Order Routing and Handling Data Technical Specification

February 26, 2020

1   OVERVIEW

1.1   Goal

This document provides the technical specification for how broker-dealers would provide reports required under 17 CFR 242.606(a)(1), 242.606(b)(1), and 242.606(b)(3).

The Technical Specification defines syntax of data elements, their contents, element arrangements, validation methods and dissemination methods for both Order Routing and Order Handling Reports.

This Technical Specification has been created for a technical audience for conforming order handling data to the Schema for Order Handling Reports. This specification does not provide interpretative guidance for any rule.

1.2   Definitions

Customer Reports: The Held/Exempt Not-Held Order Routing Customer Report and Not-Held Order Handling Customer Report.

Order Handling Reports: Collectively, the Held Order Routing Public Report, the Held/Exempt Not-Held Order Routing Customer Report, and the Not-Held Order Handling Customer Report.

Held Order Routing Public Report: The quarterly report required by Rule 606(a), in XML format.

Held/Exempt Not-Held Order Routing Customer Report: The report required by Rule 606(b)(1), in XML format.

Not-Held Order Handling Customer Report: The report required by Rule 606(b)(3), in XML format.

XML Schema: A World Wide Web Consortium (W3C) recommendation that specifies how to formally describe the elements in an Extensible Markup Language (XML) document. This description can be used to verify that each item of content in a document adheres to the description of the element in which the content is to be placed.

Schema for Order Handling Reports: The most recent XML 1.0 Schema posted on the SEC web site.

Valid File: An XML file representing any one of the three order reports that is valid with respect to the Schema for Order Handling Reports. One file contains the data for all months covered by a given report.

Report Renderer: The most recent JavaScript program to validate a file and transform the Valid File to PDF; this JavaScript program may be executed in any convenient JavaScript processor, and in particular, the program can run from a web page where any user may select a file for their browser to privately check its validity and perform the transformation.

PDF File: A PDF formatted file as produced by the Report Renderer.

1.3   Dissemination

The broker-dealer shall disseminate reports to customers upon request and to the public each quarter as both Valid Files and PDF Files.

1.3.1   Held Order Routing Public Report

Broker-dealers shall display the Held Order Routing Public Report on their web site at a permanent URL that is readily accessible. The URL shall provide the following links, also readily accessible:

1) Permanent links to the most current quarterly Held Order Routing Public Report:
    a) A Valid File covering the three months of that quarter's data;
    b) A PDF File as produced by the Report Renderer processing the Valid File;
    c) The same data in any other formats at the broker-dealer's option.
2) Permanent links to three years' worth of reports (that is, up to 11 additional sets of links):[1]
    a) Each Valid File (valid as of its original date of posting);
    b) Each PDF file as produced by the Report Renderer (as of its original date of posting);
    c) The same data in any other formats at the broker-dealer's option.

1.3.2   Customer Reports

Broker-dealers shall disclose to its customer on request:

1) To Customers placing orders covered by the Customer Reports:

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[1] No historic reports would be required pursuant to 17 CFR 242.606.

a) If applicable, a Valid Report that is a Held/Exempt Not-Held Order Routing Customer Report for data covering the preceding six months of activity;
b) If applicable, a Valid Report that is a Not-Held Order Handling Customer Report for data covering the preceding six months of activity;
c) PDF Files as produced by the Report Renderer processing any Valid Reports disclosed;
d) The same data in any other formats at the broker-dealer's option.

1.4 Concept Definition Tables

The headers of a concept definition table are as follows:

Ref. provides the citation to the relevant section within 17 CFR 242.606.

Concept is the brief title for the data element.

D denotes the depth of nesting within the XML report that the element occurs.

# denotes the number of occurrences allowed for a given element. "1" indicates the element is required; "1..n" indicates that at least 1 and at least n occurrences are allowed, with "*" indicating an unlimited number of occurrences.

Element is the abbreviation used in the schema and in schema-valid instance files. For example, "Shares Routed" is a concept, while `routed` is the element name.

Definition: When the concept is defined in the rule that definition is provided here. Simple elements may be described as numbers, text, time stamps, etc., but some elements are composed of other elements.

1.5 Abbreviations Used Within Element Names

Elements that are numeric amounts have a suffix in its name to indicate the unit of measure and the valid range of values, e.g., `orderPct`. The suffixes used in the schema are as follows:

- Shr: Shares, 0 or more.
- Ord: Orders, 0 or more.
- Pct: A percentage value between 0 and 100 inclusive, to two decimal places. Example: "99.44" means 99.44%. Where a percentage is not meaningful because its denominator would be zero, use the empty text string "".
- Cph: Cents per Hundred shares, positive or negative, to four decimal places. Example: "1.5000" means one and a half cents per hundred shares.
- Usd: US Dollars, positive or negative.
- Msec: Milliseconds, 0 or more, rounded to the nearest whole number. Example: 21.5 milliseconds is reported as "22" meaning 22 milliseconds, that is, 0.022 seconds.
- netPmtPaidRecv: Amounts received by the broker-dealer (positive), less any amounts paid by the broker-dealer.

1.6 Reporting Data for Months in which there is no Activity

Monthly data for a venue or customer for which no orders were routed or executed shall be represented in the report the following way:

Year and month: Provide the year and month even when there was no activity.

Elements measured in USD, Shares, or Orders, Pct, Cph, or Msec, or Flags: Do not omit the element; use only an empty element (for example, `<ndoMarketPct/>`). Values such as N/A or NA are invalid.

1.7   Validation

XML Schema validation will signal errors such as missing or misplaced elements, negative values where a positive value is required, values outside the expected range, and insufficient decimal digits of precision. XML Schema validation will also signal errors such as when a list of months contains repeated months.

2   HELD ORDER ROUTING PUBLIC REPORT DEFINITIONS

The held order routing public report is disclosed to the public each calendar quarter and is broken down by calendar month. The XML root element is `heldOrderRoutingPublicReport`.

Ref.	Concept	D	#	Element	Definition
(a)(1)	Version	1	1	version	The version identifier of the schema. The version of 2019-12-31 is 1.2.
(a)(1)	Broker-Dealer	1	1	bd	The name of the broker-dealer providing the order routing report, from one to 50 characters.
(a)(1)	Year	1	1	year	The calendar year in the range 2000 to 2099 for which the most recent month of order routing data is included.
(a)(1)	Quarter	1	1	qtr	The calendar quarter in the range 1 to 4 for which the most recent month of order routing data is included.
(a)(1)	Report timestamp	1	0..1	timestamp	The UTC date and time rounded to the nearest second for which the report data was generated, with half seconds rounded up.
(a)(1)	Orders, All Venues, One Month	1	1..3	rMonthly	Order routing data for each month, for either stocks or options, aggregated across all execution venues.
(a)(1)	Year	2	1	year	Calendar year from 2000 to 2099 inclusive.
(a)(1)	Month	2	1	mon	Calendar month number from 1 to 12 inclusive.
(a)(1)	Securities Orders	2	0..1	rSP500	Routing data for one month at one venue, for the S&P 500 section.
(a)(1)(i)	Non-directed Orders	3	1	ndoPct	The percentage of total orders (for this report section) that were non-directed orders.
(a)(1)(i)	Non-directed Market Orders	3	1	ndoMarketPct	The percentage of total non-directed orders (for this report section) that were market orders.
(a)(1)(i)	Non-directed Marketable Limit Orders	3	1	ndoMarketableLimitPct	The percentage of total non-directed orders (for this report section) that were marketable limit orders.
(a)(1)(i)	Non-directed Non-marketable Limit Orders	3	1	ndoNonmarketableLimitPct	The percentage of total non-directed orders (for this report section) that were non-marketable limit orders.
(a)(1)(i)	Non-directed Other Orders	3	1	ndoOtherPct	The percentage of total non-directed orders (for this report section) that were not market orders and were not limit orders.

Ref.	Concept	D	#	Element	Definition
(a)(1)(ii)	Venues	3	1	rVenues	Order routing data for all venues, not aggregated.
(a)(1)(ii)	Venue	4	0..*	rVenue	All order routing data for one venue.
(a)(1)(ii)	Venue Name	5	0..1	name	The venue to which orders were routed by the broker or dealer.
(a)(1)(ii)	Venue MIC Code	5	0..1	mic	ISO 10383 (MIC) code of the venue to which orders were routed by the broker or dealer. At least name or MIC, is required. Providing both name and MIC is acceptable.
(a)(1)(ii)	Orders, One Month, One Venue	5	1	orderPct	The percentage of total non-directed orders for the section routed to the venue.
(a)(1)(ii)	Market Orders, One Month, One Venue	5	1	marketPct	The percentage of total non-directed orders for the section routed to the venue that were market orders.
(a)(1)(ii)	Marketable Limit Orders, One Month, One Venue	5	1	marketableLimitPct	The percentage of total non-directed orders for the section routed to the venue that were marketable limit orders.
(a)(1)(ii)	Non-Marketable Limit Orders, One Month, One Venue	5	1	nonMarketableLimitPct	The percentage of total non-directed orders for the section routed to the venue that were non-marketable limit orders.
(a)(1)(ii)	Other Orders, One Month, One Venue	5	1	otherPct	The percentage of total non-directed orders for the section routed to the venue that were not market orders and were not limit orders.
(a)(1)(iii)	Net Payment Received for Market Orders, Net USD	5	1	netPmtPaidRecvMarketOrdersUsd	The net aggregate amount (in dollars) of any payment for order flow received, payment from any profit-sharing relationship received, transaction fees paid, and transaction rebates received for non-directed market orders.
(a)(1)(iii)	Net Payment Received for Market Orders, Net Cents Per Hundred Shares	5	1	netPmtPaidRecvMarketOrdersCph	The net aggregate amount (in cents per hundred shares) of any payment for order flow received, payment from any profit-sharing relationship received, transaction fees paid, and transaction rebates received for non-directed market orders.
(a)(1)(iii)	Net Payment Received for Marketable Limit Orders, Net USD	5	1	netPmtPaidRecvMarketableLimitOrdersUsd	The net aggregate amount (in dollars) of any payment for order flow received, payment from any profit-sharing relationship received, transaction fees paid, and transaction rebates received for non-directed marketable limit orders.

Ref.	Concept	D	#	Element	Definition
(a)(1)(iii)	Net Payment Received for Marketable Limit Orders, Net Cents Per Hundred Shares	5	1	netPmtPaidRecvMarketableLimitOrdersCph	The net aggregate amount (in cents per hundred shares) of any payment for order flow received, payment from any profit-sharing relationship received, transaction fees paid, and transaction rebates received for non-directed marketable limit orders.
(a)(1)(iii)	Net Payment Received for Non-Marketable Limit Orders, Net USD	5	1	netPmtPaidRecvNonMarketableLimitOrdersUsd	The net aggregate amount (in dollars) of any payment for order flow received, payment from any profit-sharing relationship received, transaction fees paid, and transaction rebates received for non-directed non-marketable limit orders.
(a)(1)(iii)	Net Payment Received for Non-Marketable Limit Orders, Net Cents Per Hundred Shares	5	1	netPmtPaidRecvNonMarketableLimitOrdersCph	The net aggregate amount (in cents per hundred shares) of any payment for order flow received, payment from any profit-sharing relationship received, transaction fees paid, and transaction rebates received for non-directed non-marketable limit orders.
(a)(1)(iii)	Net Payment Received for Other Orders, Net USD	5	1	netPmtPaidRecvOtherOrdersUsd	The net aggregate amount (in dollars) of any payment for order flow received, payment from any profit-sharing relationship received, transaction fees paid, and transaction rebates received for non-directed other orders.
(a)(1)(iii)	Net Payment Received for Other Orders, Net Cents Per Hundred Shares	5	1	netPmtPaidRecvOtherOrdersCph	The net aggregate amount (in cents per hundred shares) of any transaction rebates received of any payment for order flow received, payment from any profit-sharing relationship received, transaction fees paid, and transaction rebates received for non-directed other orders.
(a)(1)(iv)	Material Aspects Discussion	5	1	materialAspects	A discussion of the material aspects of the broker's or dealer's relationship with each venue identified pursuant to Rule 606(a)(1)(ii).
(a)(1)(i)	Other Stocks Orders	2	0..1	rOtherStocks	Order routing data for one month at one venue, for the non-S&P 500 stocks section.
(a)(1)(i)	Non-directed Orders	3	1	ndoPct	*Same as above.*
(a)(1)(i)	Non-directed Market Orders	3	1	ndoMarketPct	*Same as above.*
(a)(1)(i)	Non-directed Marketable Limit Orders	3	1	ndoMarketableLimitPct	*Same as above.*
(a)(1)(i)	Non-directed Non-marketable Limit Orders	3	1	ndoNonmarketableLimitPct	*Same as above.*

Ref.	Concept	D	#	Element	Definition
(a)(1)(i)	Non-directed Other Orders	3	1	ndoOtherPct	*Same as above.*
(a)(1)(ii)	Venues	3	1	rVenues	*Same as above.*
(a)(1)(i)	Options Orders	2	0..1	rOptions	Order routing data for one month at one venue, for the Options section.
(a)(1)(i)	Non-directed Orders	3	1	ndoPct	*Same as above.*
(a)(1)(i)	Non-directed Market Orders	3	1	ndoMarketPct	*Same as above.*
(a)(1)(i)	Non-directed Marketable Limit Orders	3	1	ndoMarketableLimitPct	*Same as above.*
(a)(1)(i)	Non-directed Non-marketable Limit Orders	3	1	ndoNonmarketableLimitPct	*Same as above.*
(a)(1)(i)	Non-directed Other Orders	3	1	ndoOtherPct	*Same as above.*
(a)(1)(ii)	Venues	3	1	rVenues	*Same as above.*

3   HELD/EXEMPT NOT-HELD/OPTIONS ORDER ROUTING CUSTOMER REPORT DEFINITIONS

The order routing report on order execution times is for one customer for the six months prior to the request. Order routing on a per-customer basis is reported in XML document type heldExemptNotHeldOrderRoutingCustomerReport.

Ref.	Concept	D	#	Element	Definition
(b)(1)	Version	1	1	version	The version identifier of the schema.
(b)(1)	Customer	1	1	customer	The name of the customer receiving the report, up to 50 characters.
(b)(1)	Broker-Dealer	1	1	bd	The name of the broker-dealer providing the report, up to 50 characters.
(b)(1)	Report timestamp	1	0..1	timestamp	The date and time rounded to the nearest second at which the report was generated, with half seconds rounded up.
(b)(1)	Start Date	1	1	startDate	Precise start date for the report.
(b)(1)	End Date	1	1	endDate	Precise end date for the report.
(b)(1)(i)	Held	1	0..1	held	The list of held orders.
(b)(1)	Order	2	0..*	order	For each order, the identity of the venue(s) to which the customer's orders were routed for execution, whether the order was a directed or non-directed order, and the time of the transactions, if any, that resulted from such orders.

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Ref.	Concept	D	#	Element	Definition
(b)(1)	Order ID	3	1	orderId	Identifier for a customer order. Each order identifier must be unique within one customer order routing report.
(b)(1)	Directed or Non-directed	3	1	directed	Y or N indicating whether the order was directed.
(b)(1)	Route	3	0..*	route	Venue to which routed, whether a transaction took place or not.
(b)(1)	Venue Name	4	0..1	name	Name of the venue to which orders were routed by the broker or dealer.
(b)(1)	Venue MIC Code	4	0..1	mic	ISO 10383 (MIC) code of the venue to which orders were routed by the broker or dealer. At least name or MIC. Providing both name and MIC is acceptable.
(b)(1)	Transaction	4	0..*	transaction	Transactions executing the order, if any.
(b)(1)	Date of Execution	5	1	date	The UTC date of transaction execution.
(b)(1)	Time of Execution	5	1	time	The UTC date and time of transaction execution, if any, that resulted from the order, rounded to the nearest second, with half seconds rounded up.
(b)(1)(ii)	Not Held Exempt	1	0..1	notHeldExempt	The list of not-held exempt orders; the elements of each such order is the same as for "held".
(b)(1)(iii)	Options	1	0..1	options	The list of option orders; the elements of each such order is the same as for "held".

4   NOT-HELD ORDER HANDLING CUSTOMER REPORT DEFINITIONS

Order handling reports are provided on a per-customer basis for the six months prior to the request, broken down by calendar month. Order handling per-customer is reported in XML document type `notHeldOrderHandlingCustomerReport`.

Ref.	Concept	D	#	Element	Definition
(b)(3)	Version	1	1	version	The version identifier of the schema.
(b)(3)	Customer	1	1	customer	The name of the customer receiving the order handling report, up to 50 characters.
(b)(3)	Broker-Dealer	1	1	bd	The name of the broker-dealer providing the order handling report, up to 50 characters.
(b)(3)	Report Timestamp	1	0..1	timestamp	The date and time rounded to the nearest second at which the report was generated, with half seconds rounded up.
(b)(3)	Start Date	1	1	startDate	Precise start date for the report.

Ref.	Concept	D	#	Element	Definition
(b)(3)	End Date	1	1	endDate	Precise end date for the report.
(b)(3)	Directed Orders	1	1	hDirected	Order handling data for directed orders.
(b)(3)	Orders, All Venues, One Month	2	0..7	hMonthly	Aggregated order handling data for one month across all execution venues.
(b)(3)	Year	3	1	year	Calendar year from 2000 to 2099 inclusive.
(b)(3)	Month	3	1	mon	The calendar month in the range 1 to 12.
(b)(3)	Shares Sent	3	1	sentShr	The number of shares of orders sent to the broker or dealer by the customer during the relevant period.
(b)(3)	Shares Executed as Principal	3	1	executedAsPrincipalShr	The number of shares executed by the broker or dealer as principal for its own account.
(b)(3)	Orders Exposed by Actionable IOI	3	1	ioiExposedOrd	The number of orders exposed by the broker or dealer through an actionable indication of interest (IOI).
(b)(3)	List of Actionable IOI Venues	3	0..1	ioiExposedVenueList	A list of the venues to which orders were exposed by the broker or dealer through an actionable indication of interest.
(b)(3)	Actionable IOI Venue	4	0..*	ioiExposedVenue	A venue to which orders were exposed by the broker or dealer through an actionable indication of interest.
(b)(3)	Venue Name	5	1	venueName	The venue to which orders were routed by the broker or dealer.
(b)(3)	Venue Services	5	0..1	services	Indication whether the data represents a primary (PRV) or execution/secondary venue (EV/SRV).
(b)(3)	Venue MIC Code	5	0..1	mic	ISO 10383 (MIC) code of a venue to which orders were exposed by the broker or dealer through an actionable indication of interest. MIC is not required for IOI venues.
(b)(3)	Venue MPID	5	0..1	mpid	Market Participant Identifier (MPID) if the venue is a broker or dealer.
(b)(3)	List of Routed Order Venues	3	0..1	routingVenueList	A list of the venues to which orders were routed by the broker or dealer.
(b)(3)	Venue	4	0..*	iVenue	Order handling data in one execution venue.
(b)(3)	Venue Name	5	0..1	venueName	The venue to which orders were routed by the broker or dealer.

Ref.	Concept	D	#	Element	Definition
(b)(3)	Venue MIC Code	5	0..1	mic	ISO 10383 (MIC) code of the venue to which orders were routed by the broker or dealer. At least name or MIC is required. Providing both name and MIC is acceptable.
(b)(3)(i)(A)	Shares Routed	5	1	routedShr	The number of shares routed.
(b)(3)(i)(B)	Shares Marked IOC	5	1	iocRoutedShr	Shares routed marked immediate or cancel (IOC).
(b)(3)(i)(C)	Shares Further Routable	5	1	furtherRoutableShr	Shares routed that were further routable.
(b)(3)(i)(D)	Average Order Size	5	1	orderSizeShr	Average order size (in shares) routed.
(b)(3)(ii)(A)	Shares Executed	5	1	executedShr	Number of shares executed.
(b)(3)(ii)(B)	Fill Rate	5	1	filledPct	Fill rate.
(b)(3)(ii)(C)	Average Fill Size	5	1	fillSizeShr	Average size of filled orders.
(b)(3)(ii)(D)	Average Net Fee or Rebate in Cents per hundred shares	5	1	netFeeOrRebateCph	Average net execution fee (negative value) or rebate (positive value).
(b)(3)(ii)(E)	Executed at Midpoint, in Shares	5	1	midpointShr	Number of shares executed at the midpoint.
(b)(3)(ii)(F)	Executed at Midpoint, in Percent	5	1	midpointPct	Percentage of shares executed at the midpoint.
(b)(3)(ii)(G)	Executed on the Near side, in Shares	5	1	nearsideShr	Number of shares executed that were priced on the side of the spread more favorable to the order.
(b)(3)(ii)(H)	Executed on the Near side, in Percent	5	1	nearsidePct	Percentage of shares executed that were priced at the side of the spread more favorable to the order.
(b)(3)(ii)(I)	Executed on the Far side, in Shares	5	1	farsideShr	Number of shares executed that were priced on the side of the spread less favorable to the order.
(b)(3)(ii)(J)	Executed on the Far side, in Percent	5	1	farsidePct	Percentage of shares executed that were priced on the side of the spread less favorable to the order.
(b)(3)(iii)(A)	Orders Providing Liquidity, in Shares	5	1	providedLiquidityShr	Number of shares executed of orders providing liquidity.
(b)(3)(iii)(B)	Orders Providing Liquidity, in Percent	5	1	providedLiquidityPct	Percentage of shares executed of orders providing liquidity.

Ref.	Concept	D	#	Element	Definition
(b)(3)(iii)(C)	Average Duration of Orders Providing Liquidity	5	1	orderDuration Msec	Average time between order entry and execution or cancellation, for orders providing liquidity (in milliseconds).
(b)(3)(iii)(D)	Net Fee or Rebate for Orders Providing Liquidity, in Cents per hundred shares	5	1	providedLiqui dityNetCph	Average net execution fee (negative value) or rebate (positive value) for shares executed of orders providing liquidity (in cents per hundred shares to four decimal places).
(b)(3)(iv)(A)	Orders Removing Liquidity, in Shares	5	1	removedLiqui dityShr	Number of shares executed of orders removing liquidity.
(b)(3)(iv)(B)	Orders Removing Liquidity, in Percent	5	1	removedLiqui dityPct	Percentage of shares executed of orders removing liquidity.
(b)(3)(iv)(C)	Net Fee or Rebate for Orders Providing Liquidity, in Cents per hundred shares	5	1	removedLiqui dityNetCph	Average net execution fee (negative value) or rebate (positive value) for shares of orders removing liquidity (in cents per hundred shares to four decimal places).
(b)(3)	Non-directed Orders	1	1	hNondirected	Order handling data for non-directed orders, with the same elements as above for Directed orders (hDirected).

5   REFERENCES

XML Schema 1.0: www.w3.org/XML/Schema

ISO 10383: http://www.iso.org/iso/home/store/catalogue_ics/catalogue_detail_ics.htm?csnumber=61067

6   SCHEMA

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
This schema was created by staff of the U.S. Securities and Exchange Commission.
Data and content created by government employees within the scope of their employment
are not subject to domestic copyright protection. 17 U.S.C. 105.
-->
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified">
```

```
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified">
  <!-- Held Order Routing Public Report, rule 242.606 (a)(1). -->
  <xs:element name="heldOrderRoutingPublicReport">
    <xs:annotation>
```

```
      <xs:documentation xml:lang="en"> Document root element for an order routing public
report encompassing data for one calendar quarter, supporting rule 242.606 (a)(1).
</xs:documentation>
    </xs:annotation>
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="version"/>
        <xs:element ref="bd"/>
        <xs:element ref="year"/>
        <xs:element ref="qtr"/>
        <xs:element ref="timestamp" minOccurs="0"/>
        <xs:element ref="rMonthly" maxOccurs="3"/>
      </xs:sequence>
    </xs:complexType>
    <xs:unique name="orderRoutingReport_month">
      <xs:selector xpath="rMonthly"/>
      <xs:field xpath="mon"/>
    </xs:unique>
  </xs:element>
  <xs:element name="rMonthly">
    <xs:annotation>
      <xs:documentation xml:lang="en"> One month of order routing data, for S&amp;P500
stocks, other stocks, or options sections, supporting rule 242.606 (a)(1).
</xs:documentation>
    </xs:annotation>
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="year"/>
        <xs:element ref="mon"/>
        <xs:element ref="rSP500" minOccurs="0"/>
        <xs:element ref="rOtherStocks" minOccurs="0"/>
        <xs:element ref="rOptions" minOccurs="0"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:complexType name="OrderRoutingType">
    <xs:annotation>
      <xs:documentation xml:lang="en"> Order routing data for one month, for S&amp;P500
stocks, other stocks, or options sections, aggregated across all execution venues, supporting
rule 242.606 (a)(1). </xs:documentation>
    </xs:annotation>
    <xs:sequence>
      <xs:element ref="ndoPct"/>
      <xs:element ref="ndoMarketPct"/>
      <xs:element ref="ndoMarketableLimitPct"/>
      <xs:element ref="ndoNonmarketableLimitPct"/>
      <xs:element ref="ndoOtherPct"/>
      <xs:element ref="rVenues"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="ndoPct" type="PctOrNmType">
    <xs:annotation>
      <xs:documentation xml:lang="en"> The percentage of total orders (for this report
section) that were non-directed orders, supporting rule 242.606 (a)(1)(i).
</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="ndoMarketPct" type="PctOrNmType">
    <xs:annotation>
      <xs:documentation xml:lang="en"> The percentage of total non-directed orders (for this
report section) that were market orders, supporting rule 242.606 (a)(1)(i).
</xs:documentation>
    </xs:annotation>
```

```
    </xs:element>
  <xs:element name="ndoMarketableLimitPct" type="PctOrNmType">
    <xs:annotation>
      <xs:documentation xml:lang="en"> The percentage of total non-directed orders (for this
report section) that were marketable limit orders, supporting rule 242.606 (a)(1)(i).
</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="ndoNonmarketableLimitPct" type="PctOrNmType">
    <xs:annotation>
      <xs:documentation xml:lang="en"> The percentage of total non-directed orders (for this
report section) that were non-marketable limit orders, supporting rule 242.606 (a)(1)(i).
</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="ndoOtherPct" type="PctOrNmType">
    <xs:annotation>
      <xs:documentation xml:lang="en"> The percentage of total non-directed orders (for this
report section) that were not market orders and were not limit orders, supporting rule
242.606 (a)(1)(i). </xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="rVenues">
    <xs:annotation>
      <xs:documentation xml:lang="en"> Order routing data for all venues, not aggregated,
supporting rule 242.606 (a)(1)(ii). </xs:documentation>
    </xs:annotation>
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="rVenue" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:complexType>
    <xs:unique name="uniqueVenues">
      <xs:selector xpath="rVenue"/>
      <xs:field xpath="name"/>
    </xs:unique>
    <xs:unique name="uniqueMics">
      <xs:selector xpath="rVenue"/>
      <xs:field xpath="mic"/>
    </xs:unique>
  </xs:element>
  <xs:element name="rVenue">
    <xs:annotation>
      <xs:documentation xml:lang="en"> All order routing data for one venue, supporting rule
242.606 (a)(1)(ii). </xs:documentation>
    </xs:annotation>
    <xs:complexType>
      <xs:sequence>
        <xs:choice>
          <xs:sequence>
            <xs:element ref="name"/>
            <xs:element ref="mic" minOccurs="0"/>
          </xs:sequence>
          <xs:element ref="mic"/>
        </xs:choice>
        <xs:element ref="orderPct"/>
        <xs:element name="marketPct" type="PctOrNmType">
          <xs:annotation>
            <xs:documentation xml:lang="en"> The percentage of total non-directed orders (for
this report section) that were market orders, supporting rule 242.606 (a)(1)(i)
</xs:documentation>
          </xs:annotation>
        </xs:element>
```

```
      <xs:element name="marketableLimitPct" type="PctOrNmType">
        <xs:annotation>
          <xs:documentation xml:lang="en"> The percentage of total non-directed orders (for
this report section) that were marketable limit orders, supporting rule 242.606 (a)(1)(i)
</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="nonMarketableLimitPct" type="PctOrNmType">
        <xs:annotation>
          <xs:documentation xml:lang="en"> The percentage of total non-directed orders (for
this report section) that were non marketable limit orders, supporting rule 242.606
(a)(1)(i). </xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="otherPct" type="PctOrNmType">
        <xs:annotation>
          <xs:documentation xml:lang="en"> The percentage of total non-directed orders (for
this report section) that were not market orders and were not limit orders, supporting rule
242.606 (a)(1)(i). </xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element ref="netPmtPaidRecvMarketOrdersUsd"/>
      <xs:element ref="netPmtPaidRecvMarketOrdersCph"/>
      <xs:element ref="netPmtPaidRecvMarketableLimitOrdersUsd"/>
      <xs:element ref="netPmtPaidRecvMarketableLimitOrdersCph"/>
      <xs:element ref="netPmtPaidRecvNonMarketableLimitOrdersUsd"/>
      <xs:element ref="netPmtPaidRecvNonMarketableLimitOrdersCph"/>
      <xs:element ref="netPmtPaidRecvOtherOrdersUsd"/>
      <xs:element ref="netPmtPaidRecvOtherOrdersCph"/>
      <xs:element ref="materialAspects"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
<xs:element name="rSP500" type="OrderRoutingType">
  <xs:annotation>
    <xs:documentation xml:lang="en"> Order routing data for one month at one venue, for
S&amp;P 500 stocks, supporting rule 242.606 (a)(1)(ii). </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="rOtherStocks" type="OrderRoutingType">
  <xs:annotation>
    <xs:documentation xml:lang="en"> Order routing data for one month at one venue, for
non-S&amp;P 500 stocks, supporting rule 242.606 (a)(1)(ii). </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="rOptions" type="OrderRoutingType">
  <xs:annotation>
    <xs:documentation xml:lang="en"> Handling data for one month at one venue, for the
options section, supporting rule 242.606 (a)(1)(ii). </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="name" type="VenueNameType">
  <xs:annotation>
    <xs:documentation xml:lang="en"> The venue to which orders were routed by the broker or
dealer, supporting rule 242.606 (a)(1)(ii). </xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="orderPct" type="PctOrNmType">
  <xs:annotation>
    <xs:documentation xml:lang="en"> The percentage of total non-directed orders for the
section routed to the venue, supporting rule 242.606 (a)(1)(ii). </xs:documentation>
  </xs:annotation>
</xs:element>
```

```
    <xs:element name="netPmtPaidRecvMarketOrdersUsd" type="UsdType">
      <xs:annotation>
        <xs:documentation xml:lang="en"> The net aggregate amount for non-directed market
orders (in dollars) of any (A) payment for order flow received, (B) payment from any profit-
sharing relationship received, (C) transaction fees paid, and (D) transaction rebates
received, supporting rule 242.606 (a)(1)(iii). </xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="netPmtPaidRecvMarketOrdersCph" type="CphType">
      <xs:annotation>
        <xs:documentation xml:lang="en"> The net aggregate amount for non-directed market
orders (in cents per hundred shares) of any (A) payment for order flow received, (B) payment
from any profit-sharing relationship received, (C) transaction fees paid, and (D) transaction
rebates received, supporting rule 242.606 (a)(1)(iii). </xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="netPmtPaidRecvMarketableLimitOrdersUsd" type="UsdType">
      <xs:annotation>
        <xs:documentation xml:lang="en"> The net aggregate amount for non-directed marketable
limit orders (in dollars) of any (A) payment for order flow received, (B) payment from any
profit-sharing relationship received, (C) transaction fees paid, and (D) transaction rebates
received, supporting rule 242.606 (a)(1)(iii). </xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="netPmtPaidRecvMarketableLimitOrdersCph" type="CphType">
      <xs:annotation>
        <xs:documentation xml:lang="en"> The net aggregate amount for non-directed marketable
limit orders (in cents per hundred shares) of any (A) payment for order flow received, (B)
payment from any profit-sharing relationship received, (C) transaction fees paid, and (D)
transaction rebates received, supporting rule 242.606 (a)(1)(iii). </xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="netPmtPaidRecvNonMarketableLimitOrdersUsd" type="UsdType">
      <xs:annotation>
        <xs:documentation xml:lang="en"> The net aggregate amount for non-directed non-
marketable limit orders (in dollars) of any (A) payment for order flow received, (B) payment
from any profit-sharing relationship received, (C) transaction fees paid, and (D) transaction
rebates received, supporting rule 242.606 (a)(1)(iii). </xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="netPmtPaidRecvNonMarketableLimitOrdersCph" type="CphType">
      <xs:annotation>
        <xs:documentation xml:lang="en"> The net aggregate amount for non-directed non-
marketable limit orders (in cents per hundred shares) of any (A) payment for order flow
received, (B) payment from any profit-sharing relationship received, (C) transaction fees
paid, and (D) transaction rebates received, supporting rule 242.606 (a)(1)(iii).
</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="netPmtPaidRecvOtherOrdersUsd" type="UsdType">
      <xs:annotation>
        <xs:documentation xml:lang="en"> The net aggregate amount for non-directed other orders
(in dollars) of any (A) payment for order flow received, (B) payment from any profit-sharing
relationship received, (C) transaction fees paid, and (D) transaction rebates received,
supporting rule 242.606 (a)(1)(iii). </xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="netPmtPaidRecvOtherOrdersCph" type="CphType">
      <xs:annotation>
        <xs:documentation xml:lang="en"> The net aggregate amount for non-directed other orders
(in cents per hundred shares) of any (A) payment for order flow received, (B) payment from
any profit-sharing relationship received, (C) transaction fees paid, and (D) transaction
rebates received, supporting rule 242.606 (a)(1)(iii). </xs:documentation>
```

```xml
        </xs:annotation>
      </xs:element>
      <xs:element name="materialAspects" type="xs:string">
        <xs:annotation>
          <xs:documentation xml:lang="en"> A discussion of the material aspects of the broker's
or dealer's relationship with each venue, supporting rule 242.606 (a)(i)(iv).
</xs:documentation>
        </xs:annotation>
      </xs:element>
      <!-- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -->
      <!-- Order Routing Customer Report, rule 242.606 (b)(1). -->
      <xs:element name="heldExemptNotHeldOrderRoutingCustomerReport">
        <xs:annotation>
          <xs:documentation xml:lang="en"> Order routing report on order execution times, for up
to six months, supporting rule 242.606 (b)(1). </xs:documentation>
        </xs:annotation>
        <xs:complexType>
          <xs:sequence>
            <xs:element ref="version"/>
            <xs:element ref="customer"/>
            <xs:element ref="bd"/>
            <xs:element ref="timestamp" minOccurs="0"/>
            <xs:element ref="startDate"/>
            <xs:element ref="endDate"/>
            <xs:element name="held" type="ORDER_LIST" minOccurs="0" />
            <xs:element name="notHeldExempt" type="ORDER_LIST" minOccurs="0" />
            <xs:element name="options" type="ORDER_LIST" minOccurs="0" />
          </xs:sequence>
        </xs:complexType>
        <xs:unique name="uniqueHeldOrderId">
          <xs:selector xpath="held/order"/>
          <xs:field xpath="orderId"/>
        </xs:unique>
        <xs:unique name="uniqueNotHeldExemptOrderId">
          <xs:selector xpath="notHeldExempt/order"/>
          <xs:field xpath="orderId"/>
        </xs:unique>
        <xs:unique name="uniqueOptionsOrderId">
          <xs:selector xpath="options/order"/>
          <xs:field xpath="orderId"/>
        </xs:unique>
      </xs:element>
      <xs:complexType name="ORDER_LIST">
        <xs:sequence>
          <xs:element ref="order" minOccurs="0" maxOccurs="unbounded"/>
        </xs:sequence>
      </xs:complexType>
      <xs:element name="order">
        <xs:annotation>
          <xs:documentation xml:lang="en"> For each order, the identity of the venue(s) to which
the customer's orders were routed for execution, whether the order was a directed or non-
directed order, and the time of the transactions, if any, that resulted from such orders,
supporting rule 242.606 (b)(1). </xs:documentation>
        </xs:annotation>
        <xs:complexType>
          <xs:sequence>
            <xs:element ref="orderId"/>
            <xs:element ref="directed"/>
            <xs:element ref="route" minOccurs="0" maxOccurs="unbounded"/>
          </xs:sequence>
        </xs:complexType>
      </xs:element>
      <xs:element name="directed">
```

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    <xs:annotation>
      <xs:documentation xml:lang="en"> Y or N indicating whether the order was directed,
supporting rule 242.606 (b)(1). </xs:documentation>
    </xs:annotation>
    <xs:simpleType>
      <xs:restriction base="xs:string">
        <xs:enumeration value="N"/>
        <xs:enumeration value="Y"/>
      </xs:restriction>
    </xs:simpleType>
  </xs:element>
  <xs:element name="orderId">
    <xs:annotation>
      <xs:documentation xml:lang="en"> Nonempty identifier for a customer order. Each order
identifier must be unique within one customer order routing report, supporting rule 242.606
(b)(1). </xs:documentation>
    </xs:annotation>
    <xs:simpleType>
      <xs:restriction base="xs:string">
        <xs:minLength value="1"/>
      </xs:restriction>
    </xs:simpleType>
  </xs:element>
  <xs:element name="route">
    <xs:annotation>
      <xs:documentation xml:lang="en"> An order route, supporting rule 242.606 (b)(1).
</xs:documentation>
    </xs:annotation>
    <xs:complexType>
      <xs:sequence>
        <xs:choice>
          <xs:sequence>
            <xs:element ref="venueName"/>
            <xs:element ref="mic" minOccurs="0"/>
          </xs:sequence>
          <xs:element ref="mic"/>
        </xs:choice>
        <xs:element ref="transaction" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="transaction">
    <xs:annotation>
      <xs:documentation xml:lang="en"> A transaction executing a order, supporting rule
242.606 (b)(1). </xs:documentation>
    </xs:annotation>
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="date"/>
        <xs:element ref="time"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="date">
    <xs:annotation>
      <xs:documentation xml:lang="en"> The UTC date of transaction execution, supporting rule
242.606 (b)(1). </xs:documentation>
    </xs:annotation>
    <xs:simpleType>
      <xs:restriction base="xs:date">
        <xs:pattern value="....-..-.."/>
      </xs:restriction>
    </xs:simpleType>
```

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      </xs:element>
  <xs:element name="time">
    <xs:annotation>
      <xs:documentation xml:lang="en"> The UTC time of transaction execution, rounded to the
nearest second, with half seconds rounded up, supporting rule 242.606 (b)(1).
</xs:documentation>
    </xs:annotation>
    <xs:simpleType>
      <xs:restriction base="xs:time">
        <xs:pattern value="..:..:.."/>
      </xs:restriction>
    </xs:simpleType>
  </xs:element>
  <xs:element name="venueName" type="VenueNameType">
    <xs:annotation>
      <xs:documentation xml:lang="en"> The venue to which orders were routed or were exposed
via Actionable IOI by the broker or dealer, supporting rule 242.606 (b)(1) &amp; (b)(3).
</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="mic">
    <xs:annotation>
      <xs:documentation xml:lang="en"> The ISO 10383 (MIC) code of the venue to facilitate
aggregation of data across reports, supporting rule 242.606 (a)(1), (b)(1) &amp; (b)(3).
</xs:documentation>
    </xs:annotation>
    <xs:simpleType>
      <xs:union memberTypes="MicType NmType"/>
    </xs:simpleType>
  </xs:element>
  <!-- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -->
  <!-- Order Handling Customer Report, rule 242.606 (b)(3) -->
  <xs:element name="notHeldOrderHandlingCustomerReport">
    <xs:annotation>
      <xs:documentation xml:lang="en"> Document root element for an order handling report
encompassing orders from one to six months, supporting rule 242.606 (b)(3).
</xs:documentation>
    </xs:annotation>
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="version"/>
        <xs:element ref="customer"/>
        <xs:element ref="bd"/>
        <xs:element ref="timestamp" minOccurs="0"/>
        <xs:element ref="startDate"/>
        <xs:element ref="endDate"/>
        <xs:element name="hDirected" type="OH_DND_DATA" minOccurs="0">
          <xs:unique name="hdMonthly">
            <xs:selector xpath="hMonthly"/>
            <xs:field xpath="mon"/>
          </xs:unique>
        </xs:element>
        <xs:element name="hNondirected" type="OH_DND_DATA" minOccurs="0" >
          <xs:unique name="hndMonthly">
            <xs:selector xpath="hMonthly"/>
            <xs:field xpath="mon"/>
          </xs:unique>
        </xs:element>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:complexType name="OH_DND_DATA">
    <xs:annotation>
```

```
      <xs:documentation xml:lang="en"> Order handling data for directed and non-directed
orders, supporting rule 242.606 (b)(3). </xs:documentation>
    </xs:annotation>
    <xs:sequence>
      <xs:element ref="hMonthly" minOccurs="0" maxOccurs="7"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="hMonthly">
    <xs:annotation>
      <xs:documentation xml:lang="en"> One month of order handling data, supporting rule
242.606 (b)(3). </xs:documentation>
    </xs:annotation>
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="year"/>
        <xs:element ref="mon"/>
        <xs:element ref="sentShr"/>
        <xs:element ref="executedAsPrincipalShr"/>
        <xs:element ref="ioiExposedOrd"/>
        <xs:element name="ioiExposedVenueList" type="IOI_EXPOSED_VENUE_LIST"/>
        <xs:element name="routingVenueList" type="ROUTING_VENUE_LIST"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:complexType name="IOI_EXPOSED_VENUE_LIST">
    <xs:sequence>
      <xs:element ref="ioiExposedVenue" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ROUTING_VENUE_LIST">
    <xs:sequence>
      <xs:element ref="iVenue" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="ioiExposedVenue">
    <xs:annotation>
      <xs:documentation xml:lang="en">
A venue to which orders were exposed via Actionable IOI by the broker or dealer, supporting
rule 242.606 (b)(1) &amp; (b)(3).
      </xs:documentation>
    </xs:annotation>
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="venueName"/>
        <xs:element ref="mic" minOccurs="0"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="iVenue">
    <xs:annotation>
      <xs:documentation xml:lang="en"> Order handling data in one execution venue, supporting
rule 242.606 (b)(3). </xs:documentation>
    </xs:annotation>
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="venueName"/>
        <xs:element ref="services" minOccurs="0"/>
        <xs:choice minOccurs="0">
          <xs:element ref="mic"/>
          <xs:element ref="mpid"/>
        </xs:choice>
        <xs:element name="routedShr" type="ShrType">
          <xs:annotation>
```

```
        <xs:documentation xml:lang="en"> The number of shares routed totaling across all
strategies, supporting rule 242.606 (b)(3)(i)(A). </xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="iocRoutedShr" type="ShrType">
          <xs:annotation>
            <xs:documentation xml:lang="en"> Shares routed marked immediate or cancel (IOC)
totaling across all strategies, supporting rule 242.606 (b)(3)(i)(B). </xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="furtherRoutableShr" type="ShrType">
          <xs:annotation>
            <xs:documentation xml:lang="en"> Shares routed that were further routable
totaling across all strategies, supporting rule 242.606 (b)(3)(i)(C). </xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="orderSizeShr" type="ShrType">
          <xs:annotation>
            <xs:documentation xml:lang="en"> Average order size (in shares) routed averaging
across all strategies, supporting rule 242.606 (b)(3)(i)(D). </xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="executedShr" type="ShrType">
          <xs:annotation>
            <xs:documentation xml:lang="en"> Number of shares executed totaling across all
strategies, supporting rule 242.606 (b)(3)(ii)(A). </xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="filledPct" type="PctOrNmType">
          <xs:annotation>
            <xs:documentation xml:lang="en"> Fill rate across all strategies, supporting rule
242.606 (b)(3)(ii)(B). </xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="fillSizeShr" type="ShrType">
          <xs:annotation>
            <xs:documentation xml:lang="en"> Average order fill size averaged aross all
strategies, supporting rule 242.606 (b)(3)(ii)(C). </xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="netFeeOrRebateCph" type="CphType">
          <xs:annotation>
            <xs:documentation xml:lang="en"> Average net execution fee (negative value) or
rebate (positive value), supporting rule 242.606 (b)(3)(ii)(D). </xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="midpointShr" type="ShrType">
          <xs:annotation>
            <xs:documentation xml:lang="en"> Number of shares executed at the midpoint,
supporting rule 242.606 (b)(3)(ii)(E). </xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="midpointPct" type="PctOrNmType">
          <xs:annotation>
            <xs:documentation xml:lang="en"> Percentage of shares executed at the midpoint
(equal to midpointExecutedShr / executedShr), supporting rule 242.606 (b)(3)(ii)(F).
</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="nearsideShr" type="ShrType">
          <xs:annotation>
```

```
            <xs:documentation xml:lang="en"> Number of shares executed that were priced on
the side of the spread more favorable to the order, supporting rule 242.606 (b)(3)(ii)(G).
</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="nearsidePct" type="PctOrNmType">
          <xs:annotation>
            <xs:documentation xml:lang="en"> Percentage of shares executed that were priced
at the side of the spread more favorable to the order (equal to nearsideExecuted / executed),
supporting rule 242.606 (b)(3)(ii)(H). </xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="farsideShr" type="ShrType">
          <xs:annotation>
            <xs:documentation xml:lang="en"> Number of shares executed that were priced on
the side of the spread less favorable to the order, supporting rule 242.606 (b)(3)(ii)(I).
</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="farsidePct" type="PctOrNmType">
          <xs:annotation>
            <xs:documentation xml:lang="en"> Percentage of shares executed that were priced
on the side of the spread less favorable to the order, supporting rule 242.606 (b)(3)(ii)(J).
</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="providedLiquidityShr" type="ShrType">
          <xs:annotation>
            <xs:documentation xml:lang="en"> Number of shares executed of orders providing
liquidity, supporting rule 242.606 (b)(3)(iii)(A). </xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="providedLiquidityPct" type="PctOrNmType">
          <xs:annotation>
            <xs:documentation xml:lang="en"> Percentage of shares executed of orders
providing liquidity, supporting rule 242.606 (b)(3)(iii)(B). </xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="orderDurationMsec" type="MsecType">
          <xs:annotation>
            <xs:documentation xml:lang="en"> Average time between order entry and execution
or cancellation, for orders providing liquidity (in milliseconds), supporting rule 242.606
(b)(3)(iii)(C). </xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="providedLiquidityNetCph" type="CphType">
          <xs:annotation>
            <xs:documentation xml:lang="en"> Average net execution fee (negative value) or
rebate (positive value) for shares executed of orders providing liquidity (in cents per
hundred shares to four decimal places), supporting rule 242.606 (b)(3)(iii)(D).
</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="removedLiquidityShr" type="ShrType">
          <xs:annotation>
            <xs:documentation xml:lang="en"> Number of shares executed of orders removing
liquidity, supporting rule 242.606 (b)(3)(iv)(A). </xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:element name="removedLiquidityPct" type="PctOrNmType">
          <xs:annotation>
            <xs:documentation xml:lang="en"> Percentage of shares executed of orders removing
liquidity, supporting rule 242.606 (b)(3)(iv)(B). </xs:documentation>
```

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            </xs:annotation>
          </xs:element>
          <xs:element name="removedLiquidityNetCph" type="CphType">
            <xs:annotation>
              <xs:documentation xml:lang="en"> Average net execution fee (negative value) or
rebate (positive value) for shares of orders removing liquidity (in cents per hundred shares
to four decimal places), supporting rule 242.606 (b)(3)(iv)(C). </xs:documentation>
            </xs:annotation>
          </xs:element>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
    <!-- - - - - - - - - - - - - - - - - - - - - - -->
    <!-- Simple type elements common to reports  -->
    <xs:element name="version">
      <xs:annotation>
        <xs:documentation xml:lang="en"> The version identifier of the Schema for Order
Handling Reports, supporting rule 242.606. </xs:documentation>
      </xs:annotation>
      <xs:simpleType>
        <xs:restriction base="xs:string">
          <xs:enumeration value="1.2d"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:element>
    <xs:element name="bd" type="BrokerDealerNameType">
      <xs:annotation>
        <xs:documentation xml:lang="en"> The name of the broker-dealer providing the handling
report, supporting rule 242.606. </xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="customer" type="CustomerNameType">
      <xs:annotation>
        <xs:documentation xml:lang="en"> The name of the customer receiving the handling
report, supporting rule 242.606. </xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="year" type="YearType">
      <xs:annotation>
        <xs:documentation xml:lang="en"> The calendar year in which the most recent month of
handling data is included, supporting rule 242.606. </xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="qtr" type="QuarterType">
      <xs:annotation>
        <xs:documentation xml:lang="en"> The calendar quarter in which the most recent month of
handling data is included, supporting rule 242.606. </xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="mon" type="MonthType">
      <xs:annotation>
        <xs:documentation xml:lang="en"> Calendar month number from 1 to 12 inclusive,
supporting rule 242.606. </xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="timestamp">
      <xs:annotation>
        <xs:documentation xml:lang="en"> The UTC date and time rounded to the nearest second
for which the report data was generated, with half seconds rounded up, supporting rule
242.606. </xs:documentation>
      </xs:annotation>
      <xs:simpleType>
        <xs:restriction base="xs:dateTime">
```

```xml
          <xs:pattern value="....-..-..T..:..:..Z"/>
        </xs:restriction>
      </xs:simpleType>
   </xs:element>
   <!-- - - - - - - -  -->
   <!-- simple type elements -->
   <xs:element name="sentShr" type="ShrType">
     <xs:annotation>
       <xs:documentation xml:lang="en"> The number of shares of orders sent to the broker or
dealer by the customer during the relevant period, supporting rule 242.606 (b)(3).
</xs:documentation>
     </xs:annotation>
   </xs:element>
   <xs:element name="executedAsPrincipalShr" type="ShrType">
     <xs:annotation>
       <xs:documentation xml:lang="en"> The number of shares executed by the broker or dealer
as principal for its own account, supporting rule 242.606 (b)(3). </xs:documentation>
     </xs:annotation>
   </xs:element>
   <xs:element name="ioiExposedOrd" type="OrdType">
     <xs:annotation>
       <xs:documentation xml:lang="en"> The number of orders exposed by the broker or dealer
through an actionable indication of interest, supporting rule 242.606 (b)(3).
</xs:documentation>
     </xs:annotation>
   </xs:element>
   <xs:element name="services" type="ServicesType">
     <xs:annotation>
       <xs:documentation xml:lang="en"> Routing venue category, supporting rule 242.606
(b)(3). </xs:documentation>
     </xs:annotation>
   </xs:element>
   <xs:element name="mpid">
     <xs:annotation>
       <xs:documentation xml:lang="en"> Market Participant ID (MPID) code of a venue to
facilitate aggregation of data across reports, supporting rule 242.606 (b)(3).
</xs:documentation>
     </xs:annotation>
     <xs:simpleType>
       <xs:union memberTypes="MpidType NmType"/>
     </xs:simpleType>
   </xs:element>
   <xs:element name="startDate">
     <xs:annotation>
       <xs:documentation xml:lang="en"> The precise UTC start date for the six month report,
supporting rule 242.606 (b). </xs:documentation>
     </xs:annotation>
     <xs:simpleType>
       <xs:restriction base="xs:date">
         <xs:pattern value="....-..-.."/>
       </xs:restriction>
     </xs:simpleType>
   </xs:element>
   <xs:element name="endDate">
     <xs:annotation>
       <xs:documentation xml:lang="en"> The precise UTC end date for the six month report,
supporting rule 242.606 (b). </xs:documentation>
     </xs:annotation>
     <xs:simpleType>
       <xs:restriction base="xs:date">
         <xs:pattern value="....-..-.."/>
       </xs:restriction>
     </xs:simpleType>
```

```
      </xs:element>
      <!-- - - - - - - -  -->
      <!-- simple types-->
      <xs:simpleType name="NmType">
        <xs:annotation>
          <xs:documentation xml:lang="en"> Empty string indicating that a numeric value is not
meaningful. </xs:documentation>
        </xs:annotation>
        <xs:restriction base="xs:string">
          <xs:whiteSpace value="collapse"/>
          <xs:enumeration value=""/>
        </xs:restriction>
      </xs:simpleType>
      <xs:simpleType name="ServicesType">
        <xs:annotation>
          <xs:documentation xml:lang="en"> A flag indicating a primary venue (PRV) or
execution/secondary venue (EV/SRV).</xs:documentation>
        </xs:annotation>
        <xs:restriction base="xs:string">
          <xs:enumeration value="PRV"/>
          <xs:enumeration value="EV/SRV"/>
        </xs:restriction>
      </xs:simpleType>
      <xs:simpleType name="MpidType">
        <xs:annotation>
          <xs:documentation xml:lang="en"> A Market Participant ID consisting of four or five
digits or uppercase letters. </xs:documentation>
        </xs:annotation>
        <xs:restriction base="xs:string">
          <xs:pattern value="[A-Z0-9]{4,5}"/>
        </xs:restriction>
      </xs:simpleType>
      <xs:simpleType name="MicType">
        <xs:annotation>
          <xs:documentation xml:lang="en"> An ISO 10383 (MIC) exchange code consisting of exactly
four uppercase letters. </xs:documentation>
        </xs:annotation>
        <xs:restriction base="xs:string">
          <xs:pattern value="[A-Z]{4}"/>
        </xs:restriction>
      </xs:simpleType>
      <xs:simpleType name="BrokerDealerNameType">
        <xs:annotation>
          <xs:documentation xml:lang="en"> Name of the reporting broker-dealer of up to 50
characters with white space normalized. </xs:documentation>
        </xs:annotation>
        <xs:restriction base="xs:string">
          <xs:minLength value="1"/>
          <xs:maxLength value="50"/>
          <xs:whiteSpace value="collapse"/>
        </xs:restriction>
      </xs:simpleType>
      <xs:simpleType name="CustomerNameType">
        <xs:annotation>
          <xs:documentation xml:lang="en"> Name of the customer receiving the report of up to 50
characters with white space normalized, or empty if the report is the aggregate of all
customers. </xs:documentation>
        </xs:annotation>
        <xs:restriction base="xs:string">
          <xs:minLength value="0"/>
          <xs:maxLength value="50"/>
          <xs:whiteSpace value="collapse"/>
        </xs:restriction>
```

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    </xs:simpleType>
    <xs:simpleType name="VenueNameType">
      <xs:annotation>
        <xs:documentation xml:lang="en"> Name of an execution venue of up to 30 characters with
white space normalized. </xs:documentation>
      </xs:annotation>
      <xs:restriction base="xs:string">
        <xs:minLength value="1"/>
        <xs:maxLength value="30"/>
        <xs:whiteSpace value="collapse"/>
      </xs:restriction>
    </xs:simpleType>
    <xs:simpleType name="QuarterType">
      <xs:annotation>
        <xs:documentation xml:lang="en"> A calendar quarter for 1 to 4 inclusive.
</xs:documentation>
      </xs:annotation>
      <xs:restriction base="xs:integer">
        <xs:minInclusive value="1"/>
        <xs:maxInclusive value="4"/>
      </xs:restriction>
    </xs:simpleType>
    <xs:simpleType name="MonthType">
      <xs:annotation>
        <xs:documentation xml:lang="en"> A calendar month from 1 to 12 inclusive.
</xs:documentation>
      </xs:annotation>
      <xs:restriction base="xs:integer">
        <xs:minInclusive value="1"/>
        <xs:maxInclusive value="12"/>
      </xs:restriction>
    </xs:simpleType>
    <xs:simpleType name="YearType">
      <xs:annotation>
        <xs:documentation xml:lang="en"> A calendar year from 2000 to 2099 inclusive.
</xs:documentation>
      </xs:annotation>
      <xs:restriction base="xs:integer">
        <xs:minInclusive value="2000"/>
        <xs:maxInclusive value="2099"/>
      </xs:restriction>
    </xs:simpleType>
    <xs:simpleType name="UsdType">
      <xs:annotation>
        <xs:documentation xml:lang="en"> An amount in US dollars, or blank.</xs:documentation>
      </xs:annotation>
      <xs:restriction base="DecimalOrNmType"/>
    </xs:simpleType>
    <xs:simpleType name="OrdType">
      <xs:annotation>
        <xs:documentation xml:lang="en"> A nonnegative whole number representing a number of
orders, or blank. </xs:documentation>
      </xs:annotation>
      <xs:restriction base="NonnegativeIntegerOrNmType"/>
    </xs:simpleType>
    <xs:simpleType name="ShrType">
      <xs:annotation>
        <xs:documentation xml:lang="en"> A nonnegative number representing a number of shares ,
or blank. </xs:documentation>
      </xs:annotation>
      <xs:restriction base="NonnegativeDecimalOrNmType"/>
    </xs:simpleType>
    <xs:simpleType name="CphType">
```

```
    <xs:annotation>
      <xs:documentation xml:lang="en"> A number with at least four digits to the right of the
decimal point representing cents per hundred shares, or blank. </xs:documentation>
    </xs:annotation>
    <xs:restriction base="Decimal4OrNmType"/>
  </xs:simpleType>
  <xs:simpleType name="PctOrNmType">
    <xs:annotation>
      <xs:documentation xml:lang="en"> A number between 0 and 100 inclusive with at least two
digits to the right of the decimal point representing a percentage, or blank.
</xs:documentation>
    </xs:annotation>
    <xs:union memberTypes="PctType NmType"/>
  </xs:simpleType>
  <xs:simpleType name="MsecType">
    <xs:annotation>
      <xs:documentation xml:lang="en"> A nonnegative integer representing milliseconds, or
blank. </xs:documentation>
    </xs:annotation>
    <xs:restriction base="NonnegativeIntegerOrNmType"/>
  </xs:simpleType>
  <xs:simpleType name="DecimalOrNmType">
    <xs:annotation>
      <xs:documentation xml:lang="en"> A decimal number or blank. </xs:documentation>
    </xs:annotation>
    <xs:union memberTypes="xs:decimal NmType"/>
  </xs:simpleType>
  <xs:simpleType name="NonnegativeDecimalOrNmType">
    <xs:annotation>
      <xs:documentation xml:lang="en"> A decimal number greater than or equal to zero, or
blank. </xs:documentation>
    </xs:annotation>
    <xs:union memberTypes="NonnegativeDecimalType NmType"/>
  </xs:simpleType>
  <xs:simpleType name="Decimal4OrNmType">
    <xs:annotation>
      <xs:documentation xml:lang="en"> A number with at least four digits to the right of the
decimal point, or blank. </xs:documentation>
    </xs:annotation>
    <xs:union memberTypes="Decimal4Type NmType"/>
  </xs:simpleType>
  <xs:simpleType name="Decimal2OrNmType">
    <xs:annotation>
      <xs:documentation xml:lang="en"> A number with at least two digits to the right of the
decimal point, or blank. </xs:documentation>
    </xs:annotation>
    <xs:union memberTypes="Decimal2Type NmType"/>
  </xs:simpleType>
  <xs:simpleType name="NonnegativeDecimalType">
    <xs:annotation>
      <xs:documentation xml:lang="en"> A decimal number greater than or equal to zero.
</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:decimal">
      <xs:minInclusive value="0"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="NonnegativeIntegerOrNmType">
    <xs:annotation>
      <xs:documentation xml:lang="en"> A nonnegative integer, or blank. </xs:documentation>
    </xs:annotation>
    <xs:union memberTypes="NonnegativeIntegerType NmType"/>
  </xs:simpleType>
```

```
  <xs:simpleType name="PctType">
    <xs:annotation>
      <xs:documentation xml:lang="en"> A number between 0 and 100 inclusive with at least two
digits to the right of the decimal point representing a percentage. </xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:decimal">
      <xs:minInclusive value="0.00"/>
      <xs:maxInclusive value="100.00"/>
      <xs:pattern value="[0-9]*\.[0-9]{2,}"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="IoiExposedFlagType">
    <xs:annotation>
      <xs:documentation xml:lang="en"> The character "X" or empty string. </xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:string">
      <xs:enumeration value=""/>
      <xs:enumeration value="X"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="Decimal4Type">
    <xs:annotation>
      <xs:documentation xml:lang="en"> A number with at least four digits to the right of the
decimal point. </xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:decimal">
      <xs:pattern value="-?[0-9]*\.[0-9]{4}[0-9]*"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="Decimal2Type">
    <xs:annotation>
      <xs:documentation xml:lang="en"> A number with at least two digits to the right of the
decimal point. </xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:decimal">
      <xs:pattern value="-?[0-9]*\.[0-9]{2}[0-9]*"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="NonnegativeIntegerType">
    <xs:annotation>
      <xs:documentation xml:lang="en"> A nonnegative integer. </xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:decimal">
      <xs:pattern value="[0-9]+"/>
    </xs:restriction>
  </xs:simpleType>
</xs:schema>
```