

**AUCTION OF
10.5 GHz SPECTRUM RIGHTS**

INFORMATION MEMORANDUM

26 December 2007

INFO-COMMUNICATIONS DEVELOPMENT AUTHORITY
REPUBLIC OF SINGAPORE

Important Notice

Terms and expressions used in this Important Notice are as defined in this Information Memorandum.

This Information Memorandum has been prepared in connection with the proposed grant of 10.5 GHz Spectrum Rights pursuant to the Telecommunications (Radio-communication) Regulations. This Information Memorandum is for informational purposes only. It is made available on the express understanding that it will be used for the sole purpose of assisting an interested party in deciding whether it wishes to proceed with a further investigation of possible participation in the Auction.

This Information Memorandum is not intended to form any part of the basis of any investment decision or other evaluation of any decision to participate in the Auction and should not be considered as a recommendation by IDA or IDA's advisers to participate in the Auction. Each interested party must make its own independent assessment of the potential value of a 10.5 GHz Spectrum Right after making such investigation as it may deem necessary. All information contained in this Information Memorandum may be updated or amended at any time.

While the information contained in this Information Memorandum is believed to be accurate as at the time of posting on IDA's website, it has not been independently verified by IDA or its advisers. Neither IDA nor any of IDA's advisers nor any of their respective directors, partners, officers or employees make any representation or warranty (express or implied) nor has nor will have any responsibility or liability in relation to the accuracy or completeness of the information contained in this Information Memorandum or any other written or oral information made available to any interested party or its advisers. Any responsibility or liability in respect of any such information or any inaccuracy in this Information Memorandum or omission from this Information Memorandum is expressly disclaimed.

This Information Memorandum does not constitute an offer or invitation to participate in the Auction.

Each recipient of this Information Memorandum should consult its own professional advisers as to financial, legal, tax and other matters concerning any potential participation in the Auctions or any grant of a 10.5 GHz Spectrum Right.

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(A) GENERAL INFORMATION

1. Introduction

1.1 The Info-communications Development Authority of Singapore (“IDA”) is the authority in charge of regulating and promoting the information and communication technology industry in Singapore. Pursuant to the Telecommunications (Radio-communication) Regulations, IDA will offer for allocation radio-frequency spectrum lots in the 10.5 GHz band (“10.5 GHz Spectrum Lots” and each a “10.5 GHz Spectrum Lot”) by way of the process described in this Information Memorandum (“Auction”). Each Bidder which is awarded one or more 10.5 GHz Spectrum Lots in the Auction will be granted one 10.5 GHz Spectrum Right in respect of such 10.5 GHz Spectrum Lot(s). A 10.5 GHz Spectrum Right will permit the Bidder granted such 10.5 GHz Spectrum Right to use the 10.5 GHz Spectrum Lot(s) it is awarded in the Auction to operate point-to-point (“P2P”) and point-to-multipoint (“P2MP”) radio systems for wireless backhaul in relation to that 10.5 GHz Spectrum Right. This Information Memorandum contains important information that interested parties should read and understand for the purpose of the Auction.

1.2 This Information Memorandum contains:

- an overview of the 10.5 GHz Spectrum Lots offered for allocation in the Auction and the 10.5 GHz Spectrum Rights that will be granted in respect thereof;
- a review of associated policy issues;
- an indicative timetable; and
- a description of the application process.
- Unless expressly specified otherwise, terms and expressions used in this Information Memorandum are defined in the Auction Rules (please see “Auction of 10.5 GHz Spectrum Rights – Auction Rules” released by IDA on 26 December 2007).

2. Allocation of the 10.5 GHz band

2.1 The 10.5 GHz band is currently allocated for P2P fixed service. The fixed service links are generally assigned for the following uses:

- a. Back-up backbone links for Facilities-Based Operators (“FBO”), between major exchanges or to link Singapore to off-shore islands or border areas of neighbouring countries;
- b. Links for local access networks to be provided by FBOs;
- c. Studio-to-transmitter and outside broadcast links for broadcasters; and
- d. Links for use by government agencies.

2.2 The 10.5 GHz band is suitable for long-haul P2P fixed links due to its propagation characteristics. However, it is relatively unused in Singapore at the moment, as it is of a higher frequency than the traditional bands used for fixed service links, namely the 6, 7 and 8 GHz bands.

2.3 While the 10.5 GHz band is not heavily used today, there is increased demand for spectrum in the band, with the introduction of P2MP technologies used to backhaul radio-communication networks. This is consistent with international trends, where countries like the US have set aside the 10.5 GHz band for cell site interconnection and basic communication services for cellular companies, public safety systems for police, fire and ambulance services, and critical infrastructure providers. To make better use of our spectrum resource, and in response to industry interest in the 10.5 GHz band for P2MP links, IDA will allow the 10.5 GHz band to be used to operate P2P and P2MP radio systems for wireless backhaul. This will enable operators to connect remote sites to a core site using high capacity wireless links.

2.4 Although there are some proprietary products available for the provision of Wireless Broadband Access (“WBA”) services to end users which can operate in frequencies up to 10.5 GHz, IDA understands that there are currently no emerging standards-based systems planned for the 10.5 GHz band. Further, IDA has already allocated spectrum in the 2.3 GHz and 2.5 GHz bands for the provision of publicly available WBA services to end users. IDA will therefore not issue the 10.5 GHz band for the provision of WBA services at this juncture.

3. Rationale for Auction Approach

3.1 The auction methodology has been chosen to be the mechanism to allocate 10.5 GHz spectrum. This takes into account that spectrum is a scarce and finite resource and that a market-based allocation approach, such as an auction, is more effective in ensuring spectrum optimisation by operators. An auction will be a more efficient, objective and transparent approach for allocating scarce resources because it relies on market forces to allocate scarce resources to those who value them most.

4. Eligible Participants in the Auction

4.1 Only the existing holders of FBO Licences or the Singapore Armed Forces, the Singapore Police Force or the Civil Defence Force will be permitted to participate in this Auction.

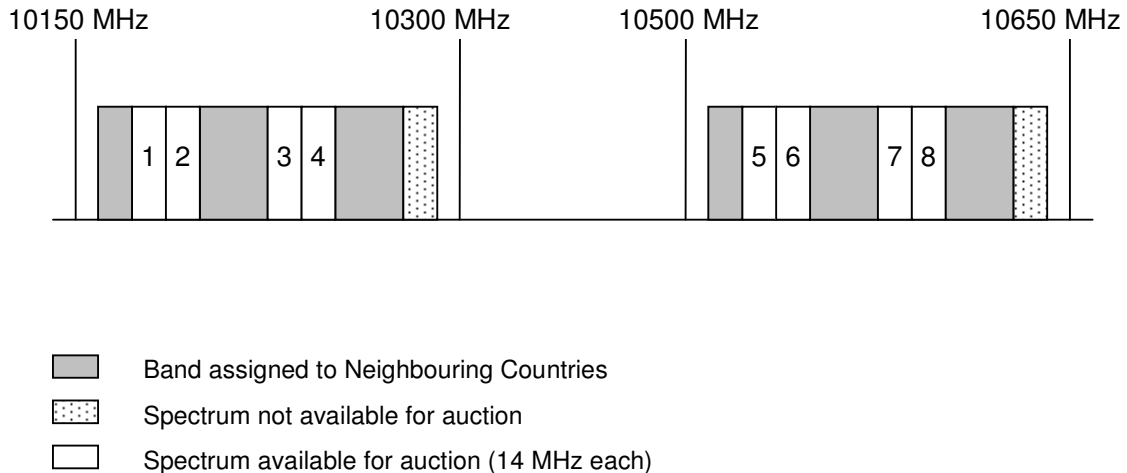
5. Spectrum Available at the Auction

5.1 A total of eight 10.5 GHz Spectrum Lots will be made available for allocation in the Auction. Bidders will bid for specific lots, deciding which lots to bid for and how much to bid for them.

5.2 Details of the 10.5 GHz Spectrum Lots available for allocation in the Auction are shown in the table below:

10.5 GHz Spectrum Lot Number	Starting Frequency (MHz)	Ending Frequency (MHz)	Frequency Block (MHz)
1	10168	10182	14
2	10182	10196	14
3	10224	10238	14
4	10238	10252	14
5	10518	10532	14
6	10532	10546	14
7	10574	10588	14
8	10588	10602	14

5.3 The band plans of Singapore and Neighbouring Countries in the 10.5 GHz band is shown below:



6. Maximum Number of 10.5 GHz Spectrum Lots per Bidder

6.1 There is no cap on the number of 10.5 GHz Spectrum Lots which a Bidder may bid for. Each Bidder which is successful in the Auction will be granted one 10.5 GHz Spectrum Right which will be in respect of all the 10.5 GHz Spectrum Lots awarded to it in the Auction.

7. Reserve Price

7.1 The Reserve Price for each 10.5 GHz Spectrum Lot is S\$50,000, which price is exclusive of the applicable GST.

8. Duration of 10.5 GHz Spectrum Rights

8.1 The 10.5 GHz Spectrum Rights granted will be valid for a period of five years. There is no commitment by IDA that the 10.5 GHz Spectrum Rights in respect of the 10.5 GHz Spectrum Lots awarded under the Auction will be extended for any period, if at all.

8.2 If there is any grant of an extension of the 10.5 GHz Spectrum Rights, or if there is any new allocation exercise for 10.5 GHz Spectrum Lots, there is no commitment by IDA that the same number of 10.5 GHz Spectrum Lots will be re-allocated in that subsequent allocation exercise to the successful Bidders in the Auction or that the same Reserve Price, Administrative Fee, Going Price(s), Base

Year Charge(s) or Annual Charge(s) will apply in respect of such 10.5 GHz Spectrum Lots.

8.3 It is expected that 10.5 GHz Spectrum Rights awarded under the Auction or otherwise allocated by IDA if the Auction does not proceed, will be effective from 1 March 2008. If the procedure for award of the 10.5 GHz Spectrum Rights is completed at an earlier date, the 10.5 GHz Spectrum Rights may become effective on such date as IDA may determine.

9. Determination as to whether the Auction will Proceed

9.1 IDA has the sole discretion whether to proceed with the Auction. If more than one Initial Offer is received in respect of each of the eight 10.5 GHz Spectrum Lots, the Auction will proceed. If there is only up to one Initial Offer received for each of the eight 10.5 GHz Spectrum Lots, IDA will not proceed with the Auction and instead allocate the relevant 10.5 GHz Spectrum Rights in respect of the relevant 10.5 GHz Spectrum Lots at a Base Year Charge equal to the sum of the Reserve Price and the Administrative Fee.

9.2 In the event that the total number of Initial Offers received by IDA does not exceed eight, but there is more than one Initial Offer received in respect of any of the eight 10.5 GHz Spectrum Lots, IDA may take the following action:

- (a) IDA may propose an allocation plan. In doing so, IDA will seek to allocate the 10.5 GHz Spectrum Lots to the Bidders on a "closest fit" basis. However, nothing shall limit IDA's discretion to allocate in such manner as it considers appropriate. IDA will inform each Bidder individually of the 10.5 GHz Spectrum Lots that has been allocated to that Bidder. Where all the Bidders agree to accept the 10.5 GHz Spectrum Lots as allocated by IDA, the Auction will not proceed. The Base Year Charge payable for each of the 10.5 GHz Spectrum Lots as allocated by IDA shall be equal to the sum of the Reserve Price and the Administrative Fee;
- (b) In the event that any Bidder rejects the 10.5 GHz Spectrum Lots that IDA has proposed to allocate to that Bidder, the Auction will proceed in respect of all eight 10.5 GHz Spectrum Lots;

9.3 If the Auction proceeds, all eight 10.5 GHz Spectrum Lots will be included in the Auction, irrespective of the Initial Offers made for each of the relevant 10.5 GHz Spectrum Lots. Please refer to Section 13.3 for the Base Year Charge payable in the case where the Auction proceeds.

10. Applications and Initial Offers

10.1 In order to participate in the Auction, a party must submit an Initial Offer Document (accompanied by the documents specified in the Initial Offer Document) and a Bank Guarantee (copies of which are respectively set out in Appendices 1 and 2 to the Auction Rules).

10.2 IDA will determine: (a) whether the Initial Offer Document (accompanied by the documents specified in the Initial Offer Document) and Bank Guarantee are in compliance with the Auction Rules; and (b) whether a party submitting such documents should be registered as a Bidder and entitled to participate in the Auction.

10.3 IDA, when deciding whether such party should be registered as a Bidder in the Auction, may take into account, among other things:

- (a) whether it would be in the public interest for such party to be granted a 10.5 GHz Spectrum Right for the purpose of operating P2P or P2MP radio systems for wireless backhaul; and
- (b) all or any facts, circumstances or matters which IDA considers to be relevant including the financial or personal probity and standing of the application or any company in the same corporate group as the applicant or any director or shareholder of the applicant or of any such company.

10.4 A 10.5 GHz Spectrum Right will only be granted to existing holders of FBO Licences or the Singapore Armed Forces, the Singapore Police Force or the Civil Defence Force.

11. Going Price in First Round

11.1 The Going Price in the first Round of the Auction for each 10.5 GHz Spectrum Lot is equal to the Reserve Price.

12. Base Year Charge(s), Application and Processing Fees and Annual Charge(s) Payable for 10.5 GHz Spectrum Lot(s) for the Duration of the 10.5 GHz Spectrum Rights

12.1 In the first year of the duration of a 10.5 GHz Spectrum Right, in respect of each 10.5 GHz Spectrum Lot, the successful Bidder shall pay the Base Year Charge comprising the Administrative Fee and the Going Price in the Final Round or the successful Exit Price, as the case may be. The Administrative Fee payable is S\$15,900 for each 10.5 GHz Spectrum Lot respectively, excluding the applicable GST.

12.2 In addition, an Application and Processing Fee of S\$2,700 excluding the applicable GST will be payable by the successful Bidders to IDA in respect of each 10.5 GHz Spectrum Lot included in a 10.5 GHz Spectrum Right awarded to them under the Auction or otherwise allocated to them by IDA if the Auction does not proceed.

12.3 Annual Charge(s) shall be payable by each successful Bidder to IDA in respect of each 10.5 GHz Spectrum Lot allocated to it under the Auction. Such Annual Charge(s) shall be payable from the second year for the duration of a 10.5 GHz Spectrum Right in accordance with the terms and conditions of the 10.5 GHz Spectrum Right, and shall be exclusive of GST. The Annual Charge for a 10.5 GHz Spectrum Lot shall be an amount equal to the Administrative Fee.

13. Outcome of the Auction

13.1 In the case where the Auction proceeds, the outcome of the Auction will determine:

- (a) the allocation of the 10.5 GHz Spectrum Lot(s) to the successful Bidders; and
- (b) the Base Year Charge for each 10.5 GHz Spectrum Lot allocated under that Auction.

13.2 The 10.5 GHz Spectrum Lots in the Auction will be awarded as follows:

- (i) each Bidder which submitted a Valid Bid at the respective Going Prices in the Final Round will be provisionally awarded a 10.5 GHz Spectrum Right in respect of the specific 10.5 GHz Spectrum Lots for which its Valid Bid was submitted;
- (ii) in the event that there are any 10.5 GHz Spectrum Lots not awarded in accordance with paragraph (i) above, then such 10.5 GHz Spectrum Lots will be provisionally awarded to the Bidder(s) which submitted Valid Bids specifying the highest Exit Price(s); and
- (iii) in the event that more than one Bidder submitted Valid Bids in relation to any 10.5 GHz Spectrum Lot specifying the same Exit Price under paragraph (ii) above, a random draw method will be used to select the Bidder to which the relevant 10.5 GHz Spectrum Lot will be provisionally awarded.

13.3 The Base Year Charge for 10.5 GHz Spectrum Lots awarded to Bidders submitting Valid Bids in the Final Round in accordance with paragraph 13.2(i) above, shall be equal to the Going Price in the Final Round and the Administrative Fee of

that 10.5 GHz Spectrum Lot. The Base Year Charge for a 10.5 GHz Spectrum Lot awarded to Bidders who submitted Exit Prices in any Round in accordance with paragraphs 13.2(ii) and/or 13.2(iii) above, shall be equal to the Exit Price submitted by the Bidder to which such 10.5 GHz Spectrum Lot is awarded and the Administrative Fee of that 10.5 GHz Spectrum Lot.

14. 10.5 GHz Spectrum Rights, FBO Licences and Station/Network Licences

14.1 A 10.5 GHz Spectrum Right will constitute the grant of a right to use specific parts of radio frequency spectrum to operate P2P and P2MP radio systems for wireless backhaul in relation to that 10.5 GHz Spectrum Right.

14.2 Bidders which are granted a 10.5 GHz Spectrum Right in this Auction will not be issued a new FBO Licence pursuant to the grant of the 10.5 GHz Spectrum Right. They must however modify the scope of their systems and services under their existing FBO Licences if they are currently not licensed to operate a radio-communication system.

14.3 In addition, successful Bidders which are granted a 10.5 GHz Spectrum Right in the Auction and which are currently not licensed to operate a radio-communication system will be required to apply for, and obtain, the necessary Station/Network Licence(s) before operating P2P or P2MP radio systems for wireless backhaul using the 10.5 GHz Spectrum Lots specified in the 10.5 GHz Spectrum Rights granted to such Bidders. The fees payable on such Station/Network Licences are prescribed in the First Schedule of the Telecommunications (Radio-communication) Regulations.

14.4 The 10.5 GHz Spectrum Rights are granted by IDA pursuant to the powers granted to IDA under the Info-communications Development Authority of Singapore Act (Cap. 137A) ("IDA Act"), the Telecommunications Act (Cap. 323) ("Telecommunications Act") and the Telecommunications (Radio-communication) Regulations. A template of the 10.5 GHz Spectrum Right is attached as Appendix 3 to the Auction Rules. For the avoidance of doubt, IDA reserves the right to amend any of the conditions specified in the template in Appendix 3 or to add or remove conditions as it considers appropriate.

15. Spectrum Trading

15.1 IDA will permit the trading of spectrum rights allocated pursuant to the grant of a 10.5 GHz Spectrum Right. Spectrum trading will be subject to:

- (a) approval from IDA;

- (b) any restriction and condition or other requirements imposed or specified by IDA; and
- (c) the relevant provisions of the Telecommunications (Radio-communication) Regulations and Code of Practice for Competition in the Provision of Telecommunication Services (“Telecom Competition Code”).

16. No Moratorium

16.1 IDA may allocate further 10.5 GHz Spectrum Lots for P2P and P2MP radio systems for wireless backhaul or any other telecommunication services at any time, and does not commit to any moratorium period during which no such allocation will take place.

17. Radio Frequency Interference

17.1 Successful Bidders using 10.5 GHz spectrum will be required to co-ordinate among themselves and with neighbouring countries' network operators to avoid frequency interference problems and to make the most efficient use of the spectrum they hold. IDA will only intervene in cases where operators are unable to resolve these problems themselves.

17.2 Please refer to Schedule 1 to this Information Memorandum on the recommended technical guidelines in deploying P2P and P2MP radio systems in the 10.5 GHz band.

18. Health and Safety Issues

18.1 The health hazards from exposure to electromagnetic fields are still largely unknown. This Information Memorandum does not express any view or opinion on such matters. Successful Bidders are expected to be apprised of and comply with any guidelines, recommendations or other standards that may be issued by the relevant ministries or statutory boards and/or internationally recognised expert bodies in this field.

(B) TIMETABLE

1. The timetable set out below is indicative only of the expected timing of certain key events prior to the start of the Auction. The Auction Rules contain provisions relating to the notice which will be given of certain dates and events in relation to the Auction process.

2. Please note that IDA may at any time change any of the times or dates and/or shorten or extend the time periods set out in the Auction Rules upon giving at least 24 hours notice, save in emergency situations where such changes may be made without notice.

	Date
Information Memorandum	
Issue of Information Memorandum	26 December 2007
Latest date for submission of queries	9 January 2008
Pre-Auction Milestones	
Submission of Initial Offer Document and Bank Guarantee	16 January 2008
Announcement of Applications received	17 January 2008
Announcement of whether IDA will award the Spectrum Rights at Reserve Price	23 January 2008
Information Session	1 February 2008
Trial Auction	4 February 2008
Notification of Auction Details	11 February 2008
Auction	
Auction Start Date	13 February 2008

(C) INTRODUCTION TO THE AUCTION FRAMEWORK AND THE BIDDING PROCEDURE

This introduction is intended only to provide an overview of some of the main features of the Auction. Any party interested in participating in the Auction should familiarise itself with the Auction Rules and should seek appropriate independent legal and other advice in respect of the Auction Rules.

1. The Auction

1.1 To be registered as a Bidder entitled to participate in the Auction, an interested party must, by 6.00 pm on the Application Date in accordance with the Auction Rules:

- (a) submit to IDA its Initial Offer Document; and
- (b) deposit a Bank Guarantee with the IDA to cover the Initial Guaranteed Amount, which is calculated as follows:

Initial Guaranteed Amount = 1.5 x Reserve Price x No. of 10.5 GHz Spectrum Lot(s) in Initial Offer

1.2 In the event that the aggregate value of all Valid Bids submitted by a Bidder in a Round equals or exceeds the Initial Guaranteed Amount of the Bidder, an Additional Bank Guarantee for the same amount as the Initial Guaranteed Amount must be submitted by such Bidder to IDA.

1.3 IDA has the discretion whether to proceed with the Auction. Please refer to Section A.9 of this Information Memorandum for further details.

1.4 If IDA determines that the Auction will proceed, details of the Auction timetable and a list of all Bidders participating will be notified to Bidders. An Information Session and a Trial Auction will be held to allow Bidders to familiarise themselves with the procedures for the Auction. At the Trial Auction the Authorised Representatives will be taken through the Bidding Procedure.

1.5 Only Authorised Representatives will be permitted to attend the Trial Auction and the Information Session on behalf of the Bidder they represent provided that no more than twelve persons attend on behalf of any particular Bidder.

1.6 A timetable showing the expected timing of the Auction and related matters is set out in Section B of this Information Memorandum. Details of the timing and location of the Trial Auction and the Information Session will be provided to Bidders at least one Business Day in advance.

1.7 Auction Framework

1.7.1 The Auction will be conducted in accordance with the Auction Rules. Bidders will participate in the Auction at the Auction Location. During a Session no change will be permitted in a Bidder's Authorised Representatives present at the Auction Location.

1.7.2 In the Auction, all the lots on offer are auctioned simultaneously, rather than in sequence. Each Bidder must specify in its Initial Offer Document the 10.5 GHz Spectrum Lots for which it submits an Initial Offer. There is no cap on the number of 10.5 GHz Spectrum Lots which a Bidder may bid for.

1.7.3 The Auction will consist of a series of Rounds. In the first Round, a Bidder must specify that it will accept the Going Price (which will be the same as the Reserve Price) on one or more of the eight 10.5 GHz Spectrum Lots. For the avoidance of doubt, a Bidder may choose to bid for different number of lots as well as different lots from that specified in its Initial Offer Document.

1.7.4 In each subsequent Round, a Bidder must:

- (a) submit one or more Valid Bids at the Going Price;
- (b) submit one or more Valid Bids at an Exit Price; and/or
- (c) exercise one or more Withdrawals.

1.7.5 For each Valid Bid at the Going Price submitted by a Bidder in an immediately preceding Round, the Bidder must indicate in the subsequent Round:

- (a) that the Bidder wishes to submit a Valid Bid for the 10.5 GHz Spectrum Lot at the Going Price or an Exit Price; or
- (b) that the Bidder wishes to exercise a Withdrawal.

1.7.6 A Valid Bid at the Going Price shall be legally binding until the Bidder exercises a Withdrawal in respect of that Valid Bid. A Valid Bid at an Exit Price shall be legally binding until IDA has provisionally awarded that 10.5 GHz Spectrum Lot to another Bidder.

1.7.7 A Bidder is liable for a Withdrawal Penalty if:

- (a) the total number of withdrawals in respect of all eight 10.5 GHz Spectrum Lots exercised by the Bidder exceeds 24; or
- (b) the Bidder exercises a Withdrawal on a particular 10.5 GHz Spectrum Lot and:
 - (i) no other Bidder submits a Valid Bid in a subsequent Round on the same 10.5 GHz Spectrum Lot but;

- (A) one or more Bidders had submitted Valid Bids at an Exit Price on the 10.5 GHz Spectrum Lot in any preceding Round; or
- (B) no other Bidder had submitted Valid Bid at an Exit Price on the 10.5 GHz Spectrum Lot in any preceding Round;

or

- (ii) one or more Bidders submit Valid Bids in a subsequent Round on the same 10.5 GHz Spectrum Lot but:
 - (A) none of the subsequent Valid Bids are higher than the withdrawn bid (irrespective of whether the subsequent Valid Bids are also withdrawn); and
 - (B) the successful bid price on the 10.5 GHz Spectrum Lot at the close of the Auction is less than the withdrawn bid.

1.7.8 The Withdrawal Penalty is an amount that shall be calculated as follows:

- (a) in the case of paragraph (a) above, it shall be the sum of \$50,000;
- (b) in the case of paragraph (b)(i)(A), it shall be the difference between the value of the withdrawn bid and the Valid Bid with the highest Exit Price;
- (c) in the case of paragraph (b)(i)(B), it shall be the difference between the value of the withdrawn bid and the Reserve Price; and
- (d) in the case of paragraph (b)(ii) above, it shall be the difference between the value of the withdrawn bid and the value of the next subsequent highest Valid Bid (irrespective of whether the next subsequent highest Valid Bid is withdrawn or is the successful bid price).

1.7.9 The length of each Round and the break between Rounds will be determined by IDA. Each Round will be no less than ten minutes and the break between Rounds will be no less than ten minutes.

1.7.10 The Going Price in the first Round will be the same as the Reserve Price. The Going Price in subsequent Rounds will be notified before the start of each Round. The Bid Increment in a Round will be up to twenty-five per cent of the Going Price in the immediately preceding Round, as IDA may determine in its sole discretion.

1.7.11 Before the start of each Round, Bidders will be notified of, amongst other things, the Valid Bid(s), Exit(s) or Withdrawal(s) for each specific 10.5 GHz Spectrum Lot in the immediately preceding Round. The Auction will be closed the first time a Round ends during which there is only one or no Valid Bid submitted for each 10.5 GHz Spectrum Lot.

1.7.12 The Auction will close simultaneously in relation to all 10.5 GHz Spectrum Lots.

1.8 Results of the Auction

1.8.1 IDA will announce the results of the Auction within two Business Days (or such longer time as IDA deems appropriate which will be no more than four Business Days) of the announcement of the close of the Auction.

1.8.2 10.5 GHz Spectrum Rights will be granted following payment by a Bidder in full of the relevant Base Year Charge and Application and Processing Fee, any Withdrawal Penalty incurred, plus any Forfeitures imposed on the Bidder. If a Bidder fails to pay such amount within the specified period, that Bidder will not be granted a 10.5 GHz Spectrum Right.

1.9 Forfeiture and Exclusion

1.9.1 IDA may determine that a Bidder will forfeit amounts up to the amount of its Bank Guarantee (including any Additional Bank Guarantee) for breaches of the Auction Rules and other conduct prejudicial to the Auction.

1.9.2 Bidders can be excluded from the Auction by notice from IDA in certain circumstances, including collusion between Bidders and conduct prejudicial to the Auction.

2. Bidding Procedure

2.1 The Auction will be conducted using a manual Bidding Procedure. The bidding instructions relating to the Bidding Procedure will be given to all Bidders no later than at the Information Session.

2.2 The Bidding Procedure will make use of messengers who, on behalf of IDA, will collect Valid Bid Forms, Recess requests and written messages from Authorised Representatives.

2.3 The messengers will also deliver to the Authorised Representatives the information to be notified by IDA to Bidders during the Auction, such as the Round results.

2.4 Envelopes and a sealing mechanism for envelopes will ensure the confidentiality of the information delivered by the messengers. A receipt system will be used to document that a Bidder has submitted an envelope and that a Bidder has received information from IDA.

2.5 A signalling and clock system will remind Authorised Representatives of the start and end of each Round and each Session.

2.6 For purposes of the Bidding Procedure, Authorised Representatives will be supplied with printed forms to be used to submit Valid Bid Forms and request a Recess.

2.7 Valid Bids must be received from Bidders during the relevant Round using the Bidding Procedure. If a Bidder wishes to submit a Valid Bid in a Round, it is the Bidder's responsibility to ensure that it submits its Valid Bid Form to IDA before the end of that Round. Rounds will not be extended to provide extra time. IDA assumes no responsibility for bids not received during the proper time period.

2.8 A Bidder help-desk for queries relating to the Bidding Procedure will be available at the Auction Location during the Auction.

(DISCLAIMER: Neither IDA nor any of its officers or employees or its advisers makes any representation nor warranty (express or implied) nor accepts nor will accept any responsibility or liability whatsoever as to, or in relation to, any errors resulting from or relating to the Bidding Procedure. In no event shall IDA or any of its officers or employees or its advisers be liable for any damages whatsoever resulting from or relating to the existence, furnishing, functioning or use of the Bidding Procedure. No obligation or liability whatsoever on the part of IDA or its officers or employees or its advisers will arise from the advice or service provided in connection with the Bidding Procedure.

Bidders are solely responsible for ensuring the security of their bids and that only their Authorised Representatives submit bids on their behalf. Neither IDA nor any of its officers or employees or its advisers will accept any responsibility or liability whatsoever for any of these matters.)

2.9 Auction Location Site Logistics

2.9.1 The Auction will be held at the Auction Location. Prior to the Information Session, IDA will notify Bidders of the address of the Auction Location and the procedures relating to access to the Auction Location.

2.9.2 At the Auction Location, each Bidder will have a separate bidding room. Only a Bidder's Authorised Representatives will have access to that Bidder's bidding room, and the Authorised Representatives will be permitted to lock the bidding room at the end of each Session.

2.9.3 The Authorised Representatives will only be allowed to gain access to the Auction Location shortly before the beginning of a Session. The Authorised Representatives will only be allowed to be present in their respective bidding rooms during a Session and in the period between a Morning Session and an Afternoon Session, where these Sessions are on the same Business Day. Bidding rooms will be cleaned only in the presence of the Authorised Representatives.

2.9.4 The Authorised Representatives will be able to communicate with the Bidder they represent from the Auction Location. For such purposes, the bidding rooms will have installed telephone lines, and in addition Authorised Representatives may use their own mobile telephones and fax machines. The Authorised Representatives will be permitted to fax to the Bidder they represent the Round result information received from IDA as well as copies of the Valid Bid Forms and Recess requests they submit to IDA.

2.9.5 Each Bidder's bidding room will be equipped with the following:

- (a) two telephone lines;
- (b) two desks; and
- (c) six chairs.

2.9.6 In addition, a Bidder will be allowed to equip its bidding room with the following equipment (which must be provided by the Bidder at the Bidder's cost):

- (a) mobile telephones;
- (b) personal computers;
- (c) laptop computers;
- (d) fax machines;

- (e) photocopiers;
- (f) encryption devices; and
- (g) flip charts.

2.9.7 The Bidders and their Authorised Representatives may only bring other equipment or communication or electronic devices to the Auction Location with the prior approval of IDA.

2.9.8 Any equipment (other than mobile telephones and laptop computers) to be provided by a Bidder in the Bidder's bidding room, including any hardware or software to be installed on such equipment, must be installed prior to the Auction Start Date, and such installation will be co-ordinated and supervised by IDA.

2.9.9 Further details regarding the Auction Location site logistics for the Auction will be provided no later than at the Information Session for the Auction.

(D) THE REGULATORY REGIME IN SINGAPORE

1. The Regulatory Authority

1.1 IDA is the authority in charge of regulating the information and communication technology industry in Singapore. IDA is a statutory board under the purview of the Ministry of Information, Communications and the Arts.

2. Relevant Legislation

2.1 There is various legislation and subsidiary legislation that is relevant to 10.5 GHz Spectrum Rights. Parties interested in being granted a 10.5 GHz Spectrum Right should ensure that they familiarise themselves with such legislation and seek independent legal and other appropriate advice in respect of such legislation.

2.2 The relevant legislation includes (but is not limited to):

- (a) the IDA Act;
- (b) the Telecommunications Act; and
- (c) the Telecommunications (Radio-communication) Regulations.

2.3 There are also various codes of practice governing the field of telecommunications, which include (but are not limited to):

- (a) the Telecom Competition Code 2005; and
- (b) the Code of Practice for Info-Communications Facilities in Buildings (“COPIF”).

3. The IDA Act

3.1 The IDA Act sets out the functions and powers of IDA with regard to the licensing and regulation of telecommunication systems and services in Singapore.

4. The Telecommunications Act

4.1 The Telecommunications Act is the primary legislation relating to telecommunications. The Telecommunications Act empowers IDA to grant licences for the provision of telecommunication services and to regulate the telecommunication industry in Singapore. It also authorises IDA to make regulations governing the classes of licences to be granted by IDA and the conditions for their grant, as well as the control and regulation of interference by radiowaves, electrical and other telecommunication means in Singapore. Offences and penalties relating to the unlawful operation of telecommunication systems or services are also stipulated in the Telecommunications Act.

5. The Telecommunications (Radio-communication) Regulations

5.1 The Telecommunications (Radio-communication) Regulations was gazetted on 2 March 2001 and came into force on that date in place of the repealed Radio-Communication Regulations (which was gazetted in August 1994).

5.2 The Telecommunications (Radio-communication) Regulations set out the regulatory framework by which IDA exercises licensing and regulatory functions in respect of the allocation, management and use of radio frequency spectrum in Singapore.

5.3 All Bidders participating in the Auction should familiarise themselves with the Telecommunications (Radio-communication) Regulations.

6. The Telecom Competition Code 2005

6.1 The Telecom Competition Code first came into force on 29 September 2000. On 18 February 2005, IDA issued a revised Telecom Competition Code 2005, which will come into effect on 4 March 2005. The Telecom Competition Code 2005 sets out a comprehensive regulatory framework for the development of fair and effective competition in the telecommunication industry in Singapore.

6.2 The licensing framework adopted by IDA under the Telecommunications Act, for providing telecommunication services, is divided into the following categories of licensees:

- (a) Facilities-based licensees;
- (b) Services-based licensees;
- (c) Telecommunication equipment dealer licensees; and
- (d) Self-provisioning licensees.

6.3 The Telecom Competition Code applies to the categories of licensees listed in (a), (b), and (c) above, albeit to varying degrees in recognition that certain licensees should be obliged to comply with more stringent obligations by virtue of the extent of their control over the market.

7. COPIF

7.1 The COPIF came into effect on 15 September 2000 and sets out detailed specifications and guidelines for telecommunication facilities in buildings to ensure that architects and construction professionals include in new and re-furnished buildings adequate in-building cabling facilities and space required for the operation of installations and plants used by the public telecommunication licensees and telecommunication system licensees in providing info-communication services to building occupants.

7.2 The Telecom Competition Code and COPIF are available on the IDA website.

(E) QUERIES

1. All queries relating to this Information Memorandum and/or the Auction should be made in writing and delivered by hand or sent by fax directly to IDA to be received by IDA no later than 6.00pm on 9 January 2008. All queries should be addressed to the following person and sent to the following address:

Info-communications Development Authority of Singapore
8 Temasek Boulevard
#14-00 Suntec Tower Three
Singapore 038988
Fax No: (65) 6211 2116

For the attention of: Mr Andrew J. Haire

All queries should be marked: 10.5 GHz Spectrum Rights Auction Queries

2. Please note that all queries must be made in writing. No responses will be given to verbal queries. An electronic version must also be sent by e-mail to phau_hui_hoon@ida.gov.sg. IDA is under no obligation to respond to any queries made. IDA may publish any queries and the answers provided on its website at <http://www.ida.gov.sg>. The identity of the party raising the query will not be published.

3. Any party considering participating in the Auction should not assume that their application to participate in, their participation in, or the results of, the Auction will be kept confidential. Queries raised by any party must be made in accordance with this Information Memorandum and the Auction Rules. IDA may also publicly announce information relating to the Auction and/or the award of 10.5 GHz Spectrum Rights either during or following the close of the Auction or the relevant procedure, without consulting any interested parties.

SCHEDULE 1

Technical Guidelines for deployment of P2P and P2MP radio systems in the 10.5 GHz Band

1. General

These guidelines are provided to assist operators with the co-existence and co-ordination of their P2P and P2MP radio systems in the 10.5 GHz band. Operators are encouraged to take into account these guidelines, as well as implement further enhancements to suit their particular network deployment.

These guidelines may be subject to further review and revision.

2. Emission Limits

Operators should attenuate the power of any emissions outside of their frequency band of operation below the transmitter power (P) measured in watts. For base stations and mobile stations, the attenuation should be not less than $43 + 10 \log (P)$ dB at the channel edge based on a resolution bandwidth of 1 MHz or greater.

When an emission outside of the operator's authorised bandwidth causes harmful interference, greater attenuation than specified in this section may be required.

3. Signal Strength Limits

At any location on the border of an operator's geographical service area, the predicted or measured median field strength should not exceed 47 dB μ V/m. This field strength is to be measured at 1.5 meters above the ground over the channel bandwidth.