Federal Communications Commission
Washington, D.C. 20554

June 22, 2007

**DA 07-2734**

Mr. Thomas Gutierrez
Lukas, Nace, Gutierrez & Sachs
1650 Tysons Boulevard, Suite 1500
McLean, Virginia 22102

Re: In the matter of THE RAIL NETWORK, INC. Request for Waiver of Section 15.209 of the Commission's Rules; ET Docket No. 06-161

Dear Mr. Gutierrez:

This letter dismisses without prejudice the June 23, 2006 Request for Waiver (Request) of The Rail Network, Inc. (TRN).[1] TRN has not provided sufficient information for us to fully evaluate the potential impact on the FM broadcasting service.

In its Request, TRN asks that transmitters using its technology and installed in mass transit rail systems in various markets throughout the United States be permitted to operate within the 88-108 MHz (FM radio broadcast) band at an emission level of 87 dBuV/m measured at 3 m, equivalent to 22,400 uV/m measured at 3 m. This emission level is significantly higher than the 150 uV/m measured at 3 m permitted in that band under Section 15.209 of the Commission's Rules.[2] TRN's proposed system would provide audio and video information to passengers on mass transit rail cars, using up to seven channels in the FM broadcast band. The TRN system would use an antenna in each rail car to transmit signals to flat screen televisions in each rail car, with the audio also accessible through any personal FM radio or cell phone equipped with an FM accessory that can tune to the station being used by TRN's network.

Comments on the Request were solicited in a Public Notice on August 17, 2006.[3] On September 18, 2006, the National Association of Broadcasters (NAB) filed comments opposing the Request. NAB argues that "TRN's Request provides no technical information on many fundamental aspects of the proposed system, or engineering data to substantiate its claim that the system will protect licensed

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[1] *See* "The Rail Network Inc. Request of Waiver of Section 1.3 and 15.209 Interference Protection Showing," ET Docket No. 06-161, June 23, 2006.

[2] TRN affiliates include: TRN Atlanta; TRN Bay Area; TRN Boston; TRN Atlanta Leasing; TRN New York; and TRN Washington.

[3] *See* "Office of Engineering and Technology Declares the Rail Network Inc. Request for a Waiver of Part 15 to be a 'Permit-But-Disclose' Proceeding for *Ex Parte* Purposes and Requests Comments," DA 06-1649, ET Docket No. 06-161, 21 FCC Rcd 9259 (2006).

facilities from unlawful interference."[4] NAB's comments were supported by National Public Radio, Inc. (NPR).[5] In its reply comments (Reply), TRN states that NAB "for the most part, simply posed questions rather than proffering any credible arguments challenging the merits of the TRN Waiver Request."[6]

The Commission previously granted TRN Atlanta, LLC (TRN Atlanta) an experimental radio station construction permit and license on September 20, 2005. This authorization has permitted TRN Atlanta to operate its mass transit rail network system in the Atlanta, GA area with up to 116 mobile units in the 88-108 MHz frequency range at an authorized power of 600 nW, which is equivalent to 1414 uV/m measured at 3 m.[7] In response to our suggestion at a meeting held in our offices on October 24, 2006, you submitted on December 22, 2006 results from a US Tech test of radiated emissions of the TRN Atlanta system conducted on December 6, 2006.[8] In a letter to you on February 12, 2007, we sought clarification of what US Tech measured and how those measurements were carried out.[9] You responded to my inquiries in a letter of March 6, 2007.[10]

In examining TRN's collective submissions, we still do not see the information that we need to make evaluations on several important issues. First, the record concerning TRN's Request does not include specific information as to how TRN would determine the channels on which its system would operate. The Request states: "The audio portion of TRN's service, which will operate on up to seven (7) different channels, can operate over any available frequency in the 88-108 MHz range. TRN undertakes [a] spectrum analyses to identify which frequencies are not being utilized by a licensed broadcaster."[11] Additionally, the Reply states that TRN "plans to analyze all available frequencies in each market where its network is deployed by performing tests when its rail cars are in live revenue operations. Only then will the frequencies be chosen, in order to ensure there is no harmful interference caused to a licensed broadcaster . . . In addition, TRN will attempt to avoid selecting channels where there are first adjacent channel stations licensed. Based on these channel selection criteria, it is unnecessary to know the exact channels on which TRN would operate. Moreover, since station parameters and even allocations may

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[4] *See* NAB comments, ET Docket No. 06-161, September 18, 2006, at 1.

[5] *See* NPR reply comments, ET Docket No. 06-161, October 3, 2006.

[6] *See* TRN reply comments, ET Docket No. 06-161, October 3, 2006, at 1.

[7] *See* Experimental Radio Station Construction Permit and License granted to TRN Atlanta, LLC; Call Sign WD2XOW, File No. 0106-EX-ML-2005, September 20, 2005, expires October 1, 2007.

[8] *See* "TRN Atlanta FCC Part 15 Fundamental and Spur Signal Strength Testing on Marta Passenger Train" (US Tech Submission), ET Docket No. 06-161, December 22, 2006. In that test, US Tech used the emission level of 87 dBuV/m, equivalent to 22,400 uV/m. We had suggested that TRN conduct emission tests at the limits requested in the waiver petition to support the claim that harmful interference would not be caused to licensed users of the bands. TRN Atlanta, LLC received an amended experimental license on November 16, 2006, permitting it to operate at an authorized power of 0.089 mW. *See* Call Sign WD2XOW, File No. 0096-EX-ML-2006, expires October 1, 2007.

[9] *See* Letter from Julius Knapp to Thomas Guttierez, ET Docket No. 06-161, February 12, 2007.

[10] *See* Letter from Thomas Guttierez to Julius Knapp, ET Docket No. 06-161, March 6, 2007.

[11] Request at 10.

change over time, such information would be of limited value to the Commission in making long run conclusions of interference potential."[12]

While both the Request and the Reply supply general information, neither makes clear how TRN's spectrum analyses would determine that an FM frequency is "not being utilized by a licensed broadcaster," *i. e.*, the emission level below which the channel is considered to be unoccupied. There may be no licensed broadcaster operating on a particular FM frequency in a given metropolitan area, but that frequency may be used by an FM station at some distance from that area, and the station may be received by residents of that area. It is unclear whether TRN's spectrum analyses would determine that frequency in that area to be "utilized" or "unutilized." Further, in certain metropolitan areas, TRN's system might have to periodically switch frequencies to avoid the potential for harmful interference to at least some FM radio listeners, which would present a systems engineering requirement that is not addressed in the Request or Reply. TRN's submissions do not identify the specific FM radio channels that are used for its service in the Atlanta market and how they are selected, and whether and how they are changed as trains move through the area. Nor do they indicate more generally how, under a waiver, channels would be chosen with sufficient clarity for us to evaluate their efficacy or their ability to protect incumbent services from harmful interference.

Neither does TRN provide a detailed analysis of potential interference from TRN's proposed system to FM stations' analog or digital services, *i.e.*, TRN provides no assessment of the appropriate desired to undesired power ratio (D/U) that should be used to determine whether harmful interference is being caused to licensed users in the frequency band. The Request only states: "As a further means of avoiding interference with licensed operations, as spectrum is utilized by TRN, spectrum monitoring is conducted to assure that there is no interference. If the results demonstrate harmful interference, TRN's operations will be altered as necessary to avoid such harmful interference to any licensed operations . . . any intrusion of any undesired signal produced by TRN would be temporary and transient, and its effects thus reduced because during rail operations, the rail cars travel throughout the transit system from station to station."[13] Such an *ad hoc* and unspecific approach is not satisfactory as a means to ensure that interference is not caused to licensed FM radio services.

TRN's analysis suggests that, while interference to licensed operations might occur, it would not be a significant problem – however, it is unclear how much interference to licensed operations could result due to TRN system operations. Further, the introduction of In-Band On-Channel (IBOC) technology to FM broadcasting, as a method of transmitting analog and digital broadcast signals simultaneously on the same frequency, may complicate the interference analysis. It may be possible that, because the digital portion of an IBOC signal has much lower power than the companion analog signal, TRN's signal could have a more significant impact on IBOC digital reception than it would have on analog reception. The Reply asserts that this is not a valid concern because "the IBOC technology is specifically designed to tune out and suppress interfering signals. It must further be remembered that the IBOC signal rides above and below an analog signal several orders of magnitude higher than any potential interfering signal which TRN's system could generate. If the main carrier does not interfere with the digital IBOC signal,

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[12] Reply at 3-4.

[13] Request at 10, 12.

it hardly follows that the highly attenuated emissions from TRN's system would do so."[14] However, TRN has provided no technical analysis nor empirical data for its proposed system to establish that it will not cause interference to FM IBOC radio services, including interference to stations that may be located at some distance from the rail system.

Finally, while we appreciate your responses to our inquiries about the US Tech Submission, we remain concerned that the US Tech test does not conclusively establish the interference potential of TRN's proposed system. First, it is unclear whether that test determined maximum power levels that could be received outside of the tested rail car. Specifically, we were unable to determine if that test measured the emission levels in any direction outside of the rail car or – alternatively – if it measured only the emission levels from the side of the rail car, where emissions are minimized due to TRN's antenna design and installation. Second, it is not apparent how the power level of 87 dBuV/m used in that test could have fallen below the ambient noise level at a distance of only 75 feet from the rail car's doors, as indicated in the US Tech Submission.[15]

As you know, the Commission evaluates requests for waiver of the Commission's rules under the standards of *WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969), and the petitioner has the burden of demonstrating that the requested relief is consistent with these standards. TRN has not provided sufficient information to allow us to conclude that granting a waiver of our emission limits would serve the public interest.

Accordingly, for the reasons discussed above and pursuant to authority delegated in sections 0.31 and 0.241 of the Commission's rules, 47 C.F.R. sections 0.31 and 0.241, I am dismissing the June 23, 2006 Request for Waiver of The Rail Network, Inc. This dismissal is without prejudice, and if TRN is able to address the interference concerns at issue in the future, it may file a new waiver request.

Sincerely,

Julius P. Knapp
Chief
Office of Engineering and Technology

cc: Lawrence A. Walke
National Association of Broadcasters

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[14] Reply at 9.

[15] *See* US Tech Submission at 2, 4-6.