

Spectrum Discussion

Policy and Process Activities

Related to the 5.9 GHz Spectrum Allocation

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USDOT Position on Criticality of DSRC

The 5.9 GHz DSRC Spectrum is of critical importance to the Department for reducing crashes, congestion and the environmental impacts of surface transportation

- The spectrum as currently allocated is uniquely capable of supporting safety applications that could potentially prevent or reduce the severity of up to 80% of vehicle crashes involving unimpaired drivers
- Related research and development continue to be significant investments and high priorities for the Department; deployment milestones are near

USDOT Position on Criticality of DSRC (2)

The Safety Pilot represents the largest model deployment of its kind and is the culmination of years of effort and hundreds of millions of dollars of investment by the U.S. government, automakers, and other public and private sector leaders.

- The National Highway Traffic Safety Administration (NHTSA) is scheduled to make a decision about future requirements for related technology on light vehicles in 2013 and heavy vehicles in 2014
- The Department welcomes the opportunity to work with the NTIA and FCC to analyze the technical impacts to critical safety programs of any potential changes to the 5.9 GHz Spectrum Allocation

DSRC Spectrum License

Dedicated Short Range Communications (DSRC) is the backbone of Connected Vehicle

- Licensed to operate in the 75 MHz of spectrum in the 5850-5925 MHz (5.9 GHz) band (Non-federal ITS Service)
- Already shared spectrum:
 - 5650-5925 MHz allocated to military radiolocation services on a primary basis (DoD radar, 5400-5900 MHz)
 - 5850-5925 MHz allocated to non-federal fixed-satellite (Earth-to-space) services on a primary basis; limited to international inter-continental systems and subject to case-by-case electromagnetic compatibility analysis
 - Other DoD-leased commercial satcom uplinks

DSRC Spectrum Rulemaking - History

Dedicated Short Range Communications (DSRC) has a long history with the ITS Program

- In 1999, FCC allocated spectrum (Report and Order) in response to a petition filed by ITS America
 - A co-primary allocation, not DOT spectrum
 - Enabled DSRC implementation research
- In 2003, FCC issued licensing and service rules (R&O)
 - Led to VII Program, Proof of Concept work, six independent test beds
 - Enabled architecture and standards work
- In July 2006, FCC issued Memorandum, Opinion, and Order amending service rules

DSRC Spectrum Rulemaking - Status

DSRC has several outstanding issues for further attention before FCC

- Two old Open dockets needing attention (WT No. 01-90, ET No. 98-95)
- Update of the ASTM standard to IEEE standard now in use
- Consideration of industry recommendations for dealing with spectrum sharing between the Fixed Satellite Service and the ITS Radio Service
- Coordination with Department of Defense and NTIA on radar

DSRC and the “Spectrum Crunch” - Drivers

National Broadband Plan (March 2010)

- Criticized transportation industry for not yet deploying DSRC
- DOT + stakeholder efforts kept DSRC out of “500 MHz” targeted for spectrum sharing/reassignment planning

President’s Council of Advisors on Science and Technology (PCAST; July 2012)

- Report: “Freeing up Spectrum for Wireless Broadband”
 - “The norm for spectrum use should be sharing, not exclusivity”
 - Seeks 1,000 MHz of Federal spectrum as part of an effort to create “the first shared-use spectrum superhighways”

DSRC and the “Spectrum Crunch” - Congress

Middle Class Tax Relief And Job Creation Act of 2012 (P.L. 112-96; Feb. 22, 2012; Section 6406 (b))

- Requires NTIA evaluation of known and proposed spectrum-sharing technologies and the risk to Federal users if unlicensed U–NII devices were allowed to operate in 5350–5470 MHz and 5850–5925 MHz bands
 - Different due dates for 5350–5470 MHz and 5850–5925 MHz bands
 - NTIA chose to combine the studies
 - No FCC action on 5850–5925 MHz required as a result of study; action to open to U-NII required for 5350-5470 MHz

DSRC and the “Spectrum Crunch” - NTIA

NTIA Technical Work and Cooperation

- DOT not included by legislation, but NTIA has included DOT at all points and in all study work
 - NTIA 5 GHz Study released January 25, 2013
 - Assesses risk and sets forth technical study expectations
 - Does not draw Federal/non-Federal distinction
- Good working relationship at staff level; DOT formal participation via:
 - Policy and Plans Steering Committee (PPSG)
 - Spectrum Working Group
 - Interdepartment Radio Advisory Committee (IRAC)

DSRC and the “Spectrum Crunch” – FCC NPRM

FCC Notice of Proposed Rulemaking

- FCC Chairman’s January CES announcement of a 5 GHz “Gigabit Wi-Fi” initiative
 - “to unleash up to 195 megahertz of spectrum in the 5 gigahertz band” (includes DSRC, other licensees)
 - “committed the Commission to move expeditiously to complete the proceeding”
- Followed by February 20 creation of FCC Docket/NPRM
- Recent activities with FCC:
 - Public Panel on DSRC with FCC; May 23, 2012
 - Formal Briefing to FCC; July 26, 2012
 - Staff- and senior-level discussions



DSRC and the “Spectrum Crunch” – DOT Input

Providing Comments/Technical Information to FCC NPRM – via NTIA

- FCC NPRM clock starts when published in *Federal Register* (pending)
- White House guidance directs that any Federal input go via NTIA to FCC
 - “coordinate content and timing of comments with NTIA so that the Administration speaks with one voice”
 - “If proposed comments are inconsistent with, or cannot be reconciled with, Administration positions or policies, NTIA may decide that the filing should not be submitted”

DSRC and the “Spectrum Crunch” - Planning

Current Thinking on Providing Comments

- Prepare cover letter for senior-level signature setting forth DOT policy positions and concerns
- Prepare technical annex describing how DOT will support the next phase of NTIA action on DSRC
 - Next phase of NTIA study will involve modeling, simulation, testing and analysis to determine the feasibility of the spectrum sharing approaches
 - DOT staff will perform independent testing and analysis to determine if sharing is feasible, and if so, which techniques, and under what conditions.
- Response to NTIA two weeks before FCC deadline to coordinate submittal



DSRC and the “Spectrum Crunch” – Next Steps

And then . . .

- Performing the actual technical work, in coordination with stakeholders
- Working with NTIA to ensure that modeling and test results are included in FCC docket
- Commenting on docketed comments, if allowed

Impact on MAP-21 Required Report to Congress

- MAP -21 includes DOT/Administration proposal for an open DSRC implementation plan (two year timeline)
 - Amended by Senate to make V2I portion of plan “frequency neutral”
 - V2V maintains focus on DSRC implementation
 - Report due October 1, 2015



Backup Charts

BACKUP – Details on DSRC Open Issues

Standards Evolution

- FCC rules require all DSRC operations in the 5.9 GHz band to comply with ASTM E2213-03 (the DSRC standard at the time the rule was approved in 2003)
- Rule recognized that the standard was still evolving and updates would come back to the FCC for incorporation
- DSRC standards work moved from ASTM to IEEE
 - Better alignment with scope of IEEE: DSRC standard is a variant of 802.11 to address low latency and mobile communications
 - Rule needs to be revised to reference IEEE 802.11 and 802.11p rather than ASTM E2213-03



BACKUP – Details on DSRC Open Issues (2)

Formalization of Frequency Coordination with Fixed Satellite Stations

- Agreement reached between ITS and satellite industry communities and provided to FCC in February, 2008
(See Written Ex Parte in WT Docket No. 01-90 and ET Docket No. 98-95: DSRC/FSS Earth Station Spectrum Sharing Protocol)
- Signatories to the petition were the ITS America, AASHTO, and the Satellite Industry Association
- Rule changes to parts 25 and 90 to incorporate the agreed to protocol were proposed in that communication
- USDOT supports the proposed resolution of this issue, including the proposed rule changes

BACKUP – Details on DSRC Open Issues (3)

Potential Rules Clarification for New Type of Sensor-Type Device

- FCC rules define two types of units:
 - Roadside Units (RSUs) licensed under Part 90 Subpart M of the Commission's rules
 - On-Board Units (OBUs) licensed by rule under new Subpart L of Part 95 of the Commission's Rules
- IEEE standards recognize potential for a third type of device: a permanent or temporary infrastructure sensor device that is closer to a mobile device than an RSU in terms of capabilities and limitations
- Need to determine if any action is required to clarify the rules for such devices



BACKUP – Details on DSRC Open Issues (4)

Coordination with NTIA and Department of Defense on Radar Installations

- 1999 FCC Decision -- DSRC Operations to be coordinated through NTIA to prevent interference with government radar operations (named DOD installations)
- 2003/2006 FCC Decisions – FCC will await further DOT testing to inform a future decision about preventing interference with Government radar operations
- Need to complete additional testing/study, likely in coordination with NTIA, to return to FCC with plans for avoiding interference with DOD and other radar installations

