

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

In the Matter of )  
 )  
Metropolitan Transportation Authority - ) File No. 0005681972  
Request for Waiver to Facilitate Positive Train )  
Control System )

**ORDER**

**Adopted: February 28, 2014**

**Released: February 28, 2014**

By the Chief, Mobility Division, Wireless Telecommunications Bureau:

1. *Introduction.* We have before us a Waiver Request filed by the Metropolitan Transportation Authority (MTA),<sup>1</sup> licensee of the 218.50-219 MHz B Block in the 218-219 MHz Service for the New York Cellular Market Area, station KIVD0002. MTA requests waiver of two Commission rules to facilitate implementation of a Positive Train Control (PTC) system for the Metro-North and Long Island Railroads (the “MTA Railroads”). Specifically, MTA requests an increase of the effective radiated power (ERP) limits under Section 95.855 of the Commission’s Rules, from 4 to 8 watts for mobile PTC operations, and from 20 to 30 watts for fixed and base station PTC operations.<sup>2</sup> Second, MTA requests a limited waiver of Section 95.815(b) of the Commission’s Rules, which requires a 218-219 MHz licensee to provide certain information regarding individually licensed base stations.<sup>3</sup> For the reasons stated below, we hereby grant MTA’s Waiver Request.

2. *Background.* Following several high-profile rail accidents, Congress enacted the Rail Safety Improvement Act of 2008 (RSIA).<sup>4</sup> Section 104 of the RSIA requires all trains providing passenger service and freight trains operating on lines carrying toxic- and poisonous-by-inhalation hazardous materials to implement PTC by the end of 2015.<sup>5</sup> The Federal Railroad Administration is responsible for overseeing PTC implementation,<sup>6</sup> and the National Transportation Safety Board has named PTC implementation on its 2014 Most Wanted List.<sup>7</sup>

3. The term “positive train control system” means a system designed to prevent collisions

<sup>1</sup> MTA Waiver Request, filed March 8, 2013; MTA Amended Waiver Request, filed July 22, 2013; MTA Waiver Supplement, filed December 16, 2013, ULS File No. 0005681972. The MTA is a public-benefit corporation responsible for public transportation in 12 southeastern New York counties, and two southwestern Connecticut counties. MTA Amended Waiver Request at 1.

<sup>2</sup> 47 C.F.R. § 95.855. The 218-219 MHz Service rules envision a network system of cell transmitter stations (CTSs) and response transmitter units (RTUs). 47 C.F.R. § 95.803(b). CTSs and RTUs are equivalent to base and mobile stations, respectively. Section 95.855 limits the ERP of CTSs and fixed RTUs to 20 watts, and the ERP of mobile RTUs to 4 watts. 47 C.F.R. § 95.855.

<sup>3</sup> 47 C.F.R. § 95.815(b).

<sup>4</sup> P.L. 110-432, 122 Stat. 4848 (2008).

<sup>5</sup> 49 U.S.C. § 20157.

<sup>6</sup> See <http://www.fra.dot.gov/Page/P0152>.

<sup>7</sup> See <http://www.nts.gov/safety/mw1.html>.

between trains, overspeed derailments (derailments caused when a train exceeds speed limits), incursions into established work zone limits (*i.e.*, for roadway workers maintaining track), and the movement of a train through an improperly positioned switch. PTC wireless communications networks will enable real-time information sharing between trains, wayside devices, and “back office” applications, regarding train movement authorities, speed restrictions, train position and speed, and the state of signal and switch devices.<sup>8</sup> Once installed, PTC systems can automatically slow or stop a train to avoid a derailment, incursion into a work zone, or movement through a switch left in the wrong position. Pursuant to RSIA, the MTA must install a PTC system covering the MTA Railroads’ nearly 1,500 miles of track, at an estimated cost of \$670 million.<sup>9</sup>

4. *Discussion.* We evaluate MTA’s request for waiver of Sections 95.855 and 95.815 pursuant to Section 1.925(b)(3) of the Commission’s Rules. Section 1.925 provides that the Commission may grant a request for waiver if it is shown that: (i) [t]he underlying purpose of the rule(s) would not be served or would be frustrated by application to the instant case, and that a grant of the requested waiver would be in the public interest; or (ii) [i]n view of unique or unusual factual circumstances of the instant case, application of the rule(s) would be inequitable, unduly burdensome or contrary to the public interest, or the applicant has no reasonable alternative.<sup>10</sup>

5. Waiver of Section 95.855. The underlying purpose of Section 95.855’s ERP limits for the 218-219 MHz band is to limit the potential for interference to over-the-air (OTA) viewers of channel 13 stations in 210-216 MHz band.<sup>11</sup> The Commission envisioned that a licensee seeking to exceed the ERP limits while demonstrating interference protection would file a waiver request.<sup>12</sup> In support of its request, MTA states that Section 95.885’s ERP limits of 20 watts for fixed and base station operations and 4 watts for mobile operations are insufficient to design and implement an interoperable PTC system for the MTA Railroads.<sup>13</sup> MTA also states that higher power limits are necessary to enable compatibility with PTC systems being implemented by adjacent railroads in the 220-222 MHz band.<sup>14</sup>

6. MTA has submitted a study of the potential impact of the requested power level increases on OTA viewers of Channel 13 Digital TV Station WNET-TV, New York, which was performed by Pericle Communications Company (Pericle Study).<sup>15</sup> WNET-TV is a 9.3 kW ERP public broadcasting station,

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<sup>8</sup> To determine the amount of time to stop a train, for example, a PTC system must account for terrain, a train’s weight and length, its braking technology, and other factors.

<sup>9</sup> MTA Amended Waiver Request at 4.

<sup>10</sup> 47 C.F.R. § 1.925(b)(3).

<sup>11</sup> See Amendment of Part 95 of the Commission’s Rules to Provide Regulatory Flexibility in the 218-219 MHz Service, *Report and Order and Memorandum Opinion and Order*, WT Docket No. 98-169, 15 FCC Rcd 1497, 1554-55 at ¶¶ 109-110 (1999) (*Flexibility Report and Order*). Amendment of Parts 0, 1, 2, and 95 of the Commission’s Rules to Provide Interactive Video and Data Services, *Report and Order*, GEN Docket No. 91-2, 7 FCC Rcd 1630, 1633-34 ¶¶ 25-26 (1992). Dispatch Interactive Television, Inc., *Memorandum Opinion and Order*, DA 00-01, 15 FCC Rcd 140, 141 ¶ 4 (WTB 2000).

<sup>12</sup> See *Flexibility Report and Order*, 15 FCC Rcd at 1555 ¶ 110 (where a “218-219 MHz Service provider structures a system that can operate in excess of twenty watts and provide necessary interference protection, we believe that a request for a waiver would be the most appropriate course”).

<sup>13</sup> MTA Amended Waiver Request at 10, 13.

<sup>14</sup> *Id.* PTC-220 (a consortium of the nation’s seven Class 1 freight railroads) has acquired substantial nationwide spectrum in the 220-222 MHz Band to implement PTC systems for its members and others, including commuter railroads. PTC-220 has leased spectrum to Metrolink and other commuter railroads to enable their PTC deployments and is in discussions with others regarding their spectrum needs.

<sup>15</sup> The Pericle Study, dated September 26, 2013, is attached as Exhibit 1 to the MTA Waiver Supplement.

which transmits from the Empire State Building. Its 36 dBu noise limited service contour (NLSC) extends to 98.6 km (61.6 miles) and encompasses most of the MTA Railroads' service area.<sup>16</sup>

7. The Pericle Study demonstrates that MTA's PTC deployment will impact OTA reception of WNET-TV and that additional OTA air viewers could be impacted by an increase of permitted ERP. The Pericle Study presents three scenarios to predict interference to WNET-TV viewers based on desired-to-undesired (D/U) signal ratios of -26 dB per OET-69, -33 dB per ATSC recommendations, and -40 dB per FCC/OET 07-TR-1003.<sup>17</sup> We do not concur with Pericle that the -40 dB D/U value is the most appropriate value to analyze the potential for interference to WNET-TV viewers.<sup>18</sup> Rather, we find that the potential for interference from MTA's proposed PTC operations to WNET-TV viewers is best predicted at locations where the D/U signal ratio is below -33 dB.<sup>19</sup> MTA intends to provide consumers with a 25 dB notch filter for their affected televisions to mitigate interference.

8. Using the -33 dB D/U signal ratio, the Pericle Study predicts that a potential of 1,350 OTA households could be impacted by an increase from 4 to 8 watts ERP for mobile PTC operations and an additional 858 OTA households could be impacted by an increase from 20 to 30 watts ERP for fixed and base station PTC operations.<sup>20</sup> The Pericle Study further predicts that application of a 25 dB notch filter would ameliorate interference to all but 185 of the additional affected households.<sup>21</sup> We do not have access to data that shows whether OTA households are viewers of WNET-TV; consequently the number of predicted affected households could be higher or lower.

9. Section 95.861(e) of the Commission's rules requires each 218-219 MHz licensee to investigate and eliminate harmful interference to television broadcasting and reception from its system within thirty (30) days of being notified in writing, by either an affected television station, an affected viewer, or the Commission, of an interference complaint.<sup>22</sup> If a 218-219 MHz Service licensee fails to

<sup>16</sup> Pericle Study at 11, Figure 3 and Table 5. Historically, the Commission analyzed the potential for interference according to a TV station's analog Grade B predicted contour. To account for the conversion to digital television, the Commission developed the noise limited service contour (NLSC) to approximate the same probability of service as the analog Grade B contour. See, e.g., Review of the Commission's Part 95 Personal Radio Services Rules, *Notice of Proposed Rule Making and Memorandum Opinion and Order on Reconsideration*, WT Docket No. 10-119, 25 FCC Rcd 7651, 7676 ¶ 65 (2010); Study of Digital Television Field Strength Standards and Testing Procedures, *Report To Congress: The Satellite Home Viewer Extension and Reauthorization Act of 2004*, ET Docket No. 05-182, 20 FCC Rcd 19504, 19507 ¶ 3 (2005). The NLSC is defined using the F(50,90) field strength contour, the area in which at least fifty percent of the locations can be expected to receive a signal that exceeds a specified field strength value at least ninety percent of the time. See Establishment of a Model for Predicting Digital Broadcast Television Field Strength Received at Individual Locations, *Notice of Proposed Rule Making and Further Notice of Proposed Rule Making*, ET Docket No. 10-152, 25 FCC Rcd 10474, 10485 ¶ 25 (2010).

<sup>17</sup> Pericle Study at 12-13.

<sup>18</sup> *Id.* at 13, Table 8.

<sup>19</sup> The standard D/U ratio for upper-adjacent channel NTSC interference into DTV is -48 dB. 47 C.F.R. § 73.623(c)(2). The effective occupied bandwidth of the MTA Railroads' proposed PTC operations, however, appears to be greater than that of a conventional NTSC visual carrier, so a more conservative D/U ratio, such as -33 dB, is appropriate. See LoJack Corporation, *Declaratory Ruling and Order*, WT Docket No. 06-142, 26 FCC Rcd 12991, 12999 ¶ 18 (PSHSB 2011) (noting that the D/U threshold ratio for lower adjacent DTV signals into a DTV receiver has been measured to be about -33 dB) (citing Interference Rejection Thresholds of Consumer Digital Television Receivers Available in 2005 and 2006, OET Report FCC/OET 07-TR-1003, Technical Research Branch, Laboratory Division, Office of Engineering and Technology, Federal Communications Commission at A-2 (Mar. 30, 2007)). See also Application of Avista Corporation, *Order*, 27 FCC Rcd 263, 266-67 ¶¶ 6-8 (WTB 2012).

<sup>20</sup> Pericle Study at 13, Table 7.

<sup>21</sup> *Id.* For these households, other options exist to mitigate interference are available. See note 29.

<sup>22</sup> See 47 C.F.R. § 95.861(e).

eliminate the interference within the 30-day period, it must discontinue the operations causing the interference.<sup>23</sup> WNET-TV has advised Commission staff that it does not object to the MTA's proposed ERP increases, provided that the MTA timely cures any interference experienced by OTA viewers of WNET-TV.<sup>24</sup> MTA has committed to verify the frequency of each PTC transmitter upon installation and periodically during routine maintenance.<sup>25</sup> MTA has provided WNET-TV specific points of contact for resolution of any interference complaints,<sup>26</sup> and has committed to posting a notice in local newspapers of the contact information of MTA personnel responsible for interference abatement.<sup>27</sup>

10. We find that in view of the unique factual circumstances before us, strict application of Section 95.885's power limits to the MTA Railroad's PTC deployment would not serve the public interest. Congress adopted the PTC mandate to save lives and property, and the higher power limits requested here will enable the MTA Railroads to meet their obligation to deploy an interoperable PTC system. Further, mitigation of any interference to OTA viewers of WNET-TV is possible, and WNET-TV does not object to MTA's request provided it timely cures any interference. We therefore grant MTA a waiver of Section 95.885's power limits to deploy a PTC system.

11. We emphasize that MTA must, upon request, promptly install, free of charge, a notch filter for any television of an OTA viewer of WNET-TV that is impacted by MTA's PTC system. If MTA cannot fully abate interference with a 25 dB notch filter or other measure such as modifying the parameters of an interfering transmitter, Section 95.861(e) provides that it must cease operation of an offending transmitter within 30 days of the time it is notified in writing.<sup>28</sup> In what we would expect to be rare cases that such measures are insufficient to cure interference, the MTA would have additional options at its disposal to eliminate the interference.<sup>29</sup>

12. Limited Waiver of Section 95.815(b). MTA requests a limited waiver of Section 95.815(b) of the Commission's Rules,<sup>30</sup> which requires a 218-219 MHz licensee to provide certain information when modifying an individually licensed base station.<sup>31</sup> Section 95.811(b) provides for individual licensing of base stations in the 218-219 MHz band where the antenna exceeds 6.1 meters above ground.<sup>32</sup> Section 95.815(b), in turn, requires that each request to add, delete, or modify technical information of an individually licensed base station must include a description of the licensee's system after the proposed addition, deletion, or modification, including the population served, and an explanation

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<sup>23</sup> *Id.*

<sup>24</sup> Email dated February 4, 2014, from Frank Graybill, Senior Director Engineering, WNET-TV, to Richard Arsenault, Chief Counsel, Mobility Division, Wireless Telecommunications Bureau, Federal Communications Commission.

<sup>25</sup> Letter dated November 18, 2013 from R. Wayne Staley, Executive Director, PTC, MTA Metro-North Railroad to Frank Graybill, Senior Director Engineering, WNET-TV, at 1, attached as Exhibit 2 to MTA Waiver Supplement.

<sup>26</sup> *Id.* at 1-2.

<sup>27</sup> MTA Amended Waiver Request at 12, n.12.

<sup>28</sup> 47 C.F.R. § 95.861(e).

<sup>29</sup> For example, the MTA could use a better notch filter, install a more directional television receive antenna, or furnish a better-performing television receiver. *See* Pericle Study at 4, 13, 16.

<sup>30</sup> 47 C.F.R. § 95.815(b).

<sup>31</sup> MTA Amended Waiver Request at 12-13.

<sup>32</sup> 47 C.F.R. § 95.811(b).

of how the system will satisfy the substantial service requirement of Section 95.831.<sup>33</sup>

13. MTA states that the provision of population information and an explanation of how its PTC system will satisfy the substantial service requirement of Section 95.831 each time it adds, deletes, or modifies an individually licensed base station will serve no practical purpose.<sup>34</sup> MTA notes that any base station changes would occur along the MTA Commuter Railroads' trackage and that MTA's obligation to abate interference to viewers of WNET-TV will not change.<sup>35</sup>

14. We find that Section 95.815(b)'s requirement that MTA provide population information for each individually licensed base station and an explanation of how its PTC system will satisfy the substantial service requirement under Section 95.831 each time it adds, deletes, or modifies an individually licensed base station would be unduly burdensome in the instant case. The population served by a specific base station is not relevant for assessing the interference potential of an MTA PTC base station change. Nor would it aid Commission staff for MTA to provide a narrative of how the MTA Railroads' PTC deployment fulfills its Section 95.833 substantial service obligation each time it adds, deletes, or modifies an individually licensed base station. We therefore grant MTA's request for a limited waiver of Section 95.815(b). We note that MTA must otherwise comply with the Section 95.815(b) requirement to file an appropriate application each time it adds, deletes, or modifies an individually licensed base station.

15. Accordingly, IT IS ORDERED, pursuant to Section 4(i) of the Communications Act, as amended, 47 U.S.C. § 154(i), and Sections 1.925(b), 95.815(b), and 95.855 of the Commission's Rules, 47 C.F.R. §§ 1.925(b), 95.815(b), and 95.855, that the Waiver Request filed by the Metropolitan Transportation Authority on March 8, 2013, as amended July 22, 2013, and supplemented December 16, 2013, IS GRANTED to the extent provided above.

16. This action is taken under delegated authority pursuant to Sections 0.131 and 0.332 of the Commission's Rules, 47 C.F.R. §§ 0.131, 0.332.

FEDERAL COMMUNICATIONS COMMISSION

Roger S. Noel  
Chief, Mobility Division  
Wireless Telecommunications Bureau

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<sup>33</sup> 47 C.F.R. § 95.831. Each 218-219 MHz licensee must make a substantial service showing within 10 years of license grant. 47 C.F.R. § 95.833(a). Further, a licensee must file a detailed system report with its renewal application. 47 C.F.R. § 95.833(b).

<sup>34</sup> MTA Amended Waiver Request at 12.

<sup>35</sup> *Id.*