would operate in conformance to the

standard. A failure to adopt the standard would make it difficult, if not impossible, to realize interoperability and achieve the significant and unique public benefits envisioned for the band.

ITS America submits its Comments to explain further the rationales for and public benefits to be achieved by the Commission adopting the ASTM E2213-02 DSRC Standard. First, adopting the standard is consistent with the Congressional mandate to achieve interoperability. Second, it will result in public safety interoperability, which is a significant problem of great concern to the Commission. Third, its adoption will lead to the quickest deployment and ensure the largest possible market for DSRC-based ITS services and devices. Fourth, while there is an industry agreement to use the standard, only the Commission's adoption will ensure future compliance. And, fifth, the standard will lead to the development of new technologies for use in the band. It is also the case that the proposed licensing and services rules are consistent with and anticipated the recommendations of the Commission's Spectrum Policy Task Force Report, also released in November 2002.

For these reasons and those provided to the Commission in July 2002, ITS America respectfully requests that the Commission adopt the ASTM E2213-02 DSRC Standard into its Rules.

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Revised rule language for adoption of the ASTM E2213-02 DSRC Standard

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To: The Commission

**Comments of
The Intelligent Transportation Society of America**

Pursuant to Section 1.415 of the Commission’s rules, 47 C.F.R. § 1.415, the Intelligent Transportation Society of America (“ITS America”),¹ through its attorneys, respectfully submits its Comments regarding the *Notice of Proposed Rulemaking and Order* (“NPRM”) in the above-captioned proceedings.²

¹ These comments reflect the views of ITS America and do not necessarily reflect the views of individual members, some of whom may submit separate comments to the Commission in this proceeding.

² *In the Matter of Amendment of the Commission’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 Commission’s Rules to Allocate the 5.950-5.925 GHz Band for Dedicated Short Range Communications of Intelligent Transportation Services*, WT Docket No. 01-90, ET Docket No. 98-95, RM-9096, Notice of Proposed Rulemaking and Order, 17 FCC Rcd 23136 (rel. Nov. 15, 2002) (“NPRM”).

I. INTRODUCTION

Use of the 5.850-5.925 GHz Band (“5.9 GHz Band”) for Dedicated Short Range Communications (“DSRC”) holds the promise of providing nationwide, wireless access for the traveling public to a wide variety of services and information, generally termed Intelligent Transportation Systems (“ITS”). A common radio device installed in every passenger vehicle will be able to receive real-time warnings on road and traffic conditions, pay for tolls and parking, download vehicle diagnostic information and avoid accidents with other vehicles. Accessing the same devices, public safety entities will be able to change traffic signals to green for ambulances, advise travelers of work zones or hazardous road conditions, and clear commercial vehicles across international borders. This is only a partial list of the many services and applications envisioned for the 5.9 GHz Band. However, this vision is premised on achieving nationwide interoperability of DSRC-based ITS and devices in the band.

Recognizing the many public benefits of the 5.9 GHz Band, on October 22, 1999 the Commission allocated the frequency band for DSRC systems operating in the Intelligent Transportation Systems Radio Service.³ The allocation order was in response to a Petition for Rulemaking submitted by ITS America. The Commission stated that the “record in [the] proceeding overwhelmingly supports the allocation of spectrum for DSRC-based ITS applications to increase traveler safety, reduce fuel consumption and pollution, and continue to advance the nation’s economy.”⁴ Moreover, the Commission acknowledged the need for the

³ See *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. 96-95, Report and Order, 14 FCC Rcd 18221 (1999).

⁴ *Id.* at 18223.

allocation given the substantial efforts by both government and non-government entities to develop, in response to Congressional requirements, a nationwide plan to use communications technologies to increase the efficiency and public benefits of the nation's transportation infrastructure.⁵ In its Petition for Rulemaking, ITS America did not propose a specific channelization plan, licensing method or technical rules, stating that these issues first required development of industry consensus through standardization activities and further Commission proceedings.

In July 2002, ITS America submitted to the Commission proposed licensing and service rules⁶ to govern access and use of the 5.9 GHz Band for DSRC in the ITS Radio Service.⁷ ITS America set forth four goals for its proposed rules: (1) achieve nationwide interoperability of DSRC systems, devices and applications between and among public safety and non-public safety users; (2) promote the increased use of these devices and applications by the traveling public; (3) foster the growth of competitive markets in the United States and abroad for U.S. equipment and service providers; and (4) ensure that the 5.9 GHz Band is used as efficiently as possible.⁸

Key to achieving these four goals, but especially interoperability, is the further recommendation that the Commission specify that all DSRC-based ITS in the 5.9 GHz Band conform to a single wireless data transmission standard by adopting into its Rules the ASTM E2213-02, Standard Specification for Telecommunications and Information Exchange Between

⁵ *Id.* at 18223, ¶ 5.

⁶ *Ex Parte Comments of the Intelligent Transportation Society of America: Status Report and Recommendations for Licensing and Service Rules for the DSRC Spectrum in the 5850-5925 MHz Band* ("July 2002 Ex Parte Comments").

⁷ 47 C.F.R. Part 90, Subpart M.

⁸ *July 2002 Ex Parte Comments* at 22.

Roadside and Vehicle Systems – 5 GHz Band Dedicated Short Range Communications (DSRC) Medium Access Control (MAC) and Physical Layer (PHY) (“ASTM E2213-02 DSRC Standard”).⁹ The ASTM E2213-02 DSRC Standard has been developed specifically for the purpose of enabling short range, very high-speed and reliable transmissions of data between and across networks consisting of stopped, slow or fast moving vehicles (passenger, commercial, emergency and maintenance) and between the roadside and vehicles.¹⁰ This proposed band structure would permit public safety and non-public safety licensees to share frequencies by accessing a single “Control Channel” for directing operations to various “Service Channels” across the band. Thus, a single transceiver installed in a vehicle would be able to communicate with both public safety and non-public safety licensees. This would result in true interoperability: between and among transmission equipment, licensees and applications. Thus, adopting the ASTM E2213-02 DSRC Standard into the Commission’s Rules is the best and most appropriate means to realize nationwide interoperability in the band. In other words, without adopting the standard, there cannot be interoperability; and without interoperability, the significant public benefits envisioned for the band will not be obtained.

On November 15, 2002, the Commission released the *NPRM* seeking, in part, comment on proposed rules and related issues for governing the licensing and use of the 5.9 GHz Band for DSRC-based ITS. ITS America submits these Comments to explain further the rationales for and public benefits to be achieved by the Commission adopting the ASTM E2213-02 DSRC Standard as well as to answer several questions raised by the Commission.

⁹ *Id.*

¹⁰ *Id.* at 14.

II. ADOPTING THE ASTM E2213-02 DSRC STANDARD IS THE BEST AND MOST APPROPRIATE MEANS TO ACHIEVING INTEROPERABILITY IN THE 5.9 GHz BAND

In its allocation order the Commission recognized the unique public benefits associated with allocating the 5.9 GHz Band for DSRC, but these benefits are only achievable if devices and services are interoperable nationwide. Adopting the ASTM E2213-02 DSRC Standard is the best and most appropriate means to achieve interoperability and, therefore, to provide these unique public benefits to the public.

A. Adopting the Standard is Consistent with the Congressional Mandate for Interoperability

There is a clear and long-standing Congressional mandate to achieve interoperability in the 5.9 GHz Band. Starting in 1991 with passage of the Intermodal Surface Transportation Efficiency Act,¹¹ Congress has set forth a vision for intelligent transportation systems that calls for nationwide interoperability of ITS services, applications and equipment. Congress repeated this mandate in 1998's Transportation Equity Act for the 21st Century ("TEA 21").¹² This charge was given to the U.S. Department of Transportation ("USDOT"). USDOT must "develop, implement and maintain a national architecture and supporting standards and protocols to promote the widespread use ... of intelligent transportation system technology as a component of the surface transportation systems of the United States."¹³ It must also use this national architecture, and supporting standards and protocols, to the maximum extent practicable to "promote interoperability among and efficiency of, intelligent transportation system

¹¹ Pub. L. No. 102-240, 105 Stat. 1914 (1991).

¹² Pub. L. No. 105-178, 112 Stat. 107 (1998) ("TEA 21").

¹³ *Id.* at § 5206(a)(1).

technologies....”¹⁴ Congress then specifically called for the use of standards and standards-setting organizations to achieve interoperability. For example, Section 5205 requires that U.S. Department of Transportation identify in the National ITS Program Plan:

[] activities that provide for the dynamic development of standards and protocols to promote and ensure interoperability in the implementation of intelligent transportation system technologies, including actions taken to establish critical standards....¹⁵

This language evidences Congress’s clear intent that standards be the primary means to achieve interoperability.

Finally, Congress in TEA 21 contemplated the need for dedicated spectrum to provide the short-range vehicle-to-roadside and vehicle-to-vehicle communications contemplated for the 5.9 GHz Band. The Commission, according to TEA 21, is required to “consider, in consultation with [USDOT], spectrum needs for the operation of intelligent transportation systems, including spectrum for dedicated short-range vehicle-to-wayside standard.”¹⁶ This language is expressly directed at the development of a common transmission standard for DSRC communications, namely the ASTM E2213-02 DSRC Standard. Congress then directed the Commission to finish its allocation of this spectrum no later than January 1, 2000.¹⁷

Thus, a decision by the Commission to adopt the ASTM E2213-02 DSRC Standard would clearly be consistent with Congress’s long-standing goal to achieve nationwide interoperability for ITS in the United States.

¹⁴ *Id.* at § 5206(a)(2).

¹⁵ *Id.* at § 5205(a)(2)(C); *see also id.* at § 5206(a)(3). Moreover, the ASTM E2213-02 DSRC Standard was included in the list of critical standards identified by US DOT to Congress in June 2002. *See id.* at § 5206(b).

¹⁶ *Id.* at § 5206(f).

B. Adopting the Standard will result in Public Safety Interoperability¹⁸

The Commission is well aware of the many instances where the lack of interoperability among public safety users of spectrum has made it more difficult to respond effectively to emergencies. The inability, and resulting detrimental impact on public safety, of emergency responders – fire, police, medical and others – to communicate with one another at critical times is well documented. The need for interoperability is all the more important given the current national emphasis on implementing homeland security measures. Consequently, a long-standing Commission priority has been to foster improved interoperability between and among public safety users of spectrum.

This past February, the Department of Justice’s National Task Force on Interoperability released a report (“*Interoperability Report*”) examining why in many instances public safety officials in the same jurisdiction are unable to communicate with other and what remedies should be pursued.¹⁹ The *Interoperability Report* specifically noted that open standards for public safety communications are an important factor in alleviating this lack of interoperability.²⁰ However, as manufacturers improved the functionality and efficiency of their radio products, they began

¹⁷ *Id.*

¹⁸ The Commission asks in the *NPRM* whether all operations in the 5.9 GHz Band, and not just public safety, must be interoperable. *NPRM* at 23158, ¶ 34. The answer is yes. The standard and band plan are written so that shared use of the band is implemented. Such shared use contemplates common devices, especially those installed in vehicles, capable of receiving and transmitting both public safety and non-public safety messages. Indeed, public safety and non-public safety users would be able to take advantage of “plug and play” benefits to use the same off-the-shelf radio equipment.

¹⁹ *Why Can’t We Talk: Working Together to Bridge the Communications Gap to Save Lives: A Guide for Public Officials*, National Task Force on Interoperability (Feb. 2003) (“*Interoperability Report*”), available at <http://www.agileprogram.org/ntfi/>.

²⁰ *Id.* at 54.

using unique proprietary technologies incompatible with other systems.²¹ These incompatible systems therefore often led – and still lead – to the result that public safety users operating in the same band and in the same jurisdiction are unable to communicate with one another.

All current public safety (traditional and non-traditional) identified in the Commission’s Rules would be eligible for licensing in the 5.9 GHz Band. The Commission therefore has an opportunity to establish at the outset the most appropriate band structure for achieving public safety interoperability. Moreover, the Commission has the opportunity in this proceeding to extend interoperability to non-public safety users of the band. All radio equipment developed and used in the band would have to conform to the standard. All licensees and end users could therefore be confident that any radio equipment they may purchase from one manufacturer would be compatible with equipment purchased by another public safety user, even if the equipment came from different makers. Adopting the ASTM E2213-02 DSRC Standard would establish the common technical framework for achieving interoperability between and among public safety and non-public safety users in the 5.9 GHz Band.²²

C. Adopting the Standard will lead to the Quickest Deployment of DSRC-based ITS Services

The Commission and the ITS community share the same interest in seeing the build-out of services in the 5.9 GHz Band occur as soon as possible. Adopting the ASTM E2213-02 DSRC Standard will lead to the quickest and most comprehensive deployment of DSRC-based ITS services.

²¹ *Id.*

²² At the time of the allocation, neither the Commission nor ITS America suggested that making the band available for public safety use should mean that the band should be considered a replacement or substitute for additional spectrum resources requested by public safety entities separate from this proceeding.

The largest market will exist where developers and manufacturers can sell to both public safety and non-public safety users. The public safety market is not large enough in and of itself to ensure a fast and robust deployment of DSRC. Shared use of the band premised on a common standard will result in this largest possible market for DSRC devices. With production volumes maximized and prices at their lowest, users – public safety and non-public safety – will be incentivized to deploy their DSRC systems and applications as quickly as possible. Both public safety and non-public safety users will benefit where they can combine their deployment efforts. Conversely, a failure to adopt the standard will likely create incentives for equipment developers to wait and see how the market develops or create proprietary technologies in the hopes of grabbing market share and shutting out other competitors. This would likely result in a fragmented market for DSRC products and services, higher costs for all and “stovepipe” deployments that are not interoperable.

D. Industry Agreement is Not Sufficient to Ensure Compliance

The Commission asks in the *NPRM* whether the ITS industry has come to agreement on use of the ASTM E2213-02 DSRC Standard and, if so, whether adopting it would therefore be unnecessary.²³ ITS America described in its *July 2002 Ex Parte Comments* that the ASTM E2213-02 DSRC Standard was developed by industry representatives (the “ASTM Standards Writing Group”) through an open and consensus-based process under the auspices of the American Society of Testing and Materials.²⁴ While the ASTM Standards Writing Group represents a broad segment of the ITS industry,²⁵ the Commission should not conclude that every

²³ *NPRM* at 23158, ¶ 33.

²⁴ *July 2002 Ex Parte Comments* at 12-14.

²⁵ *See id.* at Appendix B.

interest in the 5.9 GHz Band was at the table. No claim can be made that all interests – and future, currently unknown interests – were represented or will agree to abide by the standard if it is not adopted.

The ASTM Standards Writing Group agreed that the ASTM E2213-02 DSRC Standard is the most appropriate transmission standard for operations in the 5.9 GHz Band. They also agreed that Commission adoption would be the best means to achieve the overall goals for the band, such as interoperability. The ASTM Standards Writing Group recognized that, even if their use of the standard remains consistent, that future users would not be so bound. Future users may see an opportunity to grab market share for their proprietary transmission technology, thus defeating the underlying public policy goals for the band. Only adopting the standard would prevent this from occurring.

The ITS community is already struggling to overcome the inefficiencies created by “stovepipe” deployments that are not interoperable with each other. For example, while there are only a relatively limited number of toll agencies in the United States, many of the agencies that have implemented electronic toll collection have deployed proprietary systems incompatible with one another. This has occurred even within a single state and where regional toll systems are adjacent or located near one another. For the end user driving across state lines or across the country, multiple tags have to be procured and displayed. For example, a long-haul commercial truck would need three different toll tags to travel from Florida to New York. Moreover, many of the differing system tags interfere with one another in close proximity – such as when placed on a vehicle windshield – even though they are all operating in the 902-928 MHz non-multilateration sub band.

The problems faced by the electronic toll industry are but a foreshadowing of what will likely happen in the 5.9 GHz Band without adoption of the ASTM E2213-02 DSRC Standard. In addition to the toll agencies, state and local governments, public safety entities, private companies and vehicles themselves are all expected to use the band, potentially numbering several thousand entities operating in the band. When installed on every new vehicle sold in the United States, the number of On-Board Units will literally reach into the millions. Simply stated, the industry agreement to use the ASTM E2213-02 DSRC Standard is not sufficient to ensure future compliance. Only national attention and resources can establish the conditions for interoperability. The Commission should therefore adopt the standard in its Rules.

E. The Commission Should Also Adopt Future Developments of the ASTM E2213-02 DSRC Standard

In its *July 2002 Ex Parte Comments*, ITS America proposed that the Commission adopt only Layers 1 and 2 of the standard at this time.²⁶ However, explicit provision should be made in the Commission's Rules also to adopt future developments of the standard by ASTM.²⁷ Further review by the ASTM Standards Writing Group since July 2002 has resulted in the conclusion that including such a provision would ensure the long-term viability of the standard by reflecting improvements in technology and changes in operations in the 5.9 GHz Band.²⁸ Operational tests of the standard will commence this summer, which may reveal additional changes needed in the

²⁶ See *July 2002 Ex Parte Comments* at 34-37.

²⁷ Under the auspices of the Institute of Electrical and Electronics Engineers, Inc., additional layers to the ASTM E2213-02 DSRC Standard are under development. The Commission is not requested to adopt these subsequent layers.

²⁸ At the most recent meeting of the ASTM Standards Group in March 2003, technical updates and additions to the standard were released for balloting within ASTM. The updated standard will be provided to the Commission during this proceeding.

standard. Moreover, the administrative burden on the Commission would be lessened by removing the need to conduct additional rulemakings to reference updates in the standard. Therefore, attached as Appendix A is revised, proposed rule language to include adoption of such updates to the ASTM E2213-02 DSRC Standard.

III. THE FINAL COMMISSION RULES SHOULD SUPPORT THE PURPOSE AND BENEFITS OF ADOPTING THE ASTM E2213-02 DSRC STANDARD

If the Commission were to adopt the ASTM E2213-02 DSRC Standard, it is equally important that the licensing and service rules for the 5.9 GHz Band support the use of the standard. ITS America's proposed rules are constructed carefully to enable use of the standard by all users – public safety and non-public safety – to achieve interoperability. The supporting rules should not defeat the purpose of the standard and the public benefits from its adoption by the Commission.

For example, ITS America proposes that site-by-site licensing be used to assign Roadside Units to individual licensees. A license would identify a “communications zone” corresponding to a specific location and defined by range, power and type of DSRC application. Licensees' communications zones could be adjacent to one another or overlap. Shared use of the band makes this structure possible. In the *NPRM*, the Commission discusses the alternative of geographic area licensing.²⁹ Even if the Commission were to adopt the ASTM E2213-02 DSRC Standard, using geographic area licensing (most likely through the use of auctions) would defeat realizing interoperability in the band.

Geographic area licensing will not lead to interoperability but stand-alone, “stovepipe” deployments. The ASTM E2213-02 DSRC Standard and supporting band plan are built around

²⁹ See *NPRM* at 23165, ¶ 47.

shared access and use to frequencies. For example, all users – public safety and non-public safety – monitor the Control Channel for public safety messages or instructions to proceeding to another channel in the band to complete other types of transmissions.³⁰ No entity would have exclusive rights to any frequencies or channels in the band. In contrast, geographic area licensing assigns exclusive access and control to frequencies to a single licensee for a defined geographic area. Creating pockets of exclusivity (within a frequency band and for geographic areas) is anathema to the shared use concept and for achieving interoperability. Licensees would thus have the incentive to maximize their use and return on investment (especially if auctions are used) to the exclusion of other, potentially competing licensees. Adopting the ASTM E2213-02 DSRC Standard would be rendered irrelevant, as licensees would likely not allow, despite the common technical base, access to their exclusive frequencies without compensation. Licensees would also have an incentive to seek technical advantages over time to exploit further the exclusive nature of their spectrum holdings.

Geographic area licensing is also inconsistent with the technical characteristics of expected operations in the 5.9 GHz Band. Only short range, lower power and mostly directional transmissions are envisioned for the band. Assigning licenses pursuant to Metropolitan and Rural Service Areas, Economic Areas Regional Economic Area Groupings, etc., is more appropriate for licensees, such as cellular or PCS, which employ higher power, longer range transmissions to/from any point 360 degrees around a transmitting tower.³¹ More important, geographic area licensing would make it impossible for public safety and non-public safety

³⁰ To further explain the Control Channel and shared use concept, Highway Electronics, a member of the ASTM Standards Writing Group, will be submitting a White Paper entitled, “Control Channel Operation in the ITS Radio Services Band” with its Comments.

³¹ See *NPRM* at 23165-66, ¶ 48.

licensees to share access to frequencies in the band. The ASTM E2213-02 DSRC Standard establishes a single Control Channel that public safety and non-public safety licensees monitor for public safety messages or instructions to transfer to an adjacent Service Channel to complete a transmission. A geographic area licensee, for example, would likely resist granting access to his or spectrum, even for public safety messages that require priority transmission status. The proposed band structure cannot be reconciled with a licensing structure that grants exclusive spectrum rights to a single entity in a given geographic area.

Using geographic area licensing will also likely result in mutually exclusive applications, thus compelling competitive bidding. The Commission discusses this possibility in the *NPRM*.³² Auctions will make it more difficult for public safety entities to access spectrum in the band. Public safety entities cannot financially compete with private entities in spectrum auctions. The alternative, which the Commission contemplates,³³ is to divide the band into two exclusive segments: one for public safety and a second for non-public safety. Such a scheme would further frustrate attempts to enabled shared access to spectrum and, consequently, achieve interoperability.³⁴ Equipment designers and manufacturers would, in effect, be building devices for two separate markets, regardless if both the public safety and non-public safety licensees are using the ASTM E2213-02 DSRC Standard. Neither group, for example, would therefore be able to take advantage of the economies of scale for equipment and system build outs that would

³² *Id.* at 23171-72, ¶¶ 59-62.

³³ *Id.* at 23161, ¶ 39.

³⁴ The Commission is correct in noting that the ASTM E2213-02 DSRC Standard is “directly linked” to achieving interoperability in the band and, therefore, channelizes the band in a specific scheme that supports interoperability. *Id.*

be available from a single DSRC market.³⁵ More significantly, geographic licensing would not solve the problem faced by current end users – *i.e.*, commercial vehicle driver, owner of a private vehicle – from having to use multiple devices to do the many tasks a single device as he or she travels around the country. If the Commission decides it is in the public interest to create another commercial or private wireless service consistent with past allocations, then geographic licensing would likely be most appropriate. If, however, the Commission supports the unique public benefits to be achieved in the 5.9 GHz Band, and for which it was allocated, site-by-site licensing would be the most appropriate licensing mechanism.

Finally, the Commission asks whether site-by-site licensing procedures will create an administrative burden, especially for systems that may include several hundred sites.³⁶ There are ways to lessen any potential administrative burden. For example, frequency coordinators and not the Commission would coordinate the licensing process. The coordinators and licensees can also

³⁵ The Commission suggests that geographic licensing also provides increased administrative flexibility and other advantages for both public safety and commercial services. *Id.* at 23165, ¶ 47 & nn. 227-29 (citing *In the Matter of Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010*, WT Docket No. 96-86, Third Memorandum Opinion and Order and Third Report and Order, 15 FCC Rcd 19844, 19867-68, ¶¶ 54-55 (2002) (“*Public Safety Communications Requirements Third Report and Order*”). ITS America supports Commission efforts to give greater administrative flexibility to all licensees, but the systems under discussion in the *Public Safety Communications Requirements Third Report and Order* were focused on “wide area systems” and not the type of local systems envisioned for the 5.9 GHz Band.

³⁶ *NPRM.* at 23165-66, ¶ 46. For example, ITS America suggests (*July 2002 Ex Parte Comments* at 52) that toll agencies or other transportation agencies that manage toll roads or highways be granted a “ribbon” or “corridor” license for six Roadside Units along such rights-of-way to operate multiple Roadside Units. The Commission is correct in contemplating that such a “ribbon” or “corridor” license could cover several hundred sites along the many miles of a highway. For administrative ease, a public safety entity should be permitted to use a single license application but should still be required to identify the proposed locations of individual Roadside Units for frequency coordination.

utilize the Commission’s Universal Licensing System (“ULS”), available to the public via the Commission’s website, to manage license applications and as a central repository of licensee information. ULS is successfully used today for these functions in other public safety and non-public safety frequency bands. In short, potential administrative burdens can be alleviated using existing tools. They should not become a barrier to realizing the important public benefits to be achieved in the band.

IV. ADOPTING THE ASTM E2213-02 DSRC STANDARD WILL NOT PRECLUDE THE DEVELOPMENT OF NEW TECHNOLOGIES FOR USE IN THE 5.9 GHz BAND

In the digital television (“DTV”) proceedings, the Commission also adopted a single, industry-developed standard.³⁷ One of the four factors in the Commission’s analysis was whether adopting a standard for DTV would encourage technical innovation and competition.³⁸ The Commission specifically found that incorporating the DTV standard into its rules would encourage technological innovation and competition.³⁹ Support for this conclusion was drawn from the fact that the DTV standard did not define all elements of the technology, thus resulting in “greater choice and diversity of equipment, allow[ing] computer equipment and software firms more opportunity to compete by promoting interoperability, and result[ing] in greater consumer benefits by allowing an increase in the availability of new products and services.”⁴⁰

³⁷ See *In the Matter of Advanced Television Systems and Their Impact Upon the Existing Broadcast Service*, MM Docket No. 87-268, Report and Order, 11 FCC Rcd 17771 (1996) (“*ATS Fourth R&O*”).

³⁸ ITS America discusses this and the other four factors and their relevance to the ASTM E2213-02 DSRC Standard in its *July 2002 Ex Parte Comments* at 31-37.

³⁹ *ATS Fourth R&O* at 17789, ¶¶ 39.

⁴⁰ *Id.*

ITS America believes that the ASTM E2213-02 DSRC Standard is analogous to this DTV example. While comprehensive, the ASTM E2213-02 DSRC Standard is written to be a technical baseline for equipment and service developers to compete on the basis of performance, quality and different types and forms of DSRC applications. It is an open, non-proprietary standard, thus further preserving competitive neutrality. Public safety and non-public safety users – and the traveling public – would therefore, reap the benefits of interoperability, lower prices and greater choices.

V. ITS AMERICA’S PROPOSED RULES ANTICIPATE AND ARE CONSISTENT WITH THE SPECTRUM MANAGEMENT RECOMMENDATIONS ISSUED BY THE COMMISSION’S SPECTRUM POLICY TASK FORCE

In June 2002, Chairman Powell announced the formation of a crosscutting Task Force of professional staff (“Spectrum Policy Task Force”) from the Commission’s Bureaus and Offices to investigate and offer recommendations on how to improve the Commission’s management of radio spectrum to increase public benefits.⁴¹ After conducting several public hearings and soliciting comments, the Spectrum Policy Task Force released its study and recommendations in November 2002.⁴² ITS America’s proposed rules for the 5.9 GHz band anticipated and already incorporate several of the Task Force’s recommendations.

For example, ITS America proposes shared use of the 5.9 GHz band for public safety and non-public safety uses. To accomplish this, public safety users would be granted priority access to the band. Non-public safety users would have access to all channels, but must incorporate “listen-before-transmit” techniques to avoid interfering with messages then being transmitted.

⁴¹ *FCC Chairman Michael Powell Announces Formation of Spectrum Policy Task Force*, News Release (rel. June 6, 2002).

⁴² *Spectrum Policy Task Force*, ET Docket No. 02-135, Report (rel. Nov. 2002)

The Task Force also contemplates these types of band protocols. It makes a general recommendation that the Commission consider how it might allow greater access to spectrum that utilized by the primary licensee, such as public safety users. Another licensee could be permitted to use the spectrum when not in use by the primary licensee with the condition that it must suspend its operations when the primary licensee is transmitting.⁴³ Further, this type of “time division” of spectrum, could, according to the Task Force, be accomplished through “listen-before-transmit” techniques that take advantage of advances in “frequency-agile” radio transmission technology.⁴⁴

More generally, the Task Force acknowledges the fact that the cost of advanced radio equipment is unaffordable to public safety users.⁴⁵ Therefore, the Task Force encourages public safety entities to share costs and spectrum with others, including other state and local agencies, utilities and the federal government.⁴⁶ ITS America’s proposed rules take this idea a step further. Recognizing the important cost barriers to state-of-the-art radio equipment, ITS America proposes shared use not only of spectrum, but also of key transmission devices. In this way, the public safety entities will be able to “piggyback” off the investment made by non-public safety entities, which, in turn, will know that they are building for the largest possible market. As a result, the radio equipment is more affordable for all users and DSRC applications are deployed more quickly.

⁴³ *Id.* at 10.

⁴⁴ *Id.* at 20, 58.

⁴⁵ *Id.* at 43.

⁴⁶ *Id.*

Finally, public safety entities need access to sufficient and protected spectrum to meet their needs for their “very robust” and reliable communications, especially for emergency communications. These entities cannot compete against non-public safety entities for new spectrum in the marketplace. Recognizing these special factors, the Task Force recommends that the Commission continue to allocate public safety spectrum through its “common and control” model.⁴⁷ Similarly, ITS America’s proposal for site-by-site licensing in the 5.9 GHz Band recognizes the unique needs of public safety users.

VI. COMMENTS ON SPECIFIC ISSUES RAISED IN *NPRM*

A. On-Board Units Need Not Be Associated With Specific Licensed Roadside Units

The Commission asks whether On-Board Units associated with a fixed system should be licensed in conjunction with the associated Roadside Units.⁴⁸ ITS America’s proposal contemplates that all On-Board Units, whether or not associated with a specific fixed system, are best licensed under the Commission’s licensed-by-rule regime.⁴⁹ While there will be instances where a licensee will deploy a number of On-Board Units for communication with its Roadside Units, it is expected that the majority of On-Board Units will be deployed without any association with a particular licensee or fixed system. ITS America’s goal is to support the rapid and widespread deployment of DSRC-based ITS in the band, such as through the installation of On-Board Units as standard equipment on all new vehicles sold in the United States. The

⁴⁷ *Id.*

⁴⁸ *NPRM* at 23167, ¶ 52.

⁴⁹ *July 2002 Ex Parte Comments* at 53-56.

licensed-by-rule regime for all On-Board Units offers the most appropriate mechanism for achieving this result in the shortest amount of time.

B. Only Commission Type Certification of DSRC Devices is Necessary

If the Commission were to adopt the ASTM E2213-02 DSRC Standard, the Commission asks whether it should also adopt equipment performance standards.⁵⁰ Commission-prescribed performance standards are not necessary. The Commission should require type certification consistent with the requirements already found in Parts 2 and 90 of its rules.⁵¹ As discussed above, equipment developers and manufacturers will compete based on performance abilities and other qualities. Performance standards would therefore stifle competition on this basis. ITS America is also aware that a new industry-led group has been established to provide performance evaluation and certification functions for DSRC equipment and services.

C. Changes to Definition of DSRC

ITS America proposed in its *July 2002 Ex Parte Comments* to changes to the current definition of “Dedicated Short Range Communications” in the Commission’s Rules.⁵² First, the term “non-voice” should be deleted to reflect the fact that certain types of data transmissions will employ conversion techniques for translating into voice messages.⁵³ Second, the phrase “and commercial environments” be replaced with “and private environments” to make it clear that the band is neither appropriate nor intended for cellular-based commercial applications such as

⁵⁰ *Id.* at 23158-59, ¶ 34.

⁵¹ *See* 47 C.F.R. §§ 2.803, 90.203; *see also July 2002 Ex Parte Comments* at 37-38.

⁵² The current definition is found at 47 C.F.R. §§ 90.7, 90.371.

⁵³ *July 2002 Ex Parte Comments* at 26-27. (Such a “store and forward” technique, however, should not be construed as real-time, two-way voice communication.)

CMRS.⁵⁴ The Commission suggested in the alternative that the entire phrase “of public and commercial” environments be replaced to read “a variety of environments”.⁵⁵ ITS America concurs with using the Commission’s alternative language of “a variety of environment”. The term “non-voice” should also be deleted from the definition.⁵⁶

VII. OTHER ISSUES

A. Redesignation of Channel 172

In its *July 2002 Ex Parte Comments*, ITS America proposed that Channel 172 (at 5855-5865 MHz) be designated exclusively for vehicle-to-vehicle communications.⁵⁷ Discussions with the vehicle OEMs revealed that reserving this channel exclusively for these types of communications is not appropriate. Rather, Channel 172 should be reserved for communications – including safety-related vehicle-to-vehicle and vehicle-to-roadside communications – of extremely low latency and high exchange rate upon the communicating parties switching over from the Control Channel. Channel 172 should be set aside for DSRC-based ITS services that need immediate access to a low-traffic channel. The vehicle OEMs have expressed their intent to use Channel 172 for accident avoidance and mitigation techniques, among other critical communications, but only under conditions of high availability, low latency and of a limited message duration.⁵⁸

⁵⁴ *Id.* at 47.

⁵⁵ *NPRM* at 23147-48, ¶ 16.

⁵⁶ These proposed changes would be made in both 47 C.F.R. §§ 90.7 and 90.371.

⁵⁷ *July 2002 Ex Parte Comments*, Appendix C at 6.

⁵⁸ The ASTM Standards Writing Group is currently reviewing additional technical elements of Channel 172, including maximum message length. Any further recommendations will be forwarded to the Commission in this proceeding.

B. Intervals Between Transmissions On Control Channel

In Paragraph #37 of the *NPRM*, the Commission reports that communications on the Control Channel are recommended to last no more than 200 microseconds “in intervals of no less than 2 seconds.”⁵⁹ This last figure is incorrect. While the ASTM Standards Writing Group is awaiting results of simulations to determine the minimum interval and maximum message duration in time most appropriate for the Control Channel, the best estimate of the interval time period is closer to no less than 100 milliseconds rather than no less than 2 seconds.⁶⁰

⁵⁹ *NPRM* at 23160, ¶ 37.

⁶⁰ Any further recommendations will be forwarded to the Commission in this proceeding.

VII. CONCLUSION

ITS America requests that the Commission adopt the ASTM E2213-02 DSRC Standard and its future developments for all operations in the 5.9 GHz Band. Such a decision would be the most appropriate means to achieve nationwide interoperability and would be consistent with Congressional intent. Achieving nationwide interoperability will ensure that the band is put to its highest and best use and the public will realize the many and significant benefits available from DSRC-based ITS and applications.

Respectfully submitted,

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APPENDIX A

Revised rule language for adoption of the ASTM E2213-02 DSRC Standard

NB. New language underlined.

- Add new Section 90.381: *ASTM E2213-02 DSRC Standard*. Transmissions of data signals shall comply with the standard, and including any future updates to the standard as approved by ASTM in the ordinary course, for such transmissions as set forth in the American Society for Testing and Materials (ASTM) E2213-02, Standard Specification for Telecommunications and Information Exchange Between Roadside and Vehicle Systems, Specific Requirements – 5 GHz Band Dedicated Short Range Communications (DSRC) Medium Access Control (MAC) and Physical Layer (PHY) Specification **[INSERT DATE CORRESPONDING TO FINAL, APPROVED STANDARD]** (ASTM E2213-02 DSRC Standard). . This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be inspected at the Federal Communications Commission, 445 12th Street, SW, Washington, DC 20554 or at the Office of the Federal Register, 800 N. Capitol Street, NW, Washington, DC. Copies of the ASTM E2213-02 DSRC Standard can be obtained from ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959. Copies may also be obtained from ASTM via the Internet at www.itsa.org.