

3G Spectrum Auction

1920-1965 / 2110-2155 MHz



Public Consultation Session

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Agenda



- Overview of Auction Procedure
- Participating in the Auction
- Auction Methodology
 - Why auction?
 - Different types of auction formats
 - The SMR auction
- Auction Rules
- Example
- Information Memorandum



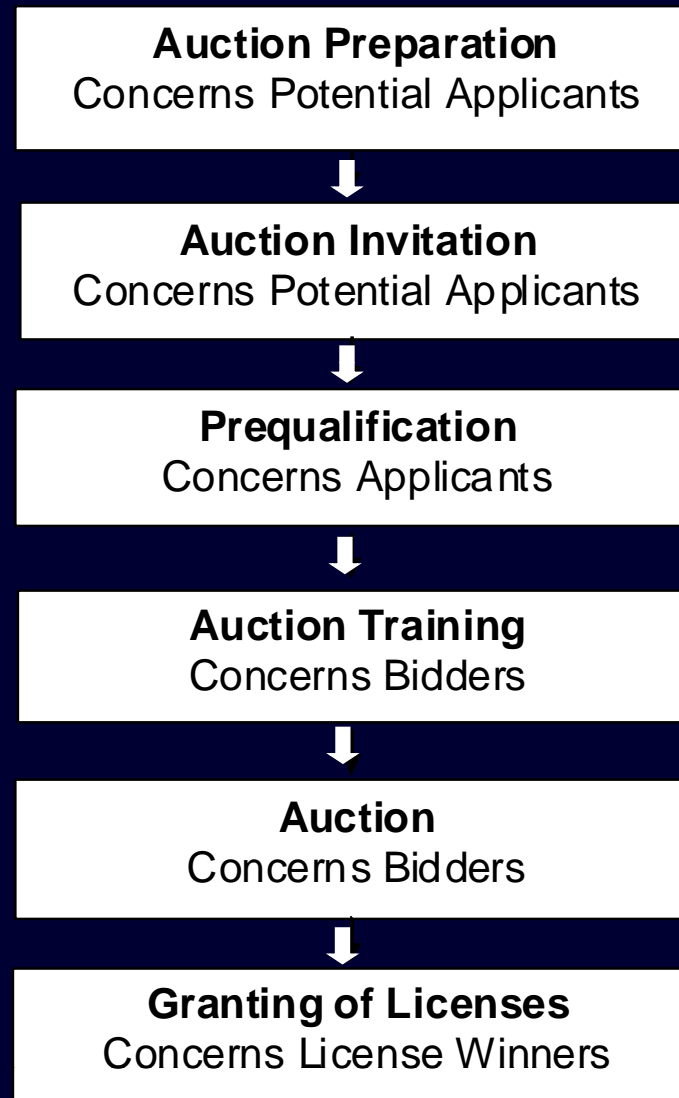
Overview of Auction Procedure

Overview of Auction Procedure



Auction Preparation Phase	
• Draft Information Memorandum published	September 11, 2009
• Public consultation session	September 28, 2009
• Public consultation close	October 5, 2009
• Publication of final IM	October, 2009
Auction Invitation Phase	
• Public information session	After publication of final IM
• Public mock auction	
Prequalification Phase	
• Application deadline	30 days after publication of final IM
• Notification of qualified bidders	7 days after application deadline
• Financial guarantee deadline	7 days after notification of qualified bidders
Auction Training Phase	
• Qualified bidders information session	7 days after financial guarantee deadline
• Qualified bidders mock auction	
Auction Phase	
• Auction start	14 days after financial guarantee deadline
Granting of Licenses Phase	
• Payment deadline	Auction end +14 days
• Issue licenses	Auction end +21 days

Overview of Auction Procedure





Participating in the Auction

Participating in the Auction



■ Prequalification Phase

- Applicants submit Application Forms and pay the Application Fee in the total amount of 500,000 baht (excluding 7 percent VAT).
- The NTC evaluates the Application Forms. (Legal requirements, bidder associations etc).
- Applicants are informed whether their Application has been successful.
- Successful Applicants submit a Financial Guarantee.

■ Auction Training Phase

- Bidder Information Session
- Bidder Mock Auction



Auction Methodology

- Different types of spectrum allocation methods

Allocation Method	Pros and Cons
Beauty Contest	<ul style="list-style-type: none">■ Arbitrary process. Open to criticism.
First come first served	<ul style="list-style-type: none">■ Works well if there is little demand, and demand evolves over time■ If there is excess demand, first come first served does not solve the rationing problem
Auction	<ul style="list-style-type: none">■ Transparent■ Efficient. Spectrum goes to bidder with highest value of the spectrum.■ Auctions have been increasingly used for spectrum allocation in many countries around the world

- Simultaneous Multiple-Round (SMR) Auction:
 - All licenses are available for bidding throughout the auction, hence the term "simultaneous".
 - Bidding occurs in discrete, successive rounds, with the length of each round announced in advance by the auction manager, hence the term "multiple-round".
 - The going prices at each bidding round provides information about the value of the licenses to all bidders and increases the likelihood that the licenses will be assigned to the bidders who value them the most.
 - The period between auction rounds also allows bidders to take stock of, and perhaps adjust, their bidding strategies.
 - There is no preset number of rounds. Bidding continues, round after round, until a round occurs in which all bidder activity ceases. That round becomes the closing round of the auction.

- Simultaneous Multiple-Round (SMR) auction:
 - Key feature #1: Simultaneous auction of all licences
 - Key feature #2: Bidding in discrete bidding rounds
 - Allow bidders to react to price information during the auction by increasing/switching bids
- Sequential auction (departing from key feature #1):
 - Prevents bidders from reacting to price information e.g. bidders can't switch bidding from later licences to earlier licences
- Sealed bid auction (departing from key feature #2):
 - Prevents bidders from reacting to price information e.g. bidders can't increase/switch bids after bid has been placed

Auction Methodology



	SMR auction	Sequential auction	Sealed bid auction
Price discovery	<p>✓</p> <p>Bidders can react to price formation for individual licences as well as relative prices</p>	<p>✗</p> <p>Bidders will not see prices for later licences until the auction for earlier licences have been concluded</p>	<p>✗</p> <p>Bidders can't react to price information</p> <p>Bidders will only learn licence prices after the auction has ended</p>
Simplicity for bidders	<p>✓</p> <p>Bidders only have to accept/reject posted prices</p>	<p>✗</p> <p>Bidders will have to predict prices for later licences before bidding for early licences</p>	<p>✗</p> <p>Bidders will have to predict prices for all licences before placing bids</p>
Efficiency	<p>✓</p> <p>The auction for all licences close simultaneously. Bidders see all prices before the auction ends</p>	<p>✗</p> <p>Bidders may get their price predictions for later licences wrong</p>	<p>✗</p> <p>Bidders may get their price predictions wrong</p>
Robustness to lack of competition	<p>✓ ✗</p> <p>Works well with sufficient number of bidders. May end after one bidding round if insufficient number of bidders</p>	<p>✓ ✗</p> <p>If possible to hide the number of bidders, prices may be higher than reserve prices</p>	<p>✓ ✗</p> <p>If possible to hide the number of bidders, prices may be higher than reserve prices</p>



Auction Rules

Auction Rules



■ Licenses

Licence	MHz	Lower Band	Upper Band	Reserve Price (example)	Points
A	2*15 MHz	1920-1935 MHz	2110-2125 MHz	1,500,000	3
B	2*10 MHz	1935-1945 MHz	2125-2135 MHz	1,000,000	2
C	2*10 MHz	1945-1955 MHz	2135-2145 MHz	1,000,000	2
D	2*10 MHz	1955-1965 MHz	2145-2155 MHz	1,000,000	2

- First bidding round:
 - Initial eligibility is determined by Financial Guarantee (Initial eligibility is either 2 or 3 points).
 - The auction starts with bidders bidding for one of the licenses at the reserve price.
 - If there is more than one bid for any of the licenses, one of the bids will be selected as the standing highest bid (provisional winning bid), and the auction progresses to a second round.

- Subsequent bidding rounds:
 - The auctioneer announces the bid increment that applies to each license. Bidders decide whether, and on which license, to bid at the new prices.
 - Bidders that are standing high bidders cannot switch
 - Bidders that are not standing high bidders can switch to a different license if they wish.
 - If any new bids are placed, the standing high bids will be determined. The auction progresses to the next round.
 - This process continues until there is a round in which there are no new bids (or waivers) and the auction ends.

- Activity/Eligibility rule:
 - Bidders have to be ‘active’ in order to maintain their eligibility.
 - Otherwise bidders could stall the auction and price discovery would be limited.
 - A bidder is active in a bidding round if:
 - The bidder has the standing high bid on a license, or
 - The bidder places a new bid on a licence
 - A bidder who is active maintains his eligibility points
 - A bidder who is not active will lose all his eligibility points (unless a waiver is placed).

Auction Rules



■ Final Phase:

- The Auction Master may declare the auction to be in 'Final Phase'
 - In Final Phase, bidders with 3 points of eligibility are required to place a bid on License A in order to maintain 3 points of eligibility
 - Bidders with 3 points of eligibility who fail to place a bid on License A will have points of eligibility reduced to 2.
- Before Final Phase, bidders are free to switch between all four licenses (subject to initial eligibility)
- Final Phase may or may not be declared. It is a safeguard against certain types of undesirable bidding patterns (parking of eligibility).
- Final Phase does not mean final bidding round. The auction may continue for many bidding rounds after Final Phase has been declared.



Example

Example



	Licence A	Licence B	Licence C	Licence D
Going Price	1,500,000	1,000,000	1,000,000	1,000,000
Bids	Bidder 1 at 1,500,000 Bidder 2 at 1,500,000 Bidder 6 at 1,500,000		Bidder 3 at 1,000,000	Bidder 4 at 1,000,000 Bidder 5 at 1,000,000 Bidder 7 at 1,000,000
Going Price	1,600,000	1,000,000	1,100,000	1,100,000
Bids	Bidder 2 at 1,500,000 Bidder 6 at 1,600,000	Bidder 1 at 1,000,000 Bidder 5 at 1,000,000	Bidder 3 at 1,000,000	Bidder 4 at 1,000,000
Going price	1,700,000	1,100,000	1,100,000	1,100,000

■ Bidding round 1:

- 3 bids on A
- 1 bid on C
- 3 bid on D

■ Bidding round 2:

- Bidder 1 switch from A to B
- Bidder 5 switch from D to B
- Bidder 7 lose eligibility

Auction Software



Optimal Auctions Software - Optimal Commerce 7.0.3...

THAILAND 3G AUCTION System Time: 9:28 Asia/Bangkok powered by Optimal Auctions

Current Round **1** Auction Status **Bidding** Time Remaining **0:00** Eligibility **3** Free Elig Range **--** Waivers **3** Messages **3 New** 3 Total Logged on as: **Bidder A** Logout SnapShot Tester

Schedule Bid Entry Reports User Profile Messages Documents

Bid Entry

Product Attributes			Round 1		
Product	Lower Band (MHz)	Upper Band (MHz)	Elig Points	Price	Bid
License A	1920-1935	2110-2125	3	\$150,000,000	<input checked="" type="checkbox"/>
License B	1935-1945	2125-2135	2	\$100,000,000	<input type="checkbox"/>
License C	1945-1955	2135-2145	2	\$100,000,000	<input type="checkbox"/>
License D	1955-1965	2145-2155	2	\$100,000,000	<input type="checkbox"/>

Eligibility Available	Round 2 Eligibility
0	3

Submit Bids

Auction Software



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THAILAND 3G AUCTION System Time: 9:30 Asia/Bangkok powered by Optimal Auctions

Current Round **2** Auction Status **Bidding** Time Remaining **0:00** Eligibility **3** Free Elig Range **0-0** Waivers **3** Messages **3 New** 3 Total Logged on as: **Bidder A** Logout SnapShot Tester

Schedule Bid Entry Reports User Profile Messages Documents

Bid Entry

Product Attributes			Round 1		Round 2		
Product	Lower Band (MHz)	Upper Band (MHz)	Price	Status	Elig Points	Price	Bid
License A	1920-1935	2110-2125	\$150,000,000	You are high bidder	3	N/A	
License B	1935-1945	2125-2135	\$100,000,000	You did not bid	2	N/A	
License C	1945-1955	2135-2145	\$100,000,000	You did not bid	2	N/A	
License D	1955-1965	2145-2155	\$100,000,000	You did not bid	2	N/A	

Eligibility Available	Round 3 Eligibility
0	3

Your standing bid(s) cannot be changed, but will remain standing unless you are outbid.
You will be allowed to change your bid(s) next round if you are outbid.



Information Memorandum

Information Memorandum



1. Introduction
2. Thai Macro Economy
3. Thai Telecommunications Industry
4. Thai Wireless Telecommunications Market
5. National Telecommunications Commission
6. IMT or 3G and Beyond
7. Policy Background and Regulatory Regime
8. Associated Regulatory Issues
9. Description of the Licenses
10. Overview of the Auction
11. Participating in the Auction
12. List of Appendices (Glossary, Application Forms, Auction Rules)

Thank you for your attention

