

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)
)
Promoting More Efficient Use of Spectrum) ET Docket No. 10-237
Through Dynamic Spectrum Use)
Technologies)

**COMMENTS
OF THE
LAND MOBILE COMMUNICATIONS COUNCIL**

Respectfully submitted,

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The Land Mobile Communications Council (“LMCC”), pursuant to Section 1.415 of the Federal Communications Commission (“FCC” or “Commission”) Rules, 47 C.F.R. § 1.415, hereby respectfully submits its Comments in the above-captioned proceeding.¹ LMCC supports the Commission’s exploration of the potential of dynamic spectrum access radios and techniques.² These advances may prove critical in addressing spectrum shortages that otherwise could threaten both America’s national economy and its continued worldwide pre-eminence in technological innovation. LMCC also commends the Commission for beginning this investigation with a Notice of Inquiry that presumes no “right” outcome. Instead, the FCC has established a framework for addressing questions, the answers to which will have a profound impact on incumbents and new entrants alike. Reconciling the sometimes competing interests of these constituencies – interference protection for existing operations and promotion of optimal spectrum utilization – as well as identifying the appropriate pace and bands for the introduction of dynamic radios will require thoughtful balancing by the Commission as it moves forward with this proceeding.

LMCC is a non-profit association of organizations representing virtually all users of land mobile radio systems, providers of land mobile services, and manufacturers of land mobile radio equipment. LMCC acts with the consensus, and on behalf of the vast majority of public safety, business, industrial, transportation and private commercial radio users, as well as a diversity of land mobile service providers and equipment manufacturers. Membership includes the following organizations:

¹ *Notice of Inquiry*, ET Docket No. 10-237, 25 FCC Rcd 16632 (2010) (“*Notice*” or “*NOI*”).

² The *NOI* notes that it uses the terms “dynamic spectrum access radio,” “dynamic radio,” “cognitive radio,” and “opportunistic radio” interchangeably in this proceeding. For convenience purposes, LMCC will use the term “dynamic radio(s)” in its Comments.

- American Association of State Highway and Transportation Officials (AASHTO)
- American Automobile Association (AAA)
- American Petroleum Institute (API)
- Association of American Railroads (AAR)
- Association of Fish and Wildlife Agencies (AFWA)
- Association of Public-Safety Communications Officials-International, Inc. (APCO)
- Aviation Spectrum Resources, Inc. (ASRI)
- Central Station Alarm Association (CSAA)
- Enterprise Wireless Alliance (EWA)
- Forest Industries Telecommunications (FIT)
- Forestry-Conservation Communications Association (FCCA)
- Intelligent Transportation Society of America, Inc. (ITSA)
- International Association of Fire Chiefs (IAFC)
- International Municipal Signal Association (IMSA)
- MRFAC, Inc. (MRFAC)
- National Association of State Foresters (NASF)
- PCIA – The Wireless Infrastructure Association (PCIA)
- Telecommunications Industry Association (TIA)
- Utilities Telecom Council (UTC)

Spectrum has been labeled the “invisible infrastructure” of the 21st Century, and the demand for it has never been greater. Broadband applications for wireless communications devices devour bandwidth at an increasingly ferocious pace, and the overall use of RF-based services continues to grow. Yet the laws of physics – at least to date – remain immutable. Spectrum is a finite national resource that must support an exponentially expanding range of services, applications, and devices. Faced with pressing demand and the limits of available, usable spectrum, the FCC has launched the instant *NOI* to investigate means by which “dynamic spectrum access radios and techniques can promote more intensive and efficient use of the radio spectrum, and the potential that these technological innovations have for enabling more effective management of spectrum.”³

LMCC endorses this Commission initiative. It agrees that reshuffling the spectrum allocated for non-Federal use will not, by itself, address the myriad claims for capacity that the

³ *NOI* at ¶ 2.

FCC expects to face even in the relatively near-term future. LMCC is encouraged by recent progress in non-Federal and Federal cooperation in sharing spectrum to promote its more intensive use.⁴ It also has considerable interest in the outcome of pilot programs such as the Spectrum Sharing Innovation Test-Bed cited in the *NOI* involving 10 MHz of 470-512 MHz spectrum designated by the FCC and the 410-420 MHz band designated by NTIA.⁵ The members of LMCC represent the great majority of land mobile licensees operating on channels within the 470-512 MHz band and use this spectrum intensively within the metropolitan areas in which it is allocated for this purpose.⁶ As such, they have a keen interest in understanding how this test-bed will be conducted and what conclusions are drawn from it. While, to date, LMCC has not been asked to participate in or provide input into this program, it stands ready to do so upon the FCC's request.

Nonetheless, as recognized in the *NOI*, rapidly expanding wireless demands will require action beyond the repurposing of non-Federal government spectrum, even in conjunction with expanded Federal government shared use. Indeed, even if available spectrum supplies appeared sufficient for projected requirements, which they do not, the Commission has a statutory obligation to promote the availability of new technologies and services for the benefit of the public.⁷

Dynamic radio in various iterations has held promise for some time as one tool that might facilitate more intensive and intelligent spectrum utilization under certain conditions. The Commission has investigated this promise on more than one occasion, but refrained from

⁴ Gary Locke, Lawrence E. Strickling, U.S. Dept. of Commerce, *An Assessment of the Near-Term Viability of Accommodating Wireless Broadband Systems in the 1675-1710 MHz, 1755-1780 MHz, 3500-3650 MHz, and 4200-4220 MHz, 4380-4400 MHz Bands* (2010).

⁵ *NOI* at ¶ 9.

⁶ See 47 C.F.R. § 90.311.

⁷ 47 U.S.C. § 157.

approving widespread use of such devices until the technology had matured further.⁸ Even now, the FCC wisely has elected to proceed at a measured pace. Rather than proposing rules for the use of dynamic radios, the *Notice* “seek[s] information on these dynamic technologies and on what additional steps the Commission can and should take to encourage, promote and incentivize their development and use in both unlicensed and licensed spectrum.”⁹

LMCC agrees that exploration of these devices is warranted. The communications users represented by its members have a long history of making highly intensive use of the limited spectrum available to them and also of embracing advanced technologies that promote their productivity and effectiveness. As stated by the FCC in its 2002 Spectrum Policy Task Force Report in ET Docket No. 02-135 and repeated in the *NOI*:

Economic efficiency occurs when all inputs are deployed in a manner that generates the most value for the public.¹⁰

Should the effectiveness of these devices be proven and, as discussed below, assuming interference protection to incumbent systems is appropriately defined, LMCC has no doubt that the users it represents will deploy dynamic radios in their operations.

However, while it is clear from this *Notice* and numerous recent FCC statements and Orders that the Commission sees a direct correlation between the public good and the ubiquitous availability of advanced broadband technology for consumers using commercial wireless systems, it is less clear that there is a truly universal horizon when defining the “public” impacted by the decisions in this and related proceedings. The members of LMCC represent

⁸ The Commission’s decision in the TV “White Spaces” proceeding represented a significant step in the introduction of unlicensed devices that will be permitted to share encumbered spectrum. In this instance the devices are required to have the “intelligence” to avoid causing interference to protected licensed facilities, not by sensing those facilities, but through geo-location/database functionality. See *Second Memorandum Opinion and Order*, ET Docket No. 04-186, 25 FCC Rcd 18661(2010).

⁹ *NOI* at ¶ 16.

¹⁰ *Id.* at n. 70; citing FCC Spectrum Policy Task Force *Report*, ET Docket No. 02-135 (Nov. 2002) at 21.

public safety, energy, critical infrastructure, transportation, manufacturing and other enterprise businesses that depend on spectrum to advance the safety, economic well-being and international competitiveness of the United States. While virtually all of these entities use commercial systems for certain purposes, their more critical, often mission critical, communications requirements are not necessarily met on systems designed to address consumer-based demands. The American public may not consciously recognize that its collective public interest is tied inextricably to the efficient operation of these entities, including in their communications capabilities, but the FCC surely is. The *NOI* cites a statement from an October 2010 spectrum summit panel discussion in which a panelist remarked that, “shared spectrum will grow from playing a secondary role to playing a **critical role in supporting the core business operations and mission critical functions of all spectrum users.**”¹¹ LMCC agrees. Thus, the decisions reached in the instant proceeding must take this facet of the public interest into account, as well as considering how to satisfy the public as individual consumers of communications devices and applications.

LMCC cautions, however, that this consideration cannot be limited to an abstract analysis of how dynamic radios might intensify the use of spectrum in a hypothetical environment. Rather, it must assess how they can be introduced into an already heavily congested spectrum environment in which very significant investments have been made in communications equipment and applications being used to promote the public’s interest in the effective operation of public safety, critical infrastructure and other business activities.¹² Many of these operations

¹¹ *Id.* at ¶ 15 (emphasis added).

¹² The LightSquared Subsidiary LLC matter represents an example of the FCC’s recognition that it is best to address interference problems before they arise rather than trying to resolve them after the fact. *See* FCC File Number: SAT-MOD-20101118-00239.

involve mobile, rather than fixed, usage, which the *Notice* recognizes presents unique complexities in establishing effective interference avoidance mechanisms.¹³

The *NOI* does not address these matters. Instead, it specifically defers any consideration of spectrum rights and harmful interference definitions, stating that these issues are not specific to the dynamic radio use concept, but involve broader spectrum policy matters. Indeed, it states only that it “**may** consider these and other relevant points in a future proceeding.”¹⁴

While LMCC assumes that the use of the word “may,” rather than “will,” does not suggest that the FCC believes consideration of these critical issues is optional, LMCC also does not believe that it can be postponed until after actions have been taken with regard to dynamic radio deployment. The introduction of dynamic radio use into populated bands must be conditioned on the adoption of meaningful interference protection standards and appropriate mechanisms for enforcing them in real-time, not through a lengthy regulatory enforcement process. The desire to maximize spectrum utilization and thereby facilitate nationwide broadband capability, however laudable a goal, does not trump all other considerations. It must be balanced against the public interest in the continued interference-free operation of communications systems that support essential public safety, utility, transportation, manufacturing and other business enterprise activities. LMCC will be pleased to work closely with the FCC in helping to calibrate the appropriate balance of these two important objectives.

Finally, with regard to the FCC’s Spectrum Dashboard, LMCC commends the FCC for initiating this capability and for seeking input on how to improve it. LMCC believes that its utility would be enhanced if it also included the following elements on a band/service-specific basis: (i) explanation of user eligibility; (ii) availability of FCC-approved equipment; (iii)

¹³ *NOI* at ¶ 48.

¹⁴ *Id.* at 56 (emphasis added).

methods by which potential users may acquire spectrum, *i.e.*, licensed, unlicensed, auction, secondary market transactions or site-specific licensing requirements.

For the reasons described herein, LMCC respectfully requests the Commission to commence its investigation into the technical and non-technical issues related to dynamic radio use consistent with the positions detailed above and, in particular, with the need to implement appropriate incumbent interference avoidance procedures in any bands in which this use is authorized.