

AUCTION 107 CLOCK PHASE BIDDER DATA FILE FORMATS

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1 Introduction

This document provides the data file specifications for the FCC Auction Bidding System upload and download files that will be available to bidders during the clock phase of Auction 107. Each file specification includes the format of the file and definitions of the data elements in the files including a name, description, data type, examples and notes. Data type definitions and notation rules are explained in an appendix attached to this document.

2 Bidder Download Files

This section provides the specifications of the bidding-related download files available to bidders during the auction.

2.1 Sample Bids for Round 1

File name: sample_bids_round_001.csv

For round 1, the Sample Bids file provides a sample template for a bidder that wants to upload its bids in the first round of the auction. For each product (PEA and license category) it wishes to bid on, the bidder indicates the desired quantity of blocks. This file is available only before and during the first round of the auction.

File Structure:

- CSV file (first row contains header)
- One record for each product the bidder is eligible to bid on

Field	Description	Data Type	Examples/Notes
round	Round number	Integer	1
market_number	The PEA (Partial Economic Area) ID	String (["PEA"][0-9] [0-9][0-9]){6}	PEA001
market_name	The PEA name	String	"New York, NY"
category	License category	String [A BC ABC] {1,3}	A BC ABC
bidding_units	Number of bidding units associated with the product	Integer	2300
supply	The supply of blocks associated with the product	Integer	5 (for Category A) 9 (for Category BC) 14 (for Category ABC)
aggregate_demand	The aggregate demand for the product	Integer	0 <i>Aggregate demand will always be zero for the round 1 file</i>

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Field	Description	Data Type	Examples/Notes
bid_amount	The Round 1 price of the product	Integer	5047000
quantity	Number of blocks requested	Integer	0 <i>The bidder must input its desired quantity before uploading the file</i>

2.2 Sample Bids for a Round Other Than Round 1

File name: sample_bids_round_#.csv (# = round number)

For rounds other than Round 1, the Sample Bids file provides a sample template for a bidder that wants to upload its bids during the auction. The download file contains the same default bids that are on the bidding screen at the beginning of a round. For each product (PEA and license category) it wishes to bid on, the bidder indicates the desired bids for the round. This file is available once prices for a round have been announced.

File Structure:

- CSV file (first row contains header)
- One record for each product the bidder is eligible to bid on

Field	Description	Data Type	Examples/Notes
round	Round number	Integer	12
market_number	The PEA (Partial Economic Area) ID	String (["PEA"][0-9] [0-9][0-9]){6}	PEA001
market_name	The PEA name	String	"New York, NY"
category	License category	String [A BC ABC] {1,3}	A BC ABC
bidding_units	Number of bidding units associated with the product	Integer	2300
supply	The supply of blocks associated with the product	Integer	5 (for Category A) 9 (for Category BC) 14 (for Category ABC)
aggregate_demand	The aggregate demand for the product	Integer	20
previous_round_posted_price	Posted price for the product after processing the previous round's bids. This is the minimum bid price in the current round	Integer	3000000

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Field	Description	Data Type	Examples/Notes
clock_price	The clock price (highest price) of the product in the current round	Integer	4000000
processed_demand	The bidder's processed demand for the product at the start of the round	Integer	4
quantity	Number of blocks requested	Integer	4 <i>By default, this field contains the bidder's processed demand for this product from the previous round</i>
bid_amount	Requested price for each block	Integer	4000000 <i>By default, this field contains the clock price for the round.</i>
bid_type	Type of bid	String [Simple Switch]	Simple Switch <i>"Simple" is the default bid type and is prepopulated in the Sample file</i>
switch_to_category	The license category of the "to" product in a switch bid	String [A BC] {1,2}	A BC <i>Null for Simple bid</i>

2.3 My Bids

File name: my_bids_round_#.csv (# = round number)

The My Bids file provides a list of all the bids considered by the bidding system for a bidder in a round, including bids that were submitted so far in an open round. Each bid pertains to a specific product (PEA and license category combination) being offered. Note that the file does not contain bids that were submitted and subsequently modified within the same round; rather, the file contains the list of bids the bidding system is currently considering or did consider for that bidder in the associated round.

In addition to providing information about the bid and the authorized bidder who submitted the bid, the file provides information about the associated product in that round such as the opening price and clock price, the supply, and the bidder's processed demand for that market.

File Structure:

- CSV file (first row contains header)

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- One record per round and bid combination
- After the results of a round have been posted, this file may also contain missing bids submitted by the bidding system. A missing bid is a simple bid for a quantity of 0 at the lowest possible price for the product in that round.
- The file contains data for a given round
- The file contains two entries for each switch bid: one for the “from” category and one for the “to category”. The “from” and “to” categories are listed in both records in switch_from_category and switch_to_category.

Field	Description	Data Type	Examples/Notes
auction_id	The FCC auction number for the auction	String	107 107-Mock
round	Round number	Integer	12
market_number	The PEA (Partial Economic Area) ID	String (["PEA"][0-9] [0-9][0-9]){6}	PEA001
market_name	The PEA name	String	“New York, NY”
category	License category	String [A BC ABC] {1,3}	A BC ABC
bidding_units	Number of bidding units associated with the product	Integer	2300
bidder	Bidder name	String	Company XYZ “ABC, Inc.”
frn	The bidder’s FCC Registration Number (FRN) which uniquely identifies the bidder	String [0-9]{10}	1234567890
bid_type	Type of bid	String [Simple Switch]	Simple Switch <i>Switch is not available for category=ABC</i>
quantity	Number of blocks requested	Integer	2 <i>This value is the requested quantity for the product (not the number of blocks to be reduced or switched)</i>
bid_amount	Requested price for each block	Integer	125000 <i>For the “to” product in a switch bid, this value is the clock price associated with the product</i>

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Field	Description	Data Type	Examples/Notes
price_point	The price point associated with the bid	Decimal [0-1] {10}	0.7560548272 <i>In round 1 this value is 1.0000000000</i> <i>For the “to” product in a switch bid, this value will always be 1.0000000000 regardless of the price point of the “from” product</i>
switch_from_category	For the “to” product in a switch bid, this field indicates the license category of the “from” product in a switch bid.	String [A BC] {1,2}	A BC <i>Null for Simple and the “from” product of a switch bid</i>
switch_to_category	For the “from” product in a switch bid, this field indicates the license category of the “to” product in a switch bid.	String [A BC] {1,2}	A BC <i>Null for Simple and the “to” product of a switch bid</i>
supply	The supply of blocks associated with the product	Integer	5 (for Category A) 9 (for Category BC) 14 (for Category ABC)
prev_round_processed_demand	The bidder’s processed demand for the product at the start of the round	Integer	4 <i>Null for Round 1</i>
prev_round_aggregate_demand	The aggregate demand for the product at the start of the round	Integer	12 <i>Null for Round 1</i>
round_opening_price	The lowest price available for bidding on the associated product in the round	Integer	11500000 <i>In Round 1 this is the opening price, for all other rounds it is the posted price from the previous round</i>
round_clock_price	The clock price (highest price) of the associated product in the round	Integer	12650000

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Field	Description	Data Type	Examples/Notes
entered_by	Name of authorized bidder or telephonic bid assistant who submitted the bid, or "System" if the bidding system submitted a missing bid	String	Karen Smith System
entered_time	The time the bid was submitted	String YYYY-MM-DD HH:MM:SS	2019-05-04 13:21:47 <i>All times are in Eastern Time.</i>
selection_number	The pseudo-random number associated with the bid used for tie-breaking purposes	Integer {1,15}	123456789012345 <i>Null until the round is closed</i> <i>Null in round 1</i>

2.4 My Results

File name: my_results_round_#.csv (# = round number)

The My Results file provides a list of the results of bid processing in a given round for all products (PEA and license category combinations) in which the bidder had processed demand in the previous round and/or submitted a bid for the product in the previous round. For each product the file gives the processed demand, posted price and the aggregate demand. Additionally, if a bid was not fully accepted, the file provides an indication of such and details about why one or more bids for the product were not accepted.

The data pertaining to bidding results for a given round is available once the round results for that round have been posted.

File Structure:

- CSV file (first row contains header)
- One record for each round and product combination where the bidder had processed demand for the product and/or submitted a bid for the product in the round
- The file contains data for a single round that has been posted

Field	Description	Data Type	Examples/Notes
auction_id	The FCC auction number for the auction	String	107 107-Mock
round	Round number	Integer	12
market_number	The PEA (Partial Economic Area) ID	String (["PEA"] [0-9] [0-9] [0-9]) {6}	PEA001

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Field	Description	Data Type	Examples/Notes
market_name	The PEA name	String	"New York, NY"
category	License category	String [A BC ABC] {1,3}	A BC ABC
bidder	Bidder name	String	Company XYZ "ABC, Inc."
frn	The bidder's FCC Registration Number (FRN) which uniquely identifies the bidder	String [0-9]{10}	1234567890
processed_demand	The bidder's demand for the product after processing	Integer	2
processed_demand_flag	Indication if all bids for the product were fully processed	String [Y N] {1}	Y N <i>If a switch bid is not fully processed, both the "from" and "to" categories will have an "N"</i>

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Field	Description	Data Type	Examples/Notes
processed_demand_detail	Details about why one or more bids for the product were not accepted or not fully accepted during bid processing	String {500}	<p>“Simple bid to increase demand to 5 @ \$147,000,555: 2 blocks were not applied due to insufficient eligibility.”</p> <p>“Simple bid to reduce demand to 0 @ \$36,600,222: 3 blocks were not applied due to insufficient aggregate demand.”</p> <p><i>If more than one detail message is applicable (e.g., intra-round bids), then the messages are separated with semi-colons</i></p> <p><i>If a switch bid was partially (or not) processed, the message will be in the record for both the switch from and to categories</i></p> <p><i>Null if all bid(s) for the product were fully accepted.</i></p>
supply	The supply of blocks associated with the product	Integer	5 (for Category A) 9 (for Category BC) 14 (for Category ABC)
aggregate_demand	The aggregate demand for the product after processing	Integer	15
posted_price	The posted price for the product after processing	Integer	12650000

2.5 My Product Status

File name: my_product_status_round_#.csv (# = round number)

The My Product Status file provides the status of each product (PEA and license category combination) after bid processing in a round. For each product that the bidder selected in Form 175, the file gives the posted price, aggregate demand and the clock price in the next round. Additionally, the file provides

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supporting information about each product in that round such as the opening price and clock price, the supply, bidding units, and population. The public Product Status file that will be available in the Public Reporting System at <https://auctiondata.fcc.gov> will include all products in the auction.

The data pertaining to aggregate demand and posted price for a given round is available once the round results for that round have been posted. Information pertaining to next round clock prices is available in the file once the next round has been announced.

File Structure:

- CSV file (first row contains header)
- One record for each product where the bidder is eligible to bid based on the PEAs it selected on its Form 175
- The file contains data for a given round that has been posted

Field	Description	Data Type	Example/Notes
auction_id	The FCC auction number for the auction	String	107 107-Mock
round	Round number	Integer	12
market_number	The PEA (Partial Economic Area) ID	String (["PEA"][0-9] [0-9][0-9]){6}	PEA001
market_name	The PEA name	String	"New York, NY"
category	License category	String [A BC ABC] {1,3}	A BC ABC
round_opening_price	The lowest price available for bidding on the product in the round	Integer	11500000 <i>In Round 1 this is the opening price. For all other rounds it is the posted price from the previous round.</i>
round_clock_price	The clock price (highest price) of the product in the round	Integer	12650000
aggregate_demand	The aggregate demand for the product after processing	Integer	15
posted_price	The posted price for the product after processing	Integer	12650000
next_round_clock_price	The clock price (highest price) of the product in the next round	Integer	13915000 <i>Null if the next round has not yet been announced</i>

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Field	Description	Data Type	Example/Notes
bidding_units	Number of bidding units associated with the product	Integer	2300
supply	The supply of blocks for the product	Integer	5 (for Category A) 9 (for Category BC) 14 (for Category ABC)
population	The population in the PEA associated with the product	Integer	25237061

2.6 My Bidder Status

File name: my_bidder_status_round_#.csv (# = round number)

The My Bidder Status file provides information related to a bidder for a round. For each round the file gives the bidder’s eligibility, required activity, activity upper limit, and bidding activity in the round. The results of bid processing are also given for the round including the bidder’s processed activity as well as the bidder’s eligibility, required activity, and activity upper limit for the next round. Financial information for a bidder’s requested commitment, processed commitment, net requested commitment, and processed net commitment are also given.

File Structure:

- CSV file (first row contains header)
- One record for each round
- The file contains data for a single round

Field	Description	Data Type	Examples/Notes
auction_id	The FCC auction number for the auction	String	107 107-Mock
round	Round number	Integer	12
bidder	Bidder name	String	Company XYZ “ABC, Inc.”
frn	The bidder’s FCC Registration Number (FRN) which uniquely identifies the bidder	String [0-9]{10}	1234567890
bidding_credit_pct	The bidding credit percentage associated with the bidder	Integer [0 15 25]	0 15 25 <i>0 = no bidding credit 15 = 15% bidding credit 25 = 25% bidding credit</i>

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Field	Description	Data Type	Examples/Notes
bidding_credit_type	Indicates the type of bidding credit that the bidder is eligible to receive Rural = bidder is eligible for the rural service provider bidding credit Small Business = bidder is eligible for the small business bidding credit	String [Rural Small Business]	Small Business Rural <i>Null if a bidder is not eligible for a bidding credit</i>
eligibility	The bidder's eligibility in bidding units at the start of round	Integer	8000000
activity_upper_limit	The bidder's maximum activity that it can submit for the round	Integer	10000000 <i>For Round 1, activity_upper_limit = eligibility</i>
required_activity	The bidder's required activity in bidding units for the round	Integer	5000000
activity	The bidder's bidding activity in bidding units for the round	Integer	4000000
req_commitment	The bidder's requested commitment in dollars for the round	Integer	346000000
req_commitment_discount_capped	The bidder's requested discount for new licenses in dollars for the round based on any bidding credits and applying any applicable bidding credit caps	Integer	10000000 <i>Null if a bidder is not eligible for a bidding credit</i>
req_net_commitment	The bidder's requested net commitment is equal to its requested commitment minus its capped requested commitment discount in dollars for the round	Integer	336000000 <i>Null if a bidder is not eligible for a bidding credit</i>
req_commitment_discount_uncapped	The bidder's requested discount for new licenses in dollars for the round based on any bidding credits without applying any applicable bidding credit caps	Integer	16000000 <i>Null if a bidder is not eligible for a bidding credit</i>

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Field	Description	Data Type	Examples/Notes
req_commitment_discount_uncapped_small	The bidder's requested discount for new licenses in dollars for the round in the small markets based on any bidding credits without applying any applicable bidding credit caps	Integer	11000000 <i>Contains a value if a bidder is eligible for the small business bidding credit; Null otherwise</i>
processed_activity	The bidder's bidding activity in bidding units after processing	Integer	4100000 <i>Null if the round results have not yet been posted</i>
commitment	The bidder's commitment in dollars for the round	Integer	348500000 <i>Null if the round results have not yet been posted</i>
commitment_discount_capped	The bidder's discount for new licenses in dollars for the round based on any bidding credits and applying any applicable bidding credit caps	Integer	10000000 <i>Null if a bidder is not eligible for a bidding credit or if the round results have not yet been posted</i>
net_commitment	The bidder's net commitment is equal to its commitment minus its capped commitment discount in dollars for the round	Integer	338500000 <i>Null if a bidder is not eligible for a bidding credit or if the round results have not yet been posted</i>
commitment_discount_uncapped	The bidder's discount for new licenses in dollars for the round based on any bidding credits without applying any applicable bidding credit caps	Integer	15900000 <i>Null if a bidder is not eligible for a bidding credit or if the round results have not yet been posted</i>

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Field	Description	Data Type	Examples/Notes
commitment_discount_uncapped_small	The bidder's discount for new licenses in dollars for the round in the small markets based on any bidding credits without applying any applicable bidding credit caps	Integer	11900000 <i>Contains a value if a bidder is eligible for the small business bidding credit; Null otherwise</i> <i>Null if the round results have not yet been posted</i>
next_round_eligibility	The bidder's eligibility in bidding units at the start of the next round	Integer	5125000 <i>Null if the next round has not been posted</i>
next_round_activity_upper_limit	The bidder's maximum activity that it can submit for the next round	Integer	5300000 <i>Null if the next round has not been announced</i>
next_round_required_activity	The bidder's required activity in bidding units for the next round	Integer	4100000 <i>Null if the next round has not been announced</i>

2.7 My Bidder Markets

File name: my_bidder_markets.csv

The My Bidder Markets file provides information about each market available in the clock auction. It indicates whether a bidder is eligible to bid on the market based on the PEAs selected on its Form 175 application.

File Structure:

- CSV file (first row contains header)
- One record for each bidder for each product available in the auction

Field	Description	Data Type	Examples/Notes
auction_id	The FCC auction number for the auction	String	107 107-Mock
market_number	The PEA (Partial Economic Area) ID	String (["PEA"][0-9] [0-9][0-9]){6}	PEA001
market_name	The PEA name	String	"New York, NY"
bidder	Bidder name	String	Company XYZ "ABC, Inc."

Field	Description	Data Type	Examples/Notes
frn	The bidder's FCC Registration Number (FRN) which uniquely identifies the bidder	String [0-9]{10}	1234567890
selected_market	Indicates if the bidder selected the PEA on its application form.	String [Y N]{1}	Y N

3 Bidder Upload Files

3.1 Bids for Round 1

During the first round of the auction when a bidder must input its initial demand for products, the bidder may utilize a bid upload feature in the bidding system. A sample template is provided to the bidder as a download (see *Sample Bids for Round 1* in the Bidder Downloads section). A bidder may simply download a sample file, enter the quantities requested for each product, and upload the file to the bidding system. The sample bids file contains all the products that the bidder is eligible to bid on. If a bidder does not want to bid on one of its eligible products it may either omit it from the file or enter a quantity of 0 for that product.

File Requirements:

- The upload file must be in CSV format. A particular file name is not required.
- The following fields are required, all others will be ignored:
 - Round number (column header "round")
 - PEA number (column header "market_number")
 - License category (column header "category")
 - Price (column header "bid_amount")
 - Quantity (column header "quantity")
- A bid upload file will be rejected in its entirety if any of the following conditions occur:
 - A bid was submitted for a round other than round 1
 - A bid was submitted for an invalid product (a PEA-license category combination that is not available in the auction)
 - A bid was submitted for a product that is not on the bidder's Form 175
 - A bid was submitted for a product with a quantity that is not a whole number greater than or equal to 0 and less than or equal to the supply of the product
 - The sum of the bidding units for the quantities bid exceed the bidder's initial eligibility
 - A bid was submitted for a product with price not equal to the Round 1 price.

Field	Description	Data Type	Examples/Notes
round	Round number	Integer	1

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Field	Description	Data Type	Examples/Notes
market_number	The PEA (Partial Economic Area) ID	String (["PEA"][0-9] [0-9][0-9]){6}	PEA001
market_name	The PEA name	String	"New York, NY" <i>This field is optional</i>
category	License category	String [A BC ABC] {1,3}	A BC ABC
bidding_units	Number of bidding units associated with the product	Integer	2300 <i>This field is optional</i>
supply	The supply of blocks associated with the product	Integer	5 (for Category A) 9 (for Category BC) 14 (for Category ABC) <i>This field is optional</i>
aggregate_demand	The aggregate demand for the product	Integer	0 <i>This field is optional</i>
bid_amount	The opening price of the product	Integer	5047000
quantity	Number of blocks requested	Integer	2

3.2 Bids for a Round other than Round 1

For rounds other than Round 1, a bidder may utilize a bid upload feature in the bidding system to upload bids for that round. A sample template is provided to the bidder as a download (see *Sample Bids for a round other than Round 1* in the Bidder Downloads section). This sample download contains the same defaults as the bidding screen: simple bids for quantities equal to the processed demand of the previous round at prices equal to the round's clock prices.

A bidder may simply download this file and upload it with the default bids, or the bidder may modify the file prior to uploading it. If a bidder does not want to bid on one of its eligible products that has a processed demand of 0 blocks, it may either omit it from the file or enter a quantity of 0 for that product. If the upload file contains an error and is rejected, the bidder may edit the file and upload it again.

File Requirements:

- The upload file must be in CSV format. A particular file name is not required.
- The following fields are required, all others will be ignored:
 - Round number (column header "round")
 - PEA number (column header "market_number")

- License category (column header “category”)
- Quantity (column header “quantity”)
- Price (column header “bid_amount”)
- Type of bid (column header “bid_type”)
- For switch bids: switch “to” category (column header “switch_to_category”)
- With the exception of a “to” product of a switch bid, the upload file must contain a row for any product with a processed demand greater than zero. For a switch bid, the “to” product should not be listed in the upload file as a separate row, as it is already defined in the “from” product row.
- A bid upload file will be rejected in its entirety if any of the following conditions occur:
 - A bid was submitted for a round other than the current round
 - A bid was submitted for an invalid product (a PEA-license category combination that is not available in the current round)
 - A bid was submitted for a product that is not on the bidder’s Form 175
 - The sum of the bidding units for the quantities bid exceed the bidder’s upper activity limit
 - A bid was submitted for a product with a quantity that is not a whole number greater than or equal to 0 and less than or equal to the supply of the product
 - A simple bid was submitted for a product with a quantity equal to the processed demand from the previous round but at a price other than the clock price of the current round
 - A switch bid was submitted for a product with a quantity that is greater than or equal to the processed demand of the “from” product from the previous round
 - A switch bid was submitted for a market where the resulting quantity would exceed the supply of the “to” product
 - A switch bid was submitted with an invalid or missing “to” category
 - A switch bid was submitted with an invalid “from” category
 - Multiple bids of different types (simple, switch) were submitted for the same product
 - A bid was submitted for a product with the same quantity as was specified at a different price for the product
 - Multiple bids were submitted for a product such that when the prices were sorted in ascending order by price, the requested quantities were not all increasing or all decreasing
 - A bid was submitted for a product with a price that was not a whole number between the previous round’s posted price and the current clock price
 - An invalid type of bid was specified for a product
 - The upload file contained a row for a product that was also a “to” product of a switch bid

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Field	Description	Data Type	Examples/Notes
round	Round number	Integer	12
market_number	The PEA (Partial Economic Area) ID	String ([“PEA”][0-9] [0-9][0-9]){6}	PEA001
market_name	The PEA name	String	“New York, NY” <i>This field is optional</i>
category	License category	String [A BC ABC] {1,3}	A BC ABC <i>For a switch bid, this value is associated with the “from” product</i>
bidding_units	Number of bidding units associated with the product	Integer	2300 <i>This field is optional</i>
supply	The supply of blocks associated with the product	Integer	5 (for Category A) 9 (for Category BC) 14 (for Category ABC) <i>This field is optional</i>
aggregate_demand	The aggregate demand for the product	Integer	12 <i>This field is optional</i>
previous_round_posted_price	Posted price for the product after processing the previous round’s bids. This is the minimum bid price in the current round	Integer	3000000 <i>This field is optional</i>
clock_price	The clock price (highest price) of the product in the current round	Integer	4000000 <i>This field is optional</i>
processed_demand	The bidder’s processed demand for the product at the start of the round	Integer	4 <i>This field is optional</i>

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Field	Description	Data Type	Examples/Notes
quantity	Number of blocks requested	Integer	2 <i>This value is the requested quantity for the product (not the number of blocks to be reduced or switched)</i>
bid_amount	Requested price for each block	Integer	3500000 <i>For a switch bid, this value is associated with the "from" product</i>
bid_type	Type of bid	String [Simple Switch]	Simple Switch <i>Bidder needs to specify "Simple" or "Switch" for each bid placed</i>
switch_to_category	The license category of the "to" product in a switch bid	String [A BC] {1,2}	A BC <i>Null for Simple bid</i>

Appendix: Data Type Definitions

The following is a guide to interpreting data types defined in this document. This guide is based on regular expressions used in XML standards.

Valid Data Types used in this Document

Character: A character is a single standard ASCII character. The following list has examples of valid ASCII characters:

- a
- D
- 3
- %

String: A string contains one or more characters and can contain spaces. The following list has examples of valid strings:

- PEA001
- 005
- Huntsville-Decatur-Florence, AL

Note that strings containing a comma that are included in a CSV formatted file need to include quotation marks around them. In the above example, "Huntsville-Decatur-Florence, AL" would be the correct format for the string in a CSV file.

Decimal: The Decimal data type is used to specify a number that may optionally contain a fractional portion.

The following list has examples of valid decimals¹:

- 123.45
- -0.15
- .67
- 0.30

The following list has examples of invalid decimals:

- 123.4.5
- 5+6
- 1.4545E6
- 5,121.00

Numeric: Numeric is a generic data type that covers a number of different underlying data types. As a result, anything defined as numeric could be any of the following:

¹ Decimal numbers used to describe price points will be between 0 and 1, and will contain 10 decimal numbers. For example, 0.0000000000, 0.5000000000, and 1.0000000000 are all valid decimal numbers for the price point.

- Decimal
- Integer
- Long

Integer: The integer data type is used to specify a numeric value without a fractional component.

- If the Integer is of defined length then curly brackets should be used. For example, {3} indicates the integer should be exactly 3 digits long.
- The maximum value of an unsigned Integer is $2^{64}-1$ which is 18446744073709551615
- Positive integers should not include a (+) plus sign. Any Integers containing a + are considered invalid.
- Negative integers include a (-) minus sign².

The following list has examples of valid integers:

- 009
- 9
- 2147483647
- -3457112

The following list has examples of invalid integers:

- +009
- 18446744073709551616 (i.e. too large)

Null: Regardless of the data type, under certain conditions a field may be *null*, which means there is no data for that field (i.e., the field is blank).

Restricting values for a data type

Restrictions are used to define acceptable values for any given data type. The following lexicon is used when defining data types:

- Square brackets define the pattern.
 - e.g., [A-L] means only the uppercase letters A through L are allowed.
 - e.g., [U|D] means only the uppercase letters U or D are allowed.
 - e.g., [0-9] means only the numbers 0 through 9 are allowed
- Curly brackets define the length including spaces.
 - e.g., {3} means the value has to be exactly 3 characters long.
 - e.g., {1,3} means the value has to be a minimum of 1 character and a maximum of 3 characters.
 - e.g., {0,50} means the value has to be a minimum of 0 characters and a maximum of 50 characters.

Example 1:

² Auction 107 Clock Phase files only contain positive integers.

The Data Type is defined as follows:

Integer
{3}

The curly brackets mean only a 3 digit integer is allowed.

Valid Values for example 1:

- 009
- 056
- 102

Invalid Values for example 1:

- 09
- 3502
- 1
- +12
- -35

Example 2:

The Data Type is defined as follows:

String
[A-L]{1}

The square brackets mean only the uppercase letters A through L are allowed and the curly brackets mean it must be exactly 1 character long.

Valid Values for example 2:

- B
- L

Invalid Values for example 2:

- a
- M
- 6

Example 3:

The Data Type is defined as follows:

String
[0-9]{3}

The square brackets mean only the numbers 0 through 9 are allowed and the curly brackets mean it must be 3 characters long.

Valid Values for example 3:

- 001
- 023
- 358

Invalid Values for example 3:

- 2
- 01
- 2026

Example 4:

The Data Type is defined as follows:

String
[0-9]{1,2}

The square brackets mean only the numbers 0 through 9 are allowed and the curly brackets mean it must be a minimum of 1 character long and a maximum of 2 characters long.

Valid Values for example 4:

- 4
- 04
- 41

Invalid Values for example 4:

- 123
- Blank or null value

Example 5:

The Data Type is defined as follows:

String
[US|CA|MX]{2}

The square brackets mean the pattern must be either US, CA or MX. The curly brackets mean it must be exactly 2 characters long.

Valid Values for example 5:

- US
- CA

Invalid Values for example 5:

- C
- USA

Example 6:

The Data Type is defined as follows:

String
(["PEA"] [0-9] [0-9] [0-9]){6}

The square brackets inside the round brackets mean the pattern must be a concatenation of the text "PEA" followed by three single numbers, with each number ranging from 0 through 9. The curly brackets mean it must be exactly 6 characters long.

Valid Values for example 6:

- PEA002
- PEA356

Invalid Values for example 6:

- PEA0001
- PEA-005
- PEA-05
- PEA-0512
- PEA-2

Example 7:

The Data Type is defined as follows:

String
{0,50}

The absence of square brackets mean there are no restrictions to the characters in this string. The curly brackets mean it must be a minimum of 0 characters long (i.e., can be blank/null) and a maximum of 50 characters long.

Valid Values for example 7:

- ABC Wireless
- Albuquerque-Santa Fe, NM

Invalid Values for example 7:

- Greenville-Spartanburg, SC-Asheville, NC-Anderson, SC
- This is an invalid string which is longer than 50 characters including spaces.