

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

In the Matter of )
PTC-220, LLC )
Request for Modification of Station KIVD0007 and ) File No. 0007202625
Waivers to Implement Positive Train Control )

ORDER OF MODIFICATION

Adopted: March 9, 2017

Released: March 9, 2017

By the Chief, Mobility Division, Wireless Telecommunications Bureau:

I. INTRODUCTION

1. In this Order of Modification (Order), the Mobility Division (Division) of the Wireless Telecommunications Bureau modifies 218-219 MHz Service Station license KIVD0007, licensed to PTC-220, LLC (PTC-220), to facilitate positive train control (PTC) implementation by New Jersey Transit (NJ Transit), the Southeastern Pennsylvania Transportation Authority (SEPTA), and certain PTC-220 freight member railroads.

II. BACKGROUND

2. PTC Mandate. Pursuant to the Rail Safety Improvement Act of 2008, as amended by the Positive Train Control Enforcement and Implementation Act of 2015, Congress has required all trains providing passenger service and freight trains operating on lines carrying toxic and poisonous-by-inhalation hazardous materials to implement interoperable PTC systems by December 31, 2018. The

1 PTC-220 is a joint venture of the nation's seven Class I freight railroads. Its members include BNSF Railway Company, Canadian National, Canadian Pacific, CSX Corporation (CSX), Kansas City Southern, Norfolk Southern Corporation (NS), and Union Pacific Corporation. PTC-220 requested modification of its license. See PTC-220, LLC Request for License Modification and Waivers, ULS File No. 0007202625 (filed Mar. 25, 2016), amended October 5, 2016. See also Request for Modification of Station KIVD0007 and Waivers to Implement Positive Train Control, Proposed Order of Modification, 31 FCC Rcd 13249, 13249, para. 1 n.2 (WTB Mobility Div. 2016) (Proposed Order of Modification).

2 Congress adopted the PTC mandate in the Rail Safety Improvement Act of 2008. See Pub. L. No. 110-432, § 104, 122 Stat. 4848, 4857 (2008), amended by the Positive Train Control Enforcement and Implementation Act of 2015, Pub. L. No. 114-73, § 1302, 129 Stat. 568, 576 (Oct. 29, 2015) (PTC Enforcement Act). PTC systems are intended to reduce the risk of human-error rail accidents, by "prevent[ing] train-to-train collisions, over-speed derailments, incursions into established work zone limits, and the movement of a train through a switch left in the wrong position." 49 U.S.C. § 20157(i)(5).

3 See supra note 2.

4 Interoperability is defined as "the ability to control locomotives of the host railroad and tenant railroad to communicate with and respond to the positive train control system, including uninterrupted movements over property boundaries." 49 U.S.C. § 20157(i)(3).

American rail industry has chosen to implement PTC using radio spectrum that creates wireless networks with the capacity to enable real-time information sharing between trains, rail wayside devices, and “back office” applications, regarding train movement authorities, speed restrictions, train position and speed, and the state of signal and switch devices.

3. *NJ Transit.* NJ Transit operates one of the nation’s busiest commuter rail systems, providing more than 300,000 passenger trips on an average weekday.<sup>6</sup> It must deploy PTC on 11 commuter rail lines, serving 116 municipalities.<sup>7</sup> NJ Transit is leasing spectrum in the 218-219 MHz band from the Metropolitan Transportation Authority of New York to deploy PTC in seven northern New Jersey counties.<sup>8</sup> It requires spectrum in several adjoining counties to complete its PTC spectrum footprint.<sup>9</sup>

4. *SEPTA.* SEPTA also provides vital commuter rail service, serving approximately 130,000 passengers on an average weekday in greater Philadelphia over 13 rail lines.<sup>10</sup> SEPTA has begun to implement PTC in earnest using a 220-222 MHz band license it acquired in 2010.<sup>11</sup> However, because its PTC system could experience interference from nearby freight rail PTC operations also being deployed in the 220-222 MHz band, SEPTA is prepared to transition its PTC system to the 218-219 MHz band.

5. *Intersystem Interference.* Like Amtrak and other commuter railroads serving the Northeast Corridor, NJ Transit and SEPTA are deploying a PTC radio technology called an Advanced Civil Speed Enforcement System (ACSES).<sup>12</sup> ACSES radios are designed to operate in the 216-222 MHz frequency range.<sup>13</sup> However, the nation’s freight rails, including PTC-220 members, have chosen to deploy a PTC radio technology called an Interoperable Electronic Train Management System (I-ETMS), and have acquired 220-222 MHz band spectrum throughout the United States to implement I-ETMS.<sup>14</sup> Several of PTC-220’s member railroads operate over, or nearby, track where NJ Transit and SEPTA operate commuter rail trains.<sup>15</sup> When in close geographic proximity, the freight rails’ and commuter rails’ respective PTC radio technologies can experience intersystem interference absent adequate spectral

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<sup>5</sup> 49 U.S.C. § 20157(a)(1). In October 2015, Congress extended the PTC implementation deadline from December 31, 2015, to December 31, 2018. *See* PTC Enforcement Act. Railroads may request up to a 24-month extension of the December 31, 2018, deadline in limited circumstances. *See* 49 U.S.C. § 20157(a)(2)(B).

<sup>6</sup> *Proposed Order of Modification*, 31 FCC Rcd at 13252, para. 7.

<sup>7</sup> *Id.*

<sup>8</sup> Lease ID L000023066. *See also Metropolitan Transportation Authority*, Order of Modification, 31 FCC Rcd 8862 (WTB Mobility Div. 2016). The Division acted in accordance with the Commission’s proposal to modify KIVD0002. *Metropolitan Transportation Authority*, Proposed Order of Modification and Order on Reconsideration, 31 FCC Rcd 1436 (2016) (*MTA Proposed Order of Modification* and *MTA Order on Reconsideration*, respectively). Warren Havens filed a petition on behalf of Skybridge Spectrum Foundation for reconsideration of the Commission’s action confirming the renewal of Station KIVD0002 in the *MTA Order on Reconsideration* and that petition remains pending. *See* Petition for Reconsideration, ULS File No. 0006109691 (filed Mar. 17, 2016).

<sup>9</sup> *See infra* paragraphs 7 and 11.

<sup>10</sup> *Proposed Order of Modification*, 31 FCC Rcd at 13252, para. 8; SEPTA Annual Report Fiscal Year 2015 at 18 (2015), <http://septa.org/strategic-plan/reports/annual-2015.pdf> (last visited Feb. 21, 2017).

<sup>11</sup> *Proposed Order of Modification*, 31 FCC Rcd at 13252, para. 8.

<sup>12</sup> *Id.* at 13254, para. 12. Although NJ Transit and SEPTA use slightly different versions of ACSES, we use the term “ACSES” to refer to both systems.

<sup>13</sup> *MTA Proposed Order of Modification*, 31 FCC Rcd at 1448, para. 39.

<sup>14</sup> *Proposed Order of Modification*, 31 FCC Rcd at 13254, para. 12.

<sup>15</sup> *Id.* at 13251, para. 6. These carriers include CSX, NS, and indirectly, Conrail Shared Assets, which operates trains for CSX and NS. *Id.* at 13251, para. 6 n.25.

separation and filtering.<sup>16</sup>

6. *Station KIVD0007.* PTC-220 specifically acquired Station KIVD0007 to provide NJ Transit and SEPTA access to spectrum that would provide necessary spectral separation so that filters could be deployed to mitigate potential intersystem interference between their ACSES PTC systems and the freight rails' I-ETMS PTC systems in the 220-222 MHz band.<sup>17</sup> Station KIVD0007 currently includes 500 kilohertz of spectrum (218.000 to 218.500 MHz) in eight counties where NJ Transit and SEPTA will deploy PTC.<sup>18</sup> PTC-220 requested that we modify Station KIVD0007 to return 250 kilohertz of spectrum (218.250 to 218.500 MHz) from the eight counties now comprising the license area to the Commission.<sup>19</sup>

7. NJ Transit and SEPTA also require spectrum to deploy PTC in eight additional counties that adjoin Station KIVD0007's current license area.<sup>20</sup> PTC-220 has requested that we modify Station KIVD0007 by authorizing the use of 250 kilohertz of spectrum (218.000 to 218.250 MHz) from the Commission's 218-219 MHz band inventory in the eight adjoining counties.<sup>21</sup> Collectively, the requested license modifications will result in a 16-county, 250 kilohertz spectrum license, which PTC-220 has committed to partition between NJ Transit and SEPTA to enable their respective PTC implementations.<sup>22</sup>

8. *Proposed Order of Modification.* On December 19, 2016, the Division adopted the *Proposed Order of Modification*.<sup>23</sup> The Division found that Section 316(a)(1) of the Communications Act of 1934, as amended, provides it authority to propose modification of Station KIVD0007 as requested by PTC-220.<sup>24</sup> It found that the proposed license modification will promote the vital public interest in rail safety by facilitating the implementation of PTC by NJ Transit, SEPTA, and by freight rails as required by Congress in the Rail Safety Improvement Act of 2008.<sup>25</sup>

9. The Division also addressed PTC-220's related requests for additional power to enable the deployment of PTC by NJ Transit and SEPTA, and for relief from certain reporting requirements.<sup>26</sup> The Division proposed grant of a waiver, finding that strict application of Section 95.855's power limits

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<sup>16</sup> *Id.* at 13251-52, para. 6.

<sup>17</sup> *Id.* at 13252, para. 6.

<sup>18</sup> *Id.* at 13249, para. 2.

<sup>19</sup> *Id.* at 13250, para. 2.

<sup>20</sup> *Id.*

<sup>21</sup> *Id.*

<sup>22</sup> *Id.*

<sup>23</sup> *See supra* note 1.

<sup>24</sup> Section 316(a) states the Commission may modify any station license "if in the judgment of the Commission such action will promote the public interest, convenience, and necessity . . ." 47 U.S.C. § 316(a).

<sup>25</sup> *Proposed Order of Modification*, 31 FCC Rcd at 13255, para. 15. Specifically, the Division found that the proposed modification of the license would enable PTC-220 to assign spectrum to: (1) NJ Transit to complete its PTC spectrum footprint in the 218-219 MHz band; and (2) SEPTA to transition its PTC operations now in the 220-222 MHz band to spectrum in the 218-219 MHz band, providing more than one megahertz of separation from the freight railroads' PTC operations in the 220-222 MHz band. *See id.* An FRA-funded Transportation Technology Center, Inc. engineering study (TTCI Study) states this separation is required to mitigate intersystem interference that could cause both systems to fail. *See MTA Proposed Order of Modification*, 31 FCC Rcd at 1449-50, paras. 42-43. The Division also noted that the proposed modification would provide the Commission with a return of comparable spectrum from Station KIVD0007 for future disposition. *Proposed Order of Modification*, 31 FCC Rcd at 13255, para. 15.

<sup>26</sup> *Id.* at 13256-60, paras. 17-29.

and Section 95.815(b)'s reporting requirements would not serve the public interest.<sup>27</sup> In proposing a limited waiver of rule 1.955(a)(3) until the December 31, 2018 PTC implementation deadline,<sup>28</sup> the Division found that strict application of Section 1.955(a)(3),<sup>29</sup> which provides that “[a]uthorizations automatically terminate, without specific Commission action, if service is permanently discontinued,” would be contrary to the public interest in rail safety. The 30-day period for filing protests of the *Proposed Order of Modification* ended on January 18, 2017, and no party filed a protest.<sup>30</sup>

### III. DISCUSSION

10. For the reasons stated above and in light of the overriding public interest in rail safety embodied in the Congressional mandate to implement PTC, we find it in the public interest to modify PTC-220's authorization consistent with the *Proposed Order of Modification*. Accordingly, we hereby modify Station KIVD0007 as follows:

- We authorize the use of an additional 250 kilohertz of spectrum, 218.000-218.250 MHz,<sup>31</sup> in the following New Jersey counties: Atlantic (IVM134); Hunterdon (IVM550); Mercer (IVM121); Middlesex (IVM062); Monmouth (IVM070); Ocean (IVM551); Sussex (IVM552); and Warren (IVM058).
- We delete the authorization to use 250 kilohertz of spectrum, 218.250-218.500 MHz, now licensed under Station KIVD0007 from Burlington, Camden, and Gloucester counties, New Jersey, and from Bucks, Chester, Delaware, Montgomery, and Philadelphia counties, Pennsylvania (all in IVM004)—which spectrum will become unassigned and available for future disposition as determined by the Commission.

11. Today's modification of Station KIVD0007 ultimately will enable NJ Transit to deploy PTC in nine New Jersey counties (Atlantic, Burlington, Camden, Hunterdon, Middlesex, Monmouth, Ocean, Sussex, and Warren; collectively, the “NJ Transit Counties”) and will enable SEPTA to deploy PTC in seven counties (Bucks, Chester, Delaware, Montgomery, and Philadelphia counties, Pennsylvania, and in Gloucester and Mercer counties, New Jersey; collectively, the “SEPTA Counties”). We also grant PTC-220 a waiver of Section 95.855<sup>32</sup> so that NJ Transit and SEPTA can deploy PTC at the increased power levels specified in the *Proposed Order of Modification*, from 4 to 8 watts ERP for mobile PTC operations, and from 20 to 30 watts ERP for base and fixed station PTC operations.<sup>33</sup> Consistent with the *Proposed Order of Modification*, the following additional attenuation requirements will apply when either commuter rail uses increased power:

- Out-of-band emissions (OOBE) of fixed and base PTC stations must be attenuated by an

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<sup>27</sup> *Id.* at 13259, para. 26 (proposed grant of a limited waiver of 47 CFR § 95.855) and at 13260, para. 29 (proposed grant of a limited waiver of 47 CFR § 95.815(b)).

<sup>28</sup> *Id.* at 13261, para. 31.

<sup>29</sup> 47 CFR § 1.955(a)(3).

<sup>30</sup> Consistent with Section 316 of the Act and Commission rule section 1.87(a), the Division prescribed a 30-day period to file protests, commencing December 19, 2016 (the public release date of the *Proposed Order of Modification*). *Proposed Order of Modification*, 31 FCC Rcd at 13261, paras. 32-33.

<sup>31</sup> This spectrum will provide NJ Transit and SEPTA 1.75 megahertz of spectral separation from the freights' I-ETMS deployment in the 220-222 MHz Band, thereby mitigating the potential for intersystem interference identified in the FRA-funded TTCI Study. See TTCI Study at 2 (noting the different modulation, data encoding, and channel access protocols used by ACSES and I-ETMS radios that may lead to mutual desensitization between the two systems), and 12 (concluding that I-ETMS radios should only operate above 220 MHz and ACSES radios below 219 MHz when in close geographic proximity to mitigate possible ACSES/I-ETMS intersystem interference).

<sup>32</sup> 47 CFR § 95.855.

<sup>33</sup> *Proposed Order of Modification*, 31 FCC Rcd at 13259, para. 26.

additional 1.77 dB when using increased ERP under the waiver.<sup>34</sup>

- OOBE of mobile PTC stations must be attenuated by an additional 3 dB when using increased ERP under the waiver.<sup>35</sup>

We emphasize that under Section 95.861(d),<sup>36</sup> NJ Transit and SEPTA “must provide upon request, and install free of charge, an interference reduction device,” (here, a notch filter)<sup>37</sup> for any television of an over-the-air Channel 13 viewer that is impacted by their PTC operations.<sup>38</sup> Where a notch filter is not adequate, NJ Transit and SEPTA have additional options at their disposal to eliminate the interference.<sup>39</sup> If NJ Transit or SEPTA, as applicable, cannot abate interference with a notch filter or other measure, Section 95.861(e) would require it to cease operation of an offending transmitter within 30 days of the time it is notified in writing of an interference complaint.<sup>40</sup>

12. Pursuant to the *Proposed Order of Modification*, we grant PTC-220 a waiver—for the benefit of NJ Transit and SEPTA—of Section 95.815(b)’s requirement to provide certain information specified in Section 95.811(b), when modifying an individually-licensed base station.<sup>41</sup> We emphasize that NJ Transit and SEPTA will still be required by Section 95.815(b) to file an appropriate application each time they add, delete, or modify an individually-licensed base station. Further, we grant PTC-220 a waiver—also for the benefit of NJ Transit and SEPTA—of Section 1.955(a)(3) until the December 31, 2018 PTC implementation deadline, consistent with the *Proposed Order of Modification*.<sup>42</sup>

13. We emphasize that the waivers of Sections 1.955(a)(3), 95.815(b), and 95.855<sup>43</sup> we grant today may be applied by NJ Transit and SEPTA in furtherance of PTC deployment only, and may not be applied for unrelated purposes.

14. Pursuant to the *Proposed Order of Modification*, we also require PTC-220, as a condition of our modification of Station KIVD0007, to assign on commercially reasonable terms 250 kilohertz of spectrum under Station KIVD0007 (as modified) to NJ Transit to enable its PTC implementation in the NJ Transit Counties<sup>44</sup> as follows:

- Within 45 days of the release date of this Order, PTC-220 must file an application under

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<sup>34</sup> *Id.* (proposing additional attenuation requirements identical to those adopted in the *MTA Order on Reconsideration*, 31 FCC Rcd at 1446-47, para. 32).

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

<sup>36</sup> 47 CFR § 95.861(d).

<sup>37</sup> A notch (band reject) filter attenuates one frequency band and passes both a lower and a higher frequency band.

<sup>38</sup> *Proposed Order of Modification*, 31 FCC Rcd at 13259-60, para. 27.

<sup>39</sup> For example, they could install a more directional television receive antenna, or furnish a better-performing television receiver. *Id.* at 13260, para. 27 n.101.

<sup>40</sup> 47 CFR § 95.861(e).

<sup>41</sup> Section 95.815(b) requires licensees that request the addition, deletion, or modification of the technical information of an individually licensed base station in the 218-219 MHz band pursuant to Section 95.811(b) to include a description of the licensee’s system after the proposed addition, deletion, or modification, including the population served, and an explanation of how the system will satisfy the substantial service requirement of Section 95.831. 47 CFR §§ 95.811(b), 95.815(b).

<sup>42</sup> *Proposed Order of Modification*, 31 FCC Rcd at 13261, para. 31; 47 CFR § 1.955(a)(3) (provides that “[a]uthorizations automatically terminate, without specific Commission action, if service is permanently discontinued”).

<sup>43</sup> 47 CFR §§ 1.955(a)(3), 95.811(b), 95.855.

<sup>44</sup> *See supra* paragraph 11 (enumerating the NJ Transit Counties).



Station KIVD0007 (as modified) to assign on commercially reasonable terms 250 kilohertz of spectrum to NJ Transit to enable PTC implementation in the NJ Transit Counties.

- Within 180 days of the release date of this Order, PTC-220 must consummate the assignment of spectrum to NJ Transit as specified above.

15. Pursuant to the *Proposed Order of Modification*, we require PTC-220, as a condition of our modification of Station KIVD0007, to assign on commercially reasonable terms 250 kilohertz of spectrum under Station KIVD0007 (as modified) to SEPTA to enable its PTC implementation in the SEPTA Counties<sup>45</sup> as follows:

- Within 45 days of the release date of this Order, PTC-220 must file an application under Station KIVD0007 (as modified) to assign on commercially reasonable terms 250 kilohertz of spectrum to SEPTA to enable PTC implementation in the SEPTA Counties.<sup>46</sup>
- Within 180 days of the release date of this Order, PTC-220 must consummate the assignment of spectrum to SEPTA as specified above.

16. Should PTC-220 not consummate the assignments of spectrum to NJ Transit and SEPTA as specified above within 180 days of the release date of this Order, any remaining spectrum authorized by the modification shall return to the Commission without further action and will become unassigned and available for future disposition as determined by the Commission.<sup>47</sup>

#### IV. ORDERING CLAUSES

17. Accordingly, IT IS ORDERED that, pursuant to Sections 4(i) and 316(a) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 316(a), and Section 1.87 of the Commission's Rules, 47 C.F.R. § 1.87, Station KIVD0007, licensed to PTC-220, LLC, IS MODIFIED as specified in Section III of this Order of Modification. Modification of Station KIVD0007 is effective upon release of this Order of Modification.

18. IT IS FURTHER ORDERED that, pursuant to Section 4(i) of the Communications Act of 1934, as amended, 47 U.S.C. § 154(i), and Section 1.925(b)(3) of the Commission's Rules, 47 C.F.R. § 1.925(b)(3), that a waiver of Sections 1.955(a)(3), 95.815(b), and 95.855 of the Commission's Rules, 47 C.F.R. §§ 1.955(a)(3), 95.815(b), 95.855, as specified in Section III of this Order of Modification, IS GRANTED.

19. AND IT IS FURTHER ORDERED that, pursuant to Section 316(a)(1) of the Communications Act of 1934, as amended, 47 U.S.C. § 316(a)(1), the Wireless Telecommunications Bureau SHALL SEND this Order of Modification by certified mail, return receipt requested, to PTC-220, LLC.

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<sup>45</sup> See *id.* (enumerating the SEPTA Counties).

<sup>46</sup> We note that PTC-220 filed an application on January 19, 2017, ULS File No 0007598117, to disaggregate, partition, and assign 250 kilohertz of spectrum to SEPTA under Station KIVD0007 in the SEPTA Counties, except Mercer County, New Jersey. PTC-220 states that the assignment to SEPTA of spectrum in Mercer County will be accomplished through a future assignment application after the license modification is effectuated. See Description of the Transaction and Public Interest Statement, ULS File No. 0007598117, at 3.

<sup>47</sup> As noted above, today's modification of Station KIVD0007 authorizes the use of an additional 250 kilohertz of spectrum, 218.000-218.250 MHz, in Atlantic, Hunterdon, Mercer, Middlesex, Monmouth, Ocean, Sussex, and Warren counties, New Jersey. See *supra* paragraph 10. If PTC-220 does not assign all of this newly authorized spectrum to NJ Transit and SEPTA within 180 days as required by this Order, then any unassigned spectrum (authorized by today's action) will return to the Commission automatically. We anticipate that NJ Transit and SEPTA will work closely with PTC-220 to help ensure that the relevant applications and consummation notifications are filed timely.

20. This action is taken under delegated authority pursuant to Sections 0.131 and 0.331 of the Commission's rules, 47 C.F.R. §§ 0.131, 0.331.

FEDERAL COMMUNICATIONS COMMISSION

Roger S. Noel  
Chief, Mobility Division  
Wireless Telecommunications Bureau