

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of )  
 )  
Request by LoJack Corporation for a Partial ) WT Docket 06-142  
Waiver of Section 90.20(e)(6) and Part 2 )  
of the Commission's Rules )  
 )

To: The Commission

**Reply to Opposition to Petition for Reconsideration  
of Hammett & Edison, Inc., Consulting Engineers**

This filing is in response to the October 17, 2011, *Opposition to Petition for Reconsideration* (Opposition) filed by LoJack Corporation (LoJack).

**I. The WT 06-142 Record Now Demonstrates that 173.075 MHz SVRS Signals Will  
Not Be a Serious Interference Threat to DTV Channel 7 Reception**

1. We filed our Petition for Reconsideration because the Commission's September 14, 2011, Declaratory Ruling and Order (DR&O) contained two aspects that were not supported by the WT 06-142 docket record: First, that increasing the universe of Stolen Vehicle Recovery System (SVRS) eligible licensees from only police licensees, to all Part 89 Public Safety licensees, would not increase the use of LoJack signals. Second, that the 2007 Office of Engineering and Technology (OET) report<sup>1</sup> cited in the DR&O did not support the conclusion that the increased interference rejection capability of consumer-grade DTV receivers to undesired SVRS signals would offset the 20 dB weaker protected contour of a VHF high band DTV signal compared to the former analog signal. We did not allege that this would necessarily result in a net interference increase, only that the docket record could not yet support such a conclusion. We argued that the Commission needed to update the interference determination methodology given in the 1985 MicroLogic report, to find out.<sup>2</sup>

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<sup>1</sup> OET Report 07-TR-1003, *Interference Rejection Thresholds of Consumer Digital Television Receivers Available in 2005 and 2006*.

<sup>2</sup> In 1985, the consulting firm of MicroLogic proposed a calculation methodology applicable to SVRS base stations, operating just below TV Channel 7. See *Test Report on Potential for Interference to the Reception*



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2. In its Opposition, LoJack claims that the unavailability of SVRS user information in the Universal Licensing System (ULS) is irrelevant, and that expanding the eligibility of SVRS signaling from just police licensees to all Public Safety licensees would not increase the number of SVRS transmissions. We continue to disagree with that argument.

3. However, the LoJack Opposition did include an engineering exhibit, which in turn included an excerpt from 1995 tests by the Advisory Committee on Advanced Television Service (ACATS). That excerpt provided a graph showing the susceptibility of a VHF DTV tuner to a narrow band interfering signal. The provided Figure 3-2 from the ACATS tests showed the threshold of visibility (TOV) for interference from a narrow band signal to have a desired-to-undesired (D/U) signal ratio of -45 dB for a narrow band signal 487.5 kHz below the lower channel edge, and -48 dB for a narrow band signal 987.5 kHz below the lower channel edge. From this information we can conclude that a narrow band signal at 925 kHz below the lower channel edge (*i.e.*, the displacement of a 173.075 MHz SVRS signal from the lower boundary of TV Channel 7) would have a TOV D/U ratio of -47 dB.

4. Thus, the WT 06-142 record now includes a basis for concluding that a narrow band SVRS signal would not be an interference threat to DTV Channel 7 reception, with its 20 dB weaker protected contour than for VHF high band analog TV signals, and for which the SVRS-into-Channel 7 interference protection criteria was based.

5. Because a -47 dB D/U ratio is substantially more relaxed than the inapplicable -33 dB D/U ratio cited in the DR&O, the issues of higher-power SVRS signals, increased SVRS transmissions, and longer duty cycle become moot. Based on this new information in the docket record, we suggest that the Commission amend Section 90.20(e)(6) of its rules. That rule section requires an SVRS base station licensee to perform an interference analysis for any base station within 169 km of a full-service TV Channel 7 station, and that the study be served on the Channel 7 TV station.<sup>3</sup>

6. In Zones II and III, which represent the highest height/power cases, a VHF high band DTV station can have an ERP of up to 160 kW at 305 m HAAT before being required to start height-

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*of Television Channel 7 Signals by Lo-Jack Transmissions*, by MicroLogic, dated October 18, 1985. The Commission adopted this methodology for SVRS base stations in 1989.

<sup>3</sup> At Paragraph 38 of the August 13, 2008, WT Docket 06-142 Report & Order, the Commission declined to eliminate the requirement for an SVRS base station interference study, or the obligation to serve a copy of the study on the local TV Channel 7 station licensee.



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derating its power. The F(50,90) curves give a distance of 149.4 km to the 36 dBu DTV protected contour for this power and height. Thus, while the 169 km trigger distance for an SVRS base station is still appropriate, clearly the interference study required by Section 90.20(e)(6) should be updated to use the documented, appropriate D/U ratio of -47 dB. In a strong DTV Channel 7 signal area, application of this D/U ratio might well mean that the SVRS interfering contour never reaches the ground, even for a 500 watt ERP SVRS base station. In that event, the interference criteria of no more than 100 DTV Channel 7 viewers with predicted interference would never be breached. Although an SVRS base station at or just past the edge of a DTV Channel 7 station's 36 dBu protected contour might have an area where the D/U ratio is worse than -47 dB, that would again be acceptable if the population within that contour is 100 or fewer persons. A population of 100 or fewer persons means that it is practical to deal with SVRS base station interference on a household-by-household basis.

7. Updating the Section 90.20(e)(6) report would also allow fixing the cross-polarization adjustment problem. The MicroLogic report assumed that the TV Channel 7 signal would be horizontally polarized only, and, borrowing from the NCEFM-into-TV Channel 6 protection rules,<sup>4</sup> assumed cross-polarization isolation factors either 10 or 16 dB for the vertically polarized SVRS signals, depending on whether the predicted interference area was inside or outside of a city with 50,000 or more persons population. However, a number of TV Channel 7 stations use elliptical or circular polarization, in which case no polarization isolation should be allowed.


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<sup>4</sup> Section 73.525(e)(4)(i) of the FCC rules.

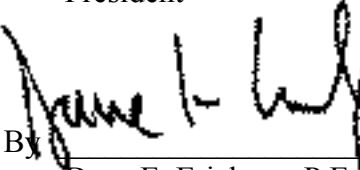
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**II. Summary**


6. Neither the prior WT Docket 06-142 record, nor the 2007 OET report, made any mention of the 1995 ACATS study of the interference potential of a narrow band interfering signal to DTV Channel 7 reception. Thus, until now, the docket record did not support the decision to allow a massive expansion of SVRS eligibility, greater duty cycles, and higher powers. We are pleased to see that the coding isolation of a DTV receiver to a narrow band interfering signal has been shown to more than offset the weaker DTV signal strength. The Commission should complete its action in this proceeding by updating its Section 90.20(e)(6) rule to reflect both the lower DTV protected contour, the more-than-offsetting less stringent protection ratio, and no cross-polarization factor when the DTV Channel 7 station has elliptical or circular polarization.


By   
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President

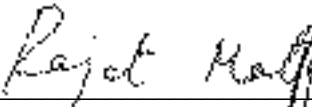



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