

**CLARIFICATION OF QUERIES RELATING TO THE INFORMATION
MEMORANDUM FOR THE AUCTION OF LMDS SPECTRUM RIGHTS
RELEASED ON 17 AUGUST 2001**

Terms and expressions used in IDA's responses are defined in the Auction Rules as set out in Appendix 1 to the Information Memorandum issued by IDA on 17 August 2001. The Auction Rules relate to the procedures by which IDA may grant or allocate the LMDS Spectrum Rights.

General

Q1. *Currently URA imposes microwave path registration fees on microwave operators in Singapore. Will LMDS equipment be governed by this policy?*

IDA's Response: As such charges are imposed and administered by URA, please clarify this with URA.

Q2. *Will operators who are successful at the Auction be expected to commit to a rollout schedule for LMDS services?*

IDA's Response: Section A.13 of the Information Memorandum states that successful Bidders in the Auction seeking to provide communication services will be required to apply for an FBO Licence within 30 Business Days of the provisional award of an LMDS Spectrum Right (if they are not already a holder of an FBO Licence). Section A.13 of the Information Memorandum also refers to the IDA website, where under "Guidelines for Facilities-Based Operators", Section 3.7 states that "IDA will require the FBO licensees to rollout their networks and provide services in accordance with their offers and proposals as stated in their applications". Successful Bidders will therefore be committed to such proposals, including where applicable, rollout schedules, stated in Schedule 3 of their FBO Licences. Successful Bidders who are already holders of FBO Licences will also need to submit their proposed rollout schedules for IDA's approval. The relevant schedules of their FBO Licences and performance bond(s) will be amended accordingly where appropriate.

Q3. *IDA's Information Memorandum does not mention whether IDA intends to impose any QoS for LMDS. We feel that imposition of a QoS is not required since LMDS is merely a transport layer. We would like to seek IDA's clarification on this.*

Q4. *Further to Question 3, IDA is aware of the various factors affecting LMDS e.g. rain attenuation. We would therefore like to clarify how IDA intends to reconcile the QoS for services (e.g. mobile, DLCs) which utilise LMDS and those that are wired since it*

would be clear that an operator which uses LMDS as a transport system will not be able to achieve the same QoS as a wired system.

IDA's Response: IDA sets both network and service provisioning quality of service ("QoS") standards that licensed operators are required to comply with. These QoS standards are outlined in the IDA website under the subject "Quality of Service". While there is no network QoS set for LMDS, IDA will require that successful Bidders comply with the specific QoS standards set for the various services should they choose to use LMDS technology platforms to provide such services.

Q5. *Will IDA consider a shift in the payment window of the auctioned price in supporting the operators for their efforts in deploying a new technology?*

Q6. *Will IDA consider a profit sharing scheme with the operators if the deployment or business is successful?*

IDA's Response: No. It should be noted that the payment for the seven-year LMDS Spectrum Right is already structured to be payable on an annual basis instead of a one-time upfront payment. Operators will also have to pay their annual FBO Licence fee.

This is different from the earlier payment structure announced on 30 November 2000 where the payment is one-time and upfront. This was changed as Annual Charges will pose less of a financial burden on operators than a one-time upfront payment.

Q7. *Is there any grant or subsidy applicable to successful bidders as in DSL schemes in the past, where IDA subsidizes the DSL rollout?*

IDA's Response: No. IDA had earlier providing funding assistance for DSL and cable modem rollout to accelerate deployment of broadband networks in Singapore. The Government's objective has since been achieved.

Information Memorandum

Section 1: Local Multipoint Distribution Services (LMDS)

Q8. *Can the frequency allocated at the LMDS auction be used for the provision of point-to-point services or must the frequency only be used for point-to-multipoint communications? We understand that some equipment can be used for the provision of both types of services (via the same equipment). In such a situation, will the operator be expected to pay additional frequency fees if the frequency is to be used for the provision of point-to-point services (in addition to the LMDS annual fees)?*

Q9. *Can the spectrum allocated at the Auction be used to operate a virtual fixed network?*

IDA's Response: The frequency bands allocated under the Auction may be used to operate any communication network or provide any communication service, provided that LMDS technology is deployed.

Section 4: Spectrum Available at the Auction

Q10. *IDA has indicated that "IDA will determine the specific frequency bands of the LMDS spectrum Lots" and "will endeavour to allocate the LMDS Spectrum Lots so as to maximise spectrum efficiency". We feel that IDA should consider the future spectrum requirements of an operator in their allocation. Should an operator be allocated frequency at one end of the LMDS spectrum at the present auction, it may not be able to use its frequency efficiently if, in subsequent auctions, IDA is unable to allocate it the frequency that is adjacent to its initial allocation. We seek IDA's views on this.*

IDA's Response: In determining the specific frequency bands allocated to each successful Bidder, IDA will take overall spectrum efficiency and optimisation into consideration.

Template LMDS Spectrum Right

Section 12: Operation of Systems, Radio-communication Stations and Equipment

Q11. *IDA has imposed a 50m AMSL height restriction on transmitter antennae. However, given the line-of-sight requirement for LMDS and the fact that developers are constructing taller buildings even for residential use (e.g. HDB), it would be fairly easy to exceed this height restriction. This will have an impact on the usefulness of LMDS and also on the business case of potential operators. We would therefore like to seek IDA's views on the possibility of increasing this height restriction.*

IDA's Response: The general building height profile in Singapore is 50m AMSL. IDA is prepared to assess, on a case-by-case basis, requests for higher height installations by operators, taking into consideration the steps that operators will take to ensure that such installation will not cause interference to, or receive interference from, any other telecommunication systems, whether operating within or outside Singapore.

Auction Rules

Q12. *Can a Licensee that puts in an Initial Offer for say 4 lots, only submit Valid Bids for less than 4 lots i.e. 3 lots or less, in the first Round?*

IDA's Response: No. As stated in the Section 7.4.1 of the Auction Rules, in the first Round, a Bidder must submit a Valid Bid Form specifying Valid Bids at the Reserve Price on the same number of LMDS Spectrum Lots as was specified in that Bidder's Initial Offer. No Waiver can be exercised in the first Round.