

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

In the Matter of )  
 )  
Amendment of Part 95 of the Commission's ) **WT Docket No. 98-169**  
Rules to Provide Regulatory Flexibility in the ) RM-8951  
218-219 MHz Service )  
 )  
To: The Commission - **Mail Stop 1170**

**COMMENTS OF RADIO TELECOM & TECHNOLOGY INC.**

1. Radio Telecom & Technology Inc. ("RTT") submits these Comments in response to the Commission's *Notice of Proposed Rule Making* ("NPRM") in the above-captioned proceeding, FCC 98-228, released September 17, 1998. These Comments point out areas where rule changes are appropriate and needed and can be made without risking interference to reception of TV Channel 13. RTT further urges the Commission to act promptly, as government inaction for the past several years has had the effect of preventing the development of the Interactive Video and Data Service ("IVDS", now to be called the "218-219" MHz Service") and preventing the exploitation of the 218-219 MHz band with the only practicable two-way technology currently available.

2. RTT is an equipment developer and manufacturer that has devoted more than ten years to the development of interactive television technology and ancillary applications like alarm transmission, remote meter reading, and load management for power companies. RTT calls its system "T-NET." RTT believes it has produced and installed more systems for IVDS applications than any other manufacturer in the country. RTT installed two-way interactive systems for IVDS in the several of the largest U.S. cities, including Boston, New York, Philadelphia, Washington, Houston and San Francisco. It also shipped a system for Charleston, South Carolina, and received orders for Dallas and

Los Angeles. In addition, RTT entered into letters of intent to supply systems for 125 additional markets.

3. Unfortunately, none of these T-NET systems has ever been exploited by the licensee/customer; and so far as RTT is aware, none is currently operational, or at least none is providing any meaningful service to the public. Interactive television, as envisioned in the early part of this decade, simply has not been presented in a way that has been able to catch the interest of consumers, as has been discovered by such giants as Time-Warner<sup>1/</sup> and others. Clearly, if these companies failed to stimulate consumer interest, it is apparent that a small industry segment like IVDS had a very high hurdle to climb if it could ever succeed. RTT and its major competitor, Eon Corp., lost a major portion of their capital in the IVDS "adventure," as have many of the IVDS licensees who paid high prices for their licenses in the Commission's first-ever spectrum auction.

4. While RTT supports the concept of enhancing the efficiency and opening new market opportunities for the 218-219 MHz band along the lines proposed by the Commission in the NPRM, there remain many issues to be resolved. As RTT commented in a previous rule making proceeding,<sup>2/</sup> it is concerned that the seeking of greener pastures, *e.g.*, broadcasting data only without any relation to video, competing in markets better served by PCS, or competing with data transmission services offered by cable TV and telephone companies, will only attract a new round of entrepreneurs and speculators and result in a repeat of the previous unsuccessful IVDS adventure. This is so because the spectrum allocation of only 1 MHz is insufficient to serve such applications competitively, and this is

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<sup>1/</sup> Time Warner abandoned a two-way cable television experiment in Orlando, Florida, several years ago.

<sup>2/</sup> *IVDS Mobile Services*, WT Docket No. 95-47, Notice of Proposed Rule Making, 3 CR 2035 (1995); Report and Order, 3 CR 160 (1996).

not a game for the small businesses that the Commission perhaps hoped to nurture with IVDS.

5. In RTT's experience and view, the Commission has not been without fault in this IVDS adventure. The Commission's slow response to the many appeals for relief by way of waivers and other rule clarifications has contributed to the problems faced, or least perceived, by IVDS licensees as well as equipment manufactures. A quicker Commission response, one way or the other, could have resulted in a different outcome than Eon Corp.'s exiting from the market and the exhaustion of RTT's capital. Many of the ancillary applications, if not the primary intent of IVDS, might have succeeded. It has been about five years since the Commission last visited the matter of IVDS rule changes in a substantive way.<sup>3/</sup> In a world where technology changes of major proportion occur in as little as three years, five year response cycles are deadly. Nevertheless, the Commission's present proposals come better late than never.

6. TV Channel 13 Interference. There remains one major technical question the Commission must still address in evaluating the proposals in this proceeding: the matter of interference to TV Channel 13 if IVDS power is increased. RTT has demonstrated to the Commission in prior submittals<sup>4/</sup> that interference to television receivers tuned to Channel 13 is likely to occur if existing IVDS maximum transmitter power limits are increased. This likelihood has also been of concern to the National Association of Broadcasters ("NAB") and Maximum Service Television, Inc. ("MSTV"), and for good reason. However, the operative words here are "tuned to Channel 13." Combining the fact that only a small fraction of viewers are tuned to Channel 13 at any particular moment with the rather

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<sup>3/</sup> The only intervening rule making was WT Docket No. 95-47, limited to mobile services, cited at note 2, *supra*.

<sup>4/</sup> See, e.g., 1986 Report on T-NET trials in Salt Lake in cooperation with KSL-TV, discussed in RTT's Comments in WT Docket No. 95-47.

low probability of encountering an IVDS signal at any specific location, the result is an even lower probability in practice of interference to any specific viewer that is objectionable in time and intensity. That is the argument relied on by many proponents for increasing IVDS transmitter power. Thus it is not a question of whether higher IVDS power causes interference but rather whether such interference is frequent and intense enough to be of concern to the Commission and the public.

7. RTT has demonstrated to the Commission in prior submittals referenced in paragraph 6 above that whether a particular IVDS signal above a certain strength will cause interference to TV reception depends on the point in the TV waveform where the IVDS signal occurs. Specifically, if an interfering signal occurs only in the vertical and horizontal TV signal blanking intervals ("VBI/HBI"), it can be as much as 20 dB stronger (*i.e.*, 100 times more powerful) compared to the signal level that would cause interference in the video time interval. Blanking intervals consume about 25 percent of the TV waveform time. It is for this reason that RTT's systems coordinate their transmissions so they always lie in the VBI/HBI of any local Channel 13 TV signal whenever the IVDS signals are present. This approach allows RTT effectively to use much higher instantaneous power without causing interference than would otherwise be possible, though holding down average power.

8. Power-Height Restrictions. Because of the reason cited in paragraph 7 above, RTT and its customers requested Commission waivers permitting operation of T-NET systems with facilities in excess of the CTS power-height restrictions of current IVDS rules. The intent of those rules is to minimize interference potential by tapering off CTS transmitter power with increased antenna height above average terrain ("HAAT"). While this is a technical solution of long standing, it is not the only way to protect a TV signal from interference. Timing IVDS signals to fit them into the VBI/HBI of TV Channel 13 is another method, proven successful by RTT, although it has not yet been universally

accepted as such by the Commission.

9. The Commission did recognize RTT's technical approach in GEN Docket No. 91-2,<sup>5/</sup> where at paragraph 31 it declared that requests for waiver of the HAAT limits would be considered on a case by case basis, and at footnote 51 specifically it cited the RTT method. Indeed, RTT's customer/licensee made such waiver requests for the Boston and Houston installations, and they were approved by the Commission and constructed by RTT without causing TV interference. The result was a very substantial increase in CTS coverage. In Boston, more than 50 percent of the market (the five year build-out goal) was achieved with only one CTS on a very high building roof in the downtown area, with substantial savings in construction time and cost. To achieve comparable coverage with small cells (the method anticipated by the Commission in its rules, which are patterned on Eon Corp.'s technology) would have required many CTS installations throughout the city at much higher cost and time. This is the main reason why RTT received more equipment orders by far than any of its competitors.

10. Power-Height Limit Alternative. RTT therefore again requests that the Commission adopt new rules in the instant proceeding that permit CTS full power transmissions in TV-13 blanking intervals as an alternative to the height-power taper restriction of the existing rules. In other words, the Commission should permit full power CTS operation without regard to antenna height if the CTS transmissions are so coordinated so as to lie in the TV Channel 13 blanking intervals.

11. Duty Cycle Limitation. Current IVDS "duty cycle" rules limit RTU transmission to a maximum of 5 seconds per hour. Here again the intent is to minimize interference to TV Channel 13.

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<sup>5/</sup> *Interactive Video and Data Services*, Report and Order, 7 FCC Rcd. 1630 (1992); Memorandum Opinion and Order, 7 FCC Rcd 4923 (1992); Second Memorandum Opinion and Order, 8 FCC Rcd 2787 (1993).

RTT requests that the Commission adopt new rules in the instant proceeding that permit an alternative interference protection method. For the same reason noted above, RTT's technology limits RTU transmissions so they exist only in the Channel 13 blanking intervals; and this approach has been proven to eliminate interference to Channel 13 viewers, even when they share a common antenna with the TV receiver. Elimination of the duty cycle limitation will substantially increase data transmission throughput, which can spell the difference between success or failure in the competitive world of wireless data transmission.

12. CTS Power Reduction. Further, RTT requests that the CTS power reductions specified in Section 95.851(a) of the current rules, which are related to and are a function of the Channel 13 field intensity contours (*i.e.*, distance from Grade A and Grade B contours), be modified. Here also the Commission should permit the alternative of blanking interval transmissions at full CTS power for the same reasons noted above. RTT believes that field experience of the past several years warrants the Commission's authorizing such alternatives, particularly in view of the overriding Commission rule requiring licensees to eliminate interference wherever it exists.

13. Mobile Power Limit. In regard to the RTU 100 mW average power limitation in mobile applications, RTT still believes that this is a practical and effective restriction for minimizing interference in a mobile environment. It would otherwise be impossible to track down the source of interference, should it occur. RTT favors keeping the average power limit at 100 mW, or alternatively, 20 watts peak power, whichever is lower. This is a position RTT took five years ago and sees no new technical reason to change. In view of the forgoing, the Commission's proposed revision to Section 95.855, should have the final sentence read as follows:

"No RTU that is designed to be used at itinerant locations may transmit with an ERP

exceeding 100 milliwatts peak power, or 20 watts peak power, whichever is less."

14. RTU Power Control. With regard to the question on automatic RTU transmitter power control, RTT believes this is an unnecessary and costly provision that should be deleted, especially for fixed home installations, where the proper power level can be established at the time of equipment installation. It may be necessary for mobile applications, however, especially if the power is increased above current rule limits.

#### Conclusion

15. The principals of RTT are experienced individuals who made significant personal investments to develop a technology which would permit an exceptionally efficient exploitation of a small amount of spectrum. RTT has made or sponsored, and has justified, numerous requests in past years for waivers to incorporate the unique T-NET technology described above, *i.e.*, removal of height-power and duty cycle restrictions. Had these alternatives been approved in a timely manner, the IVDS industry might have been more successful. As it turned out, general use of the T-NET technology was never permitted, RTT was unable to keep its manufacturing operation going because it had no orders to fill, and IVDS licensees came to the Commission on their hands and knees asking for relief from build-out deadlines because there was no equipment available to them if they could not use T-NET. The Commission's suggestion that RTT wait until it again reviewed and "overhauled" its IVDS rules left the industry with no place to go.

16. Now that the overhaul is in progress, the Commission should move promptly to allow maximum efficiency in use of the 218-219 MHz band in a way that is economical without a threat of interference to Channel 13 television reception. RTT's management and technological capability remain available; and if the right environment is created, the technology can be revived and put to

work, and the 218-219 MHz band will no longer remain silent.

Respectfully submitted,  
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Electronically signed:  
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