

# SECURITIES AND EXCHANGE COMMISSION

## 17 CFR Part 241

[Release No. 34-77407; File No. S7-03-16]

### Notice of Proposed Commission Interpretation Regarding Automated Quotations Under Regulation NMS

**AGENCY:** Securities and Exchange Commission.

**ACTION:** Proposed interpretation; request for comment.

**SUMMARY:** The Securities and Exchange Commission is publishing for comment a proposed interpretation with respect to the definition of automated quotation under Rule 600(b)(3) of Regulation NMS.

**DATES:** Comments should be received on or before April 14, 2016

**ADDRESSES:** Comments may be submitted by any of the following methods:

#### Electronic comments:

- Use the Commission's Internet comment form (<http://www.sec.gov/rules/sro.shtml>); or
- Send an e-mail to [rule-comments@sec.gov](mailto:rule-comments@sec.gov). Please include File Number S7-03-16 on the subject line.

#### Paper comments:

- Send paper comments in triplicate to Brent J. Fields, Secretary, Securities and Exchange Commission, 100 F Street, NE, Washington, DC 20549-1090.

All submissions should refer to File Number S7-03-16. This file number should be included on the subject line if e-mail is used. To help the Commission process and review your comments more efficiently, please use only one method. The Commission will post all comments on the Commission's Internet website (<http://www.sec.gov/rules/other.shtml>). Comments are also available for website viewing and printing in the Commission's Public Reference Room, 100 F

Street, NE, Washington, DC 20549, on official business days between the hours of 10:00 a.m. and 3:00 p.m. All comments received will be posted without change; the Commission does not edit personal identifying information from submissions. You should submit only information that you wish to make publicly available.

**FOR FURTHER INFORMATION CONTACT:** Richard Holley III, Assistant Director, at (202) 551-5614, Michael Bradley, Special Counsel, at (202) 551-5594, or Michael Oggershok, Attorney-Advisor, at 202-551-5541, all in the Office of Market Supervision, Division of Trading and Markets, Securities and Exchange Commission, 100 F Street, NE, Washington, DC 20549-7010.

**SUPPLEMENTARY INFORMATION:**

**I. Background**

**A. IEX's Form 1**

On August 21, 2015, Investors' Exchange LLC ("IEX") submitted to the Commission a Form 1 application seeking registration as a national securities exchange under Section 6 of the Securities Exchange Act of 1934 ("Act").<sup>1</sup> On September 9, 2015, IEX submitted Amendment No. 1 to its Form 1 application.<sup>2</sup> Notice of IEX's filing of its Form 1 application, as amended, was published for comment in the Federal Register on September 22, 2015.<sup>3</sup> Recently, IEX

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<sup>1</sup> 15 U.S.C. 78f.

<sup>2</sup> In Amendment No. 1, IEX submitted updated portions of its Form 1 application, including revised exhibits, a revised version of the proposed IEX Rule Book, and revised Addenda C-2, C-3, C-4, D-1, D-2, F-1, F-2, F-3, F-4, F-5, F-6, F-7, F-8, F-9, F-10, F-11, F-12, and F-13. IEX's Form 1 application, as amended, including all of the Exhibits referenced above, is available online at [www.sec.gov/rules/other.shtml](http://www.sec.gov/rules/other.shtml) as well as at the Commission's Public Reference Room.

<sup>3</sup> See Securities Exchange Act Release No. 75925 (September 15, 2015), 80 FR 57261. On December 18, 2015, IEX consented to an extension of time to March 21, 2016 for Commission consideration of its Form 1 application. See Letter from Sophia Lee, General Counsel, IEX, to Brent J. Fields, Secretary, Commission, dated December 18, 2015.

submitted three additional amendments to its Form 1 application.<sup>4</sup> Simultaneously with the issuance of this proposed interpretation, the Commission issued a release to notice Amendment Nos. 2, 3, and 4 to IEX's Form 1 application, instituted proceedings to consider whether to grant or deny IEX's application, and designated a longer period for Commission action to accommodate those proceedings.<sup>5</sup>

The Commission has received extensive comments on IEX's Form 1 application,<sup>6</sup> and IEX has submitted several letters in response to concerns raised by commenters.<sup>7</sup> Among other things, a number of commenters on IEX's Form 1 application asserted that a unique feature of IEX's design – specifically, its Point-of-Presence (“POP”) and “coil” access delay – would preclude IEX's best-priced quotation from being a “protected quotation” under Regulation NMS

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<sup>4</sup> In Amendment No. 2, filed on February 29, 2016, IEX proposed changes to its Form 1 application to, among other things, redesign its outbound routing functionality to direct routable orders first to the IEX router instead of directly to the IEX matching engine. See Letter from Sophia Lee, General Counsel, IEX, to Brent J. Fields, Secretary, Commission, dated February 29, 2016, at 1. In this manner, the IEX router would “interact with the IEX matching system over a 350 microsecond speed-bump in the same way an independent third party broker would be subject to a speed bump.” See id. In Amendment No. 3, filed on March 4, 2016, IEX proposed changes to its Form 1 application to clarify and correct revisions to its rulebook that it made in Amendment No. 2. See Letter from Sophia Lee, General Counsel, IEX, to Brent J. Fields, Secretary, Commission, dated March 4, 2016. In Amendment No. 4, filed on March 7, 2016, IEX proposed changes to its Form 1 application to update Exhibit E to reflect changes it proposed in Amendment No. 2. See Letter from Sophia Lee, General Counsel, IEX, to Brent J. Fields, Secretary, Commission, dated March 7, 2016.

<sup>5</sup> See Securities Exchange Act Release No. 77406 (March 18, 2016) (File No. 10-222).

<sup>6</sup> The public comment file for IEX's Form 1 application (File No. 10-222) is available on the Commission's website at: <http://www.sec.gov/comments/10-222/10-222.shtml>.

<sup>7</sup> See Letters from Sophia Lee, General Counsel, IEX, to Brent J. Fields, Secretary, Commission, dated November 13, 2015 (“IEX First Response”); November 23, 2015 (“IEX Second Response”); and February 9, 2016 (“IEX Third Response”). See also Letter from Donald Bollerman, Head of Markets and Sales, IEX Group, Inc., to File No. 10-222, dated February 16, 2016 (“IEX Fourth Response”) and Letter from IEX Group, Inc., to File No. 10-222, dated February 19, 2016 (“IEX Fifth Response”).

if the Commission grants IEX's exchange registration.<sup>8</sup> IEX contests this assertion, as do certain other commenters.<sup>9</sup>

As discussed more fully below and as highlighted by a number of commenters on IEX's Form 1 application,<sup>10</sup> the Commission preliminarily believes that IEX's proposed POP/coil structure raises questions about prior Commission statements with respect to the definition of an "automated quotation" under Regulation NMS. In light of market and technological developments since the adoption of Regulation NMS in 2005, the Commission is proposing and requesting comment on an updated interpretation to permit more flexibility for trading centers with respect to automated quotations to allow them to develop innovative business models that do not undermine the goals of Rule 611 of Regulation NMS. Specifically, the Commission is proposing to interpret "immediate" when determining whether a trading center maintains an "automated quotation" for purposes of Rule 611 to include response time delays at trading centers that are de minimis, whether intentional or not

**B. Regulation NMS Concept of an Automated Quotation and Protected Quotation**

In general, Rule 611 under Regulation NMS (the "Order Protection Rule," or "Trade-Through Rule") protects the best automated quotations of exchanges by obligating other trading centers to honor those quotes by not executing trades at inferior prices or "trading through" such best automated quotations.<sup>11</sup> Only an exchange that is an "automated trading center"<sup>12</sup>

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<sup>8</sup> See, e.g., FIA First Letter; NYSE First Letter; Citadel First Letter.

<sup>9</sup> See IEX First Response and IEX Second Response. See also, e.g., Verret Letter; Leuchtkafer Second Letter.

<sup>10</sup> See infra text accompanying notes 50-58 (discussing comments on IEX's Form 1).

<sup>11</sup> See 17 CFR 242.611.

<sup>12</sup> See 17 CFR 242.600(b)(4).

displaying an “automated quotation”<sup>13</sup> is entitled to this protection.<sup>14</sup> Trading centers must establish, maintain, and enforce written policies and procedures that are reasonably designed to prevent trade-throughs of protected quotations, unless an exception or exemption applies.<sup>15</sup>

When it adopted Regulation NMS, the Commission explained that the purpose of the Order Protection Rule was to incentivize greater use of displayed limit orders, which contribute to price discovery and market liquidity.<sup>16</sup> In discussing whether to apply order protection to manual quotations, the Commission stated that “providing protection to manual quotations, even limited to trade-throughs beyond a certain amount, potentially would lead to undue delays in the routing of investor orders, thereby not justifying the benefits of price protection.”<sup>17</sup> The Commission also noted that “those who route limit orders will be able to control whether their orders are protected by evaluating the extent to which various trading centers display automated versus manual quotations.”<sup>18</sup>

There are several provisions in Regulation NMS that impact whether the Order Protection Rule applies. First, Rule 600(b)(58) defines a “protected quotation” as a “protected bid or a protected offer.”<sup>19</sup> Rule 600(b)(57), in turn, defines a “protected bid or protected offer” as a quotation in an NMS stock that is: (i) displayed by an “automated trading center,” (ii)

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<sup>13</sup> See 17 CFR 242.600(b)(3).

<sup>14</sup> See 17 CFR 242.600(b)(57) (defining “protected bid or protected offer”), 242.600(b)(58) (defining “protected quotation”); see also Securities Exchange Act Release No. 51808 (June 9, 2005) 70 FR 37496, 37504 (June 29, 2005) (“Regulation NMS Adopting Release”) (stating that “[t]o qualify for protection, a quotation must be automated”).

<sup>15</sup> 17 CFR 242.611(a)(1).

<sup>16</sup> See Regulation NMS Adopting Release, supra note 14, at 37516 and 37517.

<sup>17</sup> Id. at 37518.

<sup>18</sup> Id.

<sup>19</sup> 17 CFR 242.600(b)(58).

disseminated pursuant to an effective national market system plan, and (iii) an “automated quotation” that is the best bid or best offer of a national securities exchange.<sup>20</sup>

In order for an exchange to operate as an “automated trading center,” it must, among other things, have “implemented such systems, procedures, and rules as are necessary to render it capable of displaying quotations that meet the requirements for an ‘automated quotation’ set forth in [Rule 600(b)(3) of Regulation NMS].”<sup>21</sup> Rule 600(b)(3) defines an “automated quotation” as one that:

- i. Permits an incoming order to be marked as immediate-or-cancel;
- ii. Immediately and automatically executes an order marked as immediate-or-cancel against the displayed quotation up to its full size;
- iii. Immediately and automatically cancels any unexecuted portion of an order marked as immediate-or-cancel without routing the order elsewhere;
- iv. Immediately and automatically transmits a response to the sender of an order marked as immediate-or-cancel indicating the action taken with respect to such order; and
- v. Immediately and automatically displays information that updates the displayed quotation to reflect any change to its material terms.<sup>22</sup>

Any quotation that does not meet the requirements for an automated quotation is defined in Rule 600(b)(37) as a “manual” quotation.<sup>23</sup>

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<sup>20</sup> 17 CFR 242.600(b)(57).

<sup>21</sup> 17 CFR 242.600(b)(4). Rule 600(b)(4) contains additional requirements that must be satisfied in order to be an automated trading center. Those requirements are not at issue for purposes of this proposed interpretation.

<sup>22</sup> See 17 CFR 242.600(b)(3). See also Regulation NMS Adopting Release, supra note 14, at 37504.

<sup>23</sup> Regulation NMS Adopting Release, supra note 14, at 37534. See also 17 CFR 242.600(b)(37) (defining “manual quotation”).

In the Regulation NMS Adopting Release, the Commission elaborated on the meaning of the terms “immediate” and “automatic” as those terms are used in the Rule 600(b)(3) definition of an automated quotation. Specifically, with respect to the meaning of the term “immediate,” the Commission stated that “[t]he term ‘immediate’ precludes any coding of automated systems or other type of intentional device that would delay the action taken with respect to a quotation,”<sup>24</sup> and that the standard for responding to an incoming order “should be ‘immediate,’ i.e., a trading center’s systems should provide the fastest response possible without any programmed delay.”<sup>25</sup>

The Commission provided context in the Regulation NMS Adopting Release as to the intent behind the Order Protection Rule and the distinction between “automated quotations” and “manual quotations.” At the time of the adoption of Regulation NMS, manual quotations and markets that primarily were centered around human interaction in a floor-based trading environment, including “hybrid” trading facilities that offer automatic execution of orders seeking to interact with displayed quotations while also maintaining a physical trading floor, experienced processing delays for inbound orders that were measured in multiple seconds.<sup>26</sup> In

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<sup>24</sup> Regulation NMS Adopting Release, supra note 14, at 37534. The Commission also stated that, for a quotation “[t]o qualify as ‘automatic,’ no human discretion in determining any action taken with respect to an order may be exercised after the time an order is received,” and “a quotation will not qualify as ‘automated’ if any human intervention after the time an order is received is allowed to determine the action taken with respect to the quotation.” Id. at 37519 and 37534.

<sup>25</sup> Id. at 37519. In the case of IEX, its access delay involves hardware (i.e., coiled cable) and geographic dispersion, not software programming. See infra text accompanying notes 40-45. Nevertheless, it is an intentional delay. See id.

<sup>26</sup> See Regulation NMS Adopting Release, supra note 14, at 37500 n.21 (“One of the primary effects of the Order Protection Rule adopted today will be to promote much greater speed of execution in the market for exchange-listed stocks. The difference in speed between automated and manual markets often is the difference between a 1-second response and a 15-second response....”).

contrast to floor-based and hybrid markets, at the time Regulation NMS was adopted, newer automated matching systems removed the human element and instead immediately matched buyers and sellers electronically. The Commission sought to achieve the goals of the Order Protection Rule and maintain the efficiencies of the markets by protecting only automated quotations that were “immediately” accessible, and allowing trade-throughs of those that were not.<sup>27</sup>

In Rules 600 and 611, the Commission did not set a maximum response time for a quotation to be an “automated quotation.”<sup>28</sup> While a number of commenters on Regulation NMS advocated for a specific time standard, ranging from one second down to 250 milliseconds,<sup>29</sup> for distinguishing between manual and automated quotations,<sup>30</sup> the Commission declined to set such a standard, noting that “[t]he definition of automated quotation as adopted does not set forth a

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<sup>27</sup> See id. at 37501. More broadly, the Commission stated that the definition of “automated trading center” in Rule 600(b)(4) “offers flexibility for a hybrid market to display both automated and manual quotations, but only when such a market meets basic standards that promote fair and efficient access by the public to the market’s automated quotations.” Id. at 37520. This definition was an outgrowth of two floor-based exchanges’ intention to operate “hybrid” trading facilities that would offer automatic execution against their displayed quotations, while at the same time maintaining a traditional trading floor. See id. at 37518. The Commission also explained that the Order Protection Rule took a substantially different approach to intermarket price protection than the existing trade-through protection regime at the time - the Intermarket Trading System (“ITS”) Plan. See id. at 37501. As the Commission noted, the ITS provisions did not distinguish between manual and automated quotations and “fail[ed] to reflect the disparate speed of response between manual and automated quotations” as they “were drafted for a world of floor-based markets.” Id. As a result, “[b]y requiring order routers to wait for a response from a manual market, the ITS trade-through provisions can cause an order to miss both the best price of a manual quotation and slightly inferior prices at automated markets that would have been immediately accessible.” Id. See also supra note 26 (citing to footnote 21 of the Regulation NMS Adopting Release).

<sup>28</sup> See also id. at 37519 (“The definition of automated quotation as adopted does not set forth a specific time standard for responding to an incoming order.”).

<sup>29</sup> A millisecond is one thousandth of a second.

<sup>30</sup> See id. at 37518.



specific time standard for responding to an incoming order.”<sup>31</sup> Rather, the Commission specifically sought to avoid “specifying a specific time standard that may become obsolete as systems improve over time,” and agreed with commenters that “the standard should be ‘immediate’ i.e., a trading center’s systems should provide the fastest response possible without any programmed delay.”<sup>32</sup>

However, the Commission believed that “immediate” should not be construed in a way to frustrate the purposes of Rule 611 and crafted several exceptions to Rule 611, two of which use a one second standard.<sup>33</sup> Specifically, Rule 600(b)(1) addresses the applicability of the trade-through requirements with respect to quotations of automated trading centers that experience a “failure, material delay, or malfunction,” by allowing other trading centers to trade-through such quotations.<sup>34</sup> In the Regulation NMS Adopting Release, the Commission provided an interpretation of the phrase “material delay” as one where a market was “repeatedly failing to respond within one second after receipt of an order.”<sup>35</sup> The Commission similarly established a one-second standard for the exception in Rule 611(b)(8), which excepts trade-throughs where the trading center that was traded-through had displayed, within the prior one second, a price equal or inferior to the price of the trade-through transaction.<sup>36</sup> In discussing the 611(b)(8) exception, the Commission stated that it “generally does not believe that the benefits would justify the costs imposed on trading centers of attempting to implement an intermarket price priority rule at the

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<sup>31</sup> Id. at 37519.

<sup>32</sup> Id.

<sup>33</sup> See 17 CFR 242.611(b)(1) and (8).

<sup>34</sup> See 17 CFR 242.611(b)(1).

<sup>35</sup> See Regulation NMS Adopting Release, supra note 14, at 37519.

<sup>36</sup> See 17 CFR 242.611(b)(8).

level of sub-second time increments. Accordingly, Rule 611 has been formulated to relieve trading centers of this burden.”<sup>37</sup>

### **C. IEX’s Access Delay**

IEX, which currently operates a trading platform as an alternative trading system, is seeking to register as a national securities exchange. If its registration is granted, IEX would operate an electronic order book for NMS stocks.<sup>38</sup> IEX’s POP and coil infrastructure is how IEX users (“Users”) would connect to IEX.<sup>39</sup>

IEX has represented that access to IEX by all Users would be obtained through a POP located in Secaucus, New Jersey.<sup>40</sup> According to IEX, after entering through the POP, a User’s electronic message sent to the IEX trading system would traverse the IEX “coil,” which is a box of compactly coiled optical fiber cable equivalent to a prescribed physical distance of 61,625 meters (approximately 38 miles).<sup>41</sup> After exiting the coil, the User’s message would travel an additional physical distance to the IEX system, located in Weehawken, New Jersey.<sup>42</sup> IEX has represented that routable orders would thereafter be directed to the IEX routing logic, and non-routable orders would be directed to the IEX matching engine.<sup>43</sup> According to IEX, the coil,

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<sup>37</sup> See Regulation NMS Adopting Release, supra note 14, at 37523.

<sup>38</sup> For more detail on IEX’s proposed trading system, see IEX’s full Form 1 application and Exhibits, as amended, which are available on the Commission’s website at <http://www.sec.gov/rules/other/otherarchive/other2015.shtml>.

<sup>39</sup> To obtain authorized access to the IEX System, each User must enter into a User Agreement with the Exchange. See IEX Rule 11.130(a). The term “Users,” for purposes of this notice, does not include IEX Services LLC, IEX’s affiliated outbound routing broker-dealer.

<sup>40</sup> See IEX Second Response at 2.

<sup>41</sup> See IEX First Response at 3.

<sup>42</sup> See Exhibit E to IEX’s Form 1 submission, at 12. See also IEX First Response at 3.

<sup>43</sup> See Amendment Nos. 2 and 3 to IEX’s Form 1 application.

when combined with the physical distance between the POP and the IEX system, would provide IEX Users sending non-routable orders to IEX with 350 microseconds<sup>44</sup> of one-way latency.<sup>45</sup> For purposes of this notice, IEX’s process for handling non-routable orders is hereinafter referred to as the “POP/coil delay.”

According to IEX, all incoming messages (e.g., orders to buy or sell and any modification to a previously sent open order) from any User would traverse the proposed POP/coil delay.<sup>46</sup> In addition, all outbound messages from IEX back to a User (e.g., confirmations of an execution that occurred on IEX) would pass through the same route in reverse.<sup>47</sup> IEX’s direct proprietary market data feed, which is an optional data feed that IEX would make available to subscribers, also would traverse the coil before exiting at the POP.<sup>48</sup> As a result, a non-routable immediate-or-cancel (“IOC”) order, which is a type of order that IEX would permit Users to send to the IEX system, would traverse the proposed POP/coil (and its attendant 350 microsecond delay) before arriving at the IEX system and potentially executing against a displayed quotation on IEX. Likewise, the response from the IEX system to the User indicating the action taken by the IEX system with respect to such IOC order also would traverse the POP/coil and experience a 350 microsecond delay.<sup>49</sup>

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<sup>44</sup> A microsecond is one millionth of a second.

<sup>45</sup> See IEX First Response at 3. See also Amendment Nos. 2 and 3. Users sending routable orders would experience 700 microseconds of one-way latency. See Letter from Sophia Lee, General Counsel, IEX, to Brent J. Fields, Secretary, Commission, dated February 29, 2016, at 2.

<sup>46</sup> See IEX First Response at 3-4.

<sup>47</sup> See id.

<sup>48</sup> See id.

<sup>49</sup> See id. at 3. Outbound transaction and quote messages from IEX to the applicable securities information processor (“SIP”) would not pass through the POP/coil, but instead would be sent directly from the IEX system to the SIP processor. See id. at 3-4.

#### **D. Comments on IEX's Proposed Access Delay**

Several commenters on IEX's Form 1 application questioned whether IEX's operation of the proposed POP/coil would be consistent with the Order Protection Rule.<sup>50</sup> Their main assertion is that the 350 microsecond latency caused by the POP/coil calls into question whether IEX's quotations meet the definition of "automated quotation," and therefore would be a "protected quotation," under Regulation NMS and Rule 611 in particular.<sup>51</sup> These commenters generally cited to language, discussed above, from the Regulation NMS Adopting Release where the Commission elaborated on what it means for a quotation to be an "automated quotation," including statements that the term "immediate," as it relates to the definition of an automated quotation, means that "a trading center's systems should provide the fastest response possible without any programmed delay"<sup>52</sup> and "precludes any coding of automated systems or other type of intentional device that would delay the action taken with respect to a quotation" (emphasis added).<sup>53</sup> Based on this language, these commenters contended that IEX's quotation is not consistent with the definition of automated quotation, or at least questioned whether it can be so considered.<sup>54</sup>

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<sup>50</sup> See, e.g., NYSE First Letter at 5; BATS First Letter at 3; FIA First Letter at 2; Nasdaq First Letter at 2; Citadel First Letter at 3.

<sup>51</sup> See, e.g., BATS First Letter at 2-4; FIA First Letter at 2; NYSE First Letter at 5-7; Nasdaq First Letter at 2; Citadel First Letter at 2-4.

<sup>52</sup> See, e.g., Nasdaq First Letter at 2; NYSE First Letter at 6. See also Regulation NMS Adopting Release, supra note 14, at 37519.

<sup>53</sup> See, e.g., BATS First Letter at 3; FIA First Letter at 2; Citadel First Letter at 3; Citadel Second Letter at 3; see also Regulation NMS Adopting Release, supra note 14, at 37534.

<sup>54</sup> See BATS First Letter at 3; FIA First Letter at 2; NYSE First Letter at 6-7; Nasdaq First Letter at 2-3; Citadel First Letter at 3-4; Citadel Second Letter at 3-4; Hudson River Trading Second Letter at 3-4.

Several commenters urged the Commission not to decide this question in the context of IEX's Form 1 application.<sup>55</sup> One commenter urged the Commission, should it disagree with the contention that IEX's quotation cannot be protected, to explain its reasoning in a rulemaking proceeding or exemptive order that is subject to public vetting.<sup>56</sup> Another commenter urged the Commission "to articulate clear standards regarding the precise amount of time an intentional device can delay access to the quotation of a registered exchange and still be considered an automated quotation."<sup>57</sup> This commenter supported an interpretation of the definition of an automated quotation that would include the delay resulting from IEX's POP/coil, but further urged the Commission to articulate clear regulatory standards that would be applicable to all trading venues and market participants.<sup>58</sup>

Other commenters offered support for IEX's proposed access delay, and challenged the assertion that IEX's quotation would not meet the definition of "automated quotation" under Regulation NMS.<sup>59</sup> According to one commenter, the Commission's "larger plan" in requiring protected quotes to be "immediately and automatically" accessible under Regulation NMS was

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<sup>55</sup> See, e.g., Citadel Second Letter at 4; Nasdaq Second Letter at 1-4; Direct Match Letter at 2-4; Scott Letter.

<sup>56</sup> See, e.g., Citadel Second Letter at 4.

<sup>57</sup> BATS First Letter at 3; see also BATS First Letter at 4, 6. A second commenter writing in support of IEX's POP/coil similarly urged the Commission to articulate the extent of permissible intentional, geographical, or technological delays for registered exchanges. See T. Rowe Price Letter at 2. A third commenter urged the Commission to not approve IEX's POP/coil without also establishing a maximum permissible delay for registered exchanges. See Jon D. Letter.

<sup>58</sup> See BATS Second Letter at 2.

<sup>59</sup> One commenter argued that such an assertion "rests on an overly formalistic reading of Regulation NMS that fails to account for the rise of high speed trading in the last decade." See Verret Letter at 4. Another commenter similarly criticized that assertion as dependent "on a self-serving read of Reg NMS, leaving out its history, its original meaning, and its subsequent interpretation." See Leuchtkafer Second Letter at 1.

“to encourage automated markets and prevent exchanges from favoring their own manual markets, so the SEC protected an exchange’s lit, automated quotes and banned any programmed tricks or devices an exchange might use to give human traders a chance to intervene or any kind of an edge over automated quotes.”<sup>60</sup> In addition, this commenter further asserted, “[t]hat ‘immediately’ simply prohibits discrimination favoring manual markets is all the more obvious in the [Regulation NMS] Adopting Release’s discussion of self-help” where, according to the commenter, “[t]he SEC had every opportunity to define ‘immediately’ in absolute terms and declined to do it,” and instead “only went as far as suggesting one second was a reasonable upper bound for declaring self-help and left it up to the marketplace to reward fast markets or punish slow markets.”<sup>61</sup>

Several commenters noted that there is latency associated with the transmission of orders to protected quotations at existing market venues – and in some cases, those latencies are greater than that associated with transmitting orders to IEX even factoring in the proposed POP/coil

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<sup>60</sup> Leuchtkafer Second Letter at 1-2 (emphasis in original). This commenter pointed out that “[t]he standard by which to measure automated and protected quotes was ITS, or, more precisely, human intervention, because it was human intervention the SEC wanted to firewall” and asserted that “[i]mmediately and automatically’ means without human intervention and with no chance of human intervention” and “does not mean as fast as an exchange, or any exchange, can go.” *Id.* at 2.

<sup>61</sup> *Id.* at 2. Another commenter asserted that IEX’s POP/coil structure is “entirely consistent with the overall policy objectives of Regulation NMS.” Franklin Templeton Letter at 2. One commenter argued that IEX’s proposed POP/coil delay does not constitute an “intentional device” under Rule 600 of Regulation NMS because IEX’s dissemination of quote information to the SIP would not be subject to the delay, and thus IEX’s POP/coil would not increase the uncertainty of the NBBO relative to current latencies. *See* Upson Letter at 2. One commenter noted that “the flip side of faster access is slower access if you don’t pay” and with co-location “[t]he problem is that you have to pay to get into their data centers in the first place, and if you don’t it sure looks like you are intentionally delayed compared to those who can and do pay.” *See* Leuchtkafer First Letter at 1. That commenter noted that “if the IEX critics are right, by their own reasoning the exchanges will have to dismantle their co-location facilities and stop offering tiered high-speed network facilities. They are selling faster access to their markets, and if you don’t pay, aren’t you slower than you could be, aren’t you intentionally delayed?” *Id.* at 2.

delay.<sup>62</sup> One commenter argued that the 350 microsecond proposed POP/coil delay “would be so de minimis as to have no appreciable impact on market behavior” and is “not much more than the normal latency that all trading platforms impose.”<sup>63</sup> Another commenter did not find the proposed POP/coil delay “particularly problematic, as the time gap is minimal, and (even including the speed bump) IEX matches orders faster than a number of other markets.”<sup>64</sup> One commenter noted that the POP/coil 350 microsecond delay “is orders of magnitude shorter than the variable lags between the SIP and the proprietary feeds,” and asserted that the proposed POP/coil delay is consistent with existing practices already approved by the Commission.<sup>65</sup>

IEX asserted that the language of the Order Protection Rule and the Regulation NMS Adopting Release, when considered in light of the context in which the Order Protection Rule was adopted, do not compel the conclusion that IEX’s quotes should be considered “manual quotations” instead of “automated quotations.”<sup>66</sup> In addition, IEX noted that not all exchange matching systems are located in the same vicinity and asserted that “there is no reason to think that the Commission by referring to ‘intentional device’ meant somehow to set geographic

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<sup>62</sup> See, e.g., BATS First Letter at 4; BATS Second Letter at 2-3; Healthy Markets Letter at 4; Angel Letter at 2; Kim Letter; Mannheim Letter; Wilcox Letter.

<sup>63</sup> Angel Letter at 3.

<sup>64</sup> Tabb Letter at 1.

<sup>65</sup> Healthy Markets Letter at 3.

<sup>66</sup> See IEX First Response at 6-7; see also IEX Third Response at 1-3. IEX noted that the Regulation NMS Adopting Release does not define a maximum allowable latency in order for quotations to qualify as automated quotations, and stated that “[t]he POP does not enable any human intervention to determine the action taken with respect to a quote or the order itself” and that “the POP clearly does not involve a ‘coding of automated systems’...” IEX First Response at 6-7. IEX suggested that the POP is consistent with the purpose of Regulation NMS because “the POP helps to promote access to quotations by limiting the chance that a party displaying a quote on an exchange will use a signal from an execution on IEX to cancel its quote on that other market within microseconds.” See IEX Second Response at 4 (emphasis in original).

standards with regard to exchange matching system connections generally, or to prescribe the exact length of cable that is or is not allowable.”<sup>67</sup>

According to IEX, its POP/coil structure “represents a form of prescribed physical distance to which all users are subject when submitting orders to IEX’s trading system” and “[i]n this sense, it is no different from means that all exchanges impose to set the terms by which users can connect to their systems.”<sup>68</sup> IEX stated that “the amount of latency imposed by the POP is less than or not materially different than that currently involved in reaching various exchanges based on geographic factors,” and refers, by way of example, to the geographic distance that an order from the Chicago Stock Exchange’s Secaucus, New Jersey data center must physically traverse before reaching the Chicago Stock Exchange’s trading system in Chicago.<sup>69</sup> IEX also provided data from certain subscribers to IEX’s ATS that, according to IEX, indicate that those subscribers’ average latency when trading on IEX is comparable to that when trading on certain

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<sup>67</sup> IEX First Response at 7; see also IEX Second Response at 4.

<sup>68</sup> IEX First Response at 5.

<sup>69</sup> See id. at 6; see also IEX Third Response at 2. One commenter made the same observation, noting that “[t]he NBBO already includes quotes with varied degrees of time lag” and that the length of IEX’s coiled cable “is far less than the distance between NY and Chicago, and is remarkably similar to the distance between Carteret and Mahwah (36 miles).” See Healthy Markets Letter at 4. See also IEX Second Response at 11 (noting that the distance between Nasdaq’s Carteret facility and NYSE’s Mahwah facility is 42.8 miles (compared to the IEX coil’s approximately 38 mile equivalent)). Other commenters similarly understood that the POP/coil latency is comparable to or shorter than natural and geographic latencies in today’s market. See Angel Letter at 2; BATS First Letter at 4; BATS Second Letter at 2-3; Kim Letter; Mannheim Letter; T. Rowe Price Letter at 2-3; Wilcox Letter. Two commenters specifically suggested that such a delay would be inconsequential or de minimis. See Angel Letter at 2; Abel/Noser Letter at 2.



other exchanges, “is an order of magnitude less than that of the Chicago Stock Exchange,” and “is on average less than the round-trip latency of the NYSE as well.”<sup>70</sup>

## II. Commission’s Proposed Interpretation

As discussed above, at the time Regulation NMS was adopted, the concept of an “automated quotation” was intended to address manual and hybrid automated-manual trading systems in relation to the trade-through requirements of Rule 611. Under Regulation NMS, a trading center must provide an “immediate” response for its quotation to be an “automated quotation.”<sup>71</sup> Although the Commission did not set a maximum response time in Rule 600 or Rule 611 for a quotation to be an automated quotation, in the Regulation NMS Adopting Release the Commission stated that an immediate response meant “the fastest response possible without any programmed delay.”<sup>72</sup> When Regulation NMS was adopted, however, the Commission was focused on the response time delays generated by manual interaction, and crafted exceptions to Rule 611 based on response times of one second.<sup>73</sup> Delays in the realm of sub-milliseconds, as

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<sup>70</sup> IEX Second Response at 4 and 7. IEX compared its POP to the coiling of cable that existing exchanges utilize in their respective data centers for purposes of co-location access. See IEX First Response at 3-6; IEX Third Response at 2. IEX further contended that “the POP should no more be considered prohibited than existing access arrangements could be considered as designed to intentionally delay access to quotes by anyone who declines to pay for the privilege of the fastest access.” IEX First Response at 7. According to IEX, “the POP clearly is not a ‘programmed delay’ any more than the coiled cables connecting to every other exchange’s matching systems could be considered as such.” IEX Second Response at 4. IEX claimed that its 350 microsecond latency on inbound orders is actually less than the latency differential between the non-co-located access and the highest level of co-location offered by the Nasdaq Stock Market. See id. at 5-6.

<sup>71</sup> See 17 CFR 242.600(b)(3) (defining “automated quotation”).

<sup>72</sup> Regulation NMS Adopting Release, supra note 14, at 37519.

<sup>73</sup> See supra note 26 (citing to footnote 21 of the Regulation NMS adopting release where the Commission noted that “[t]he difference in speed between automated and manual markets often is the difference between a 1-second response and a 15-second response – a disparity that clearly can be important to many investors”).

presented by the IEX Form 1 application, were not contemplated by the Commission because they generally were not relevant or material for the slower trading technologies used by market participants at the time.<sup>74</sup>

As the speed of trading technology has increased since the adoption of Regulation NMS,<sup>75</sup> some trading centers have begun to explore ways to reduce the relevance of speed differentials of very small increments.<sup>76</sup> Proposals like IEX's POP/coil that intentionally delay access to an exchange's quotation, albeit by a sub-millisecond amount, raise questions about the prior interpretation with respect to the definition of an automated quotation under Regulation NMS. Accordingly, the Commission is proposing and soliciting comment on an updated interpretation from that provided in the Regulation NMS Adopting Release.<sup>77</sup>

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<sup>74</sup> The Commission notes that the smallest time increment suggested by commenters at the time Regulation NMS was adopted – 250 milliseconds – is magnitudes slower than the latency introduced by IEX's proposed POP/coil delay. See Regulation NMS Adopting Release, supra note 14, at 37518.

<sup>75</sup> A number of factors affect the speed at which a market participant can receive market and quote data, submit orders, obtain an execution, and receive information on trades, including hardware, software, and physical distance. See, e.g., Securities Exchange Act Release No. 61358 (January 14, 2010), 75 FR 3594, 3610-11 (January 21, 2010) (Concept Release on Equity Market Structure). Recent technological advances have reduced the "latency" that these factors introduce into the order handling process, both in absolute and relative terms, and some market participants and liquidity providers have invested in low-latency systems that take into account the advances in technology. See id. at 3606.

<sup>76</sup> See, e.g., Securities Exchange Act Release No. 67639 (August 10, 2012), 77 FR 49034 (August 15, 2012) (SR-NASDAQ-2012-071) (order approving proposed rule change to provide for simultaneous routing).

<sup>77</sup> In particular, the POP/coil, because it delays inbound and outbound messages to and from IEX Users, raises a question as to whether IEX will, among other things, "immediately" execute IOC orders under Rule 600(b)(3)(ii), "immediately" transmit a response to an IOC order sender under Rule 600(b)(3)(iv), and "immediately" display information that updates IEX's displayed quotation under Rule 600(b)(3)(v). See 17 CFR 242.600(b)(3); see also Regulation NMS Adopting Release, supra note 14, at 37504.

Specifically, the Commission preliminarily believes that, in the current market, delays of less than a millisecond in quotation response times may be at a de minimis level that would not impair a market participant's ability to access a quote, consistent with the goals of Rule 611 and because such delays are within the geographic and technological latencies experienced by market participants today. For example, IEX's proposed POP/coil would introduce a 350 microsecond delay for a non-routable IOC order before it could access the IEX matching engine. The additional delay introduced by the coil itself, which is approximately 38 miles long, is effectively equivalent to the communications latency between venues that are 38 miles apart.<sup>78</sup> The Commission understands that today the distances between exchange data centers, or between the order entry systems of market participants and exchange data centers, may exceed, sometimes by many multiples, a distance of 38 miles. The Commission does not believe that these naturally-occurring response time latencies resulting from geography are inconsistent with the purposes of Rule 611.<sup>79</sup> At the same time, permitting the quotations of trading centers with very small response time delays, such as those proposed by IEX, to be treated as automated quotations, and thereby benefit from trade-through protection under Rule 611, could encourage innovative ways to address market structure issues.

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<sup>78</sup> See supra note 69 (citing to the Healthy Markets Letter, which observed that the length of IEX's coiled cable "is far less than the distance between NY and Chicago, and is remarkably similar to the distance between Carteret and Mahwah (36 miles)"). See also IEX Second Response at 11 (noting that the distance between Nasdaq's Carteret facility and NYSE's Mahwah facility is 42.8 miles).

<sup>79</sup> See supra note 69 (citing to commenters who believe that IEX's POP/coil latency is comparable to or shorter than natural and geographic latencies in today's market). One market maker and liquidity provider on the IEX ATS notes that it "engages in precisely the same market making strategies on IEX as [it does] on automated trading systems run by other broker-dealers... as well as on registered stock exchanges" and that "IEX's 'speed bump' has had no impact on [its] market making and liquidity provisioning on the platform." Virtu Letter at 1-2.

Accordingly, the Commission today is proposing to interpret “immediate” when determining whether a trading center maintains an “automated quotation” for purposes of Rule 611 of Regulation NMS to include response time delays at trading centers that are de minimis, whether intentional or not.<sup>80</sup>

### **III. Solicitation of Comment**

The Commission requests comment all aspects of this proposed interpretation, including:

1. Would delays of less than a millisecond in quotation response times impair a market participant’s ability to access a quote or impair efficient compliance with Rule 611?
2. In the current market, should the Commission interpret “immediate” as including a de minimis delay of less than one millisecond? Should the Commission consider other lengths? If so, what should they be?
3. Should the Commission be concerned about market manipulation? If so, specifically, what should the Commission focus on?
4. Should the Commission consider an alternative interpretation? If so, what should it be?

By the Commission.

Brent J. Fields  
Secretary

Dated: March 18, 2016

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<sup>80</sup> An exchange that proposed to provide any member or user (including the exchange’s inbound or outbound routing functionality, or the exchange’s affiliates) with exclusive privileged faster access to its facilities over any other member or user would raise concerns under the Act, including under Section 6(b)(5) and 6(b)(8) of the Act, and would need to address those concerns in a Form 1 exchange registration application or a proposed rule change submitted pursuant to Section 19 of the Act, as applicable.