

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

In the Matter of

Unlicensed Operation in the TV Broadcast
Bands

ET Docket No. 04-186

COMMENTS OF MOTOROLA, INC.

Motorola, Inc. (“Motorola”), respectfully submits these comments on the FCC’s Public Notice regarding its measurement report of DTV receiver interference rejection capabilities.¹ Motorola supports the Commission’s approach to promote use of the TV broadcast bands by unlicensed devices on most channels below channel 52 while ensuring that incumbent operations are not impacted.

In its comments to the Further Notice, Motorola affirmed its belief that TV white space spectrum will be valuable for a variety of both commercial and non-commercial uses and urged the FCC to allow both fixed and personal/portable devices to operate therein.² Motorola noted, however, that the ability of

¹ See Office of Engineering and Technology seeks comment on measurement report of DTV receiver interference rejection capabilities, DA 07-1654, rel. March 30, 2007 (“PN”).

² Comments of Motorola, Inc. ET Docket No. 04-186, January 31, 2007 at 1, 5 (“Motorola Comments”).

unlicensed devices to use this spectrum while fully protecting services with higher regulatory priority will advance and improve over time. In Motorola's view, the nascent stage of product development requires that the Commission proceed with some caution so that future opportunities are not diminished by haphazard early deployments.

To that end, Motorola stated that while cognitive radios will inherently have sensing capabilities for determining which candidate channels provide the best communications opportunities, it is not clear at this time whether those capabilities can be used for independent identification and protection of licensed incumbents.³ Therefore, Motorola stated that geo-location and control channel techniques would also be needed for portable deployment.

Furthermore, Motorola stated that while it appreciated the FCC's decision to prohibit portable operations on TV channels 14-20, it may be possible to allow for some use of that spectrum while ensuring that critical public safety voice systems are protected. Motorola suggested that the FCC allow public safety and other critical users to deploy low powered devices – fixed and portable – on these channels on an “authorized by rule” basis.⁴ Also, in further recognition of public safety needs, Motorola recommended that public safety and other critical users be

³ *Id.* at 17.

⁴ *Id.* at 10, 11.

provided unconditional priority access to two VHF and two UHF channels in channels 7-13 and 21-25 respectively.⁵ In addition, during emergency situations, public safety and other critical users should have the ability to preempt users on other channels with this range if necessary to meet critical communications requirements.⁶

Motorola is concerned with the general theme of the results shown FCC Report.⁷ The FCC Report indicates that measurements of DTV receivers operating at low (-68 dBm) and medium (-53 dBm) desired signal levels are as susceptible to interference from the second adjacent channels (N-2 and N+2) as from the first adjacent channel (N-1 and N+1), furthermore the results indicate that for some of the more poor performing devices, the receivers are actually *more* susceptible to interference from second-adjacent channels than from first adjacent channels.⁸ These results indicate that the performance of DTV receivers may be falling into the same predicament of analog receivers of old in which the poor performance resulted in many taboo channels in order to avoid self interference among broadcast TV operation and resulted in the inefficient use of the current

⁵ *Id.* at 13.

⁶ *Id.* at 14.

⁷ Interference Rejection Thresholds of Consumer Digital Television Receivers Available in 2005 and 2006, March 30, 2007, OET Report FCC/OET 07-TR-1003, (“FCC Report”).

⁸ *Id.* at xi. (emphasis added).

TV broadcast spectrum. In fact the performance of these receivers is so poor that they fail the ATSC A/74 receiver guidelines by ~15-25 dB for 2nd adjacent and beyond channels. If the FCC sets sharing requirements based on these poorly designed receivers for the second and beyond channels it will result not only in significantly reducing the amount of spectrum available for TV white space operations but also brings into question whether the current DTV channel assignment is sufficient to ensure quality reception with interference among the various DTV broadcast stations.

The original proposal by the FCC requires protection on only co-channels and adjacent channels; it is unfortunate that some of the current designs for DTV receivers do not take into account into their designs that operations (even DTV operations) will be occurring on channels beyond the first adjacent channel.⁹ Motorola believes that by the FCC clearly stating the protection that will be provided to these receivers, the manufactures of these devices will continue to reduce the susceptibility of DTV receivers from emissions beyond the first adjacent channel. With the upcoming coupon program for digital-to-analog converter boxes requiring minimum performance compliance with ATSC A/74, Motorola believes that the adequate incentive is in place to ensure that DTV receivers will continue to mature and will result in better performance

⁹ See FCC 04-113, rel. May 25, 2004, (“NPRM”) at 30.

interference rejection performance for channels beyond the first adjacent channel.¹⁰ Promoting better receiver performance is in the public interest and will allow the most efficient use of this spectrum.

Respectfully submitted,

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¹⁰ See Final Rule, Rules to Implement and Administer a Coupon Program for Digital-to-Analog Convert Boxes, Docket Number: 0612242667-7051-01, RIN 0660-AA16, at Technical Appendix 1, Table 3.
http://www.ntia.doc.gov/ntiahome/frnotices/2007/DTVFinalRule_031207.htm