

7 July 2015

FACT SHEET: Second Public Consultation on the Proposed Framework for the Allocation of Spectrum for International Mobile Telecommunications (“IMT”) and IMT-Advanced Services and for the Enhancement of Competition in the Mobile Market

IDA first sought views through a public consultation on 22 April 2014 on the suitability, timeframes and technical issues regarding the allocation of radio spectrum for mobile broadband services. Spectrum resources are used for the provision of mobile services such as 3G and 4G services. With increasing demand for mobile data services, optimal use of scarce spectrum resources is important to ensure continued investment, growth and innovation in the mobile sector.

IDA also sought views on possible approaches to promote competition in the mobile market by facilitating the entry of new mobile player(s). The aim was to enhance the vibrancy of the mobile and wireless landscape in Singapore with further competition, for the benefit of consumers.

The responses received from the industry showed strong interest in the under 1 GHz spectrum bands (e.g. 700 MHz, 900 MHz) due to the good signal propagation characteristics of such bands. Some respondents also supported the allocation of the above 1 GHz spectrum bands, such as the 2.3 GHz and 2.5 GHz bands, as these bands could be used as a capacity layer to provide higher data throughput. Responses on mobile market competition included suggestions to level the playing field for a new mobile network operator, such as setting aside up to 120 MHz of spectrum for the new entrant, regulating roaming on existing mobile operators’ networks, and regulating access to sites to deploy mobile networks. The framework for enhancing mobile market competition should also facilitate the entry of Mobile Virtual Network Operators (“MVNOs”) into the market. Incumbent mobile network operators were of the view that the market was mature and competitive and that IDA should let market forces determine the entry of new mobile players instead of using regulatory intervention.

After taking into account the responses received from the public consultation as well as international developments in spectrum use, IDA proposes to allocate a total of 225 MHz of spectrum via auction. The spectrum to be allocated will consist of those in the 700 MHz band, which is the spectrum to be freed up upon the switching off of analogue TV signals (or digital switch over) (“ASO”), as well as the 900 MHz, 2.3 GHz and 2.5 GHz bands. The long-term spectrum rights for these bands will last approximately 12 to 16 years, with different commencement dates depending on the spectrum bands. The spectrum rights for the 700 MHz band will start in 2018 at the earliest, but given that the ASO process in our region is still in progress, IDA will

build mechanisms in the spectrum auction framework to allow for the alignment of the commencement date and the expiry date of the 700 MHz spectrum right in the event of changes to the ASO date. The spectrum rights for the 900 MHz, 2.3 GHz and 2.5 GHz bands will commence on 1 April 2017 (see **Annex A** for more details).

The indicative auction reserve price for the 700 MHz and 900 MHz bands is set at \$20 million per 5 MHz pair, while that for the 2.3 GHz and 2.5 GHz Time Division Duplex (“TDD”) bands¹ is set at \$5 million per 5 MHz block. These reserve prices are based on the intrinsic value of the spectrum bands and international benchmarks. To elaborate, the intrinsic value refers to the economic value of the spectrum arising from technical factors such as its propagation characteristics, applications and the harmonisation of the spectrum internationally, as well as commercial factors such as the expected market demand and market share for each mobile operator. For this spectrum allocation exercise, IDA valued the spectrum in consideration of a four-mobile network operator market.

The public consultation revealed strong interest from new players to enter the Singapore mobile market. Based on IDA’s study of overseas markets that have seen new mobile market entrants and the potential impact that a new mobile network operator could bring to the Singapore market, IDA has assessed that there can be potential benefits such as more competitive and innovative mobile plans for the benefit of consumers in Singapore. For example, IDA noted that the entry of a new mobile network operator, Free Mobile, in France led to the introduction of more competitive mobile price plans. In the United States, Republic Wireless, an MVNO, introduced the concept of paying subscribers for their unused data. In view of these potential benefits and the strong interest from the industry, IDA has proposed to facilitate the entry of a new mobile network operator and MVNOs that can potentially create sustained value and innovation for consumers.

Furthermore, IDA recognises that network investment is important for all mobile network operators. IDA’s study found no conclusive evidence that the entry of new operators led to depressed capital investments in the mobile sector. Some international examples found that the entry of a new operator may even incentivise incumbent mobile operators to invest in infrastructure upgrades. In addition, regulatory obligations such as the Quality of Service (“QoS”) standards imposed by IDA on mobile operators will require the mobile operators to continue to invest in high quality networks to ensure that consumers can benefit from increased competition.

¹ A mobile connection includes an uplink and downlink connection for the purpose of transmitting and receiving data respectively. Unlike a Frequency Division Duplex network where data is transmitted and received on 2 different radio frequencies simultaneously, data is transmitted and received over the same radio frequencies at different time intervals for a TDD network.

In developing the framework to facilitate the entry of a new mobile operator, IDA took into account the key factors that would impact the viability of the market to support a new entrant. These included a new mobile operator's ability to compete in an open auction with the incumbent players, and the significant upfront capital investments required by the new entrant to build a nationwide network. IDA also recognises that in order for the new mobile network operator to deploy a nationwide network to compete effectively in the mobile market, it will require access to a combination of high and low frequency spectrum bands.

Hence, IDA proposes to facilitate the entry of one new mobile network operator by setting aside 60 MHz out of the 225 MHz of spectrum in an auction opened only to potential new entrants (also see **Annex A** for more details). In addition, IDA proposes to set a lower reserve price for the auction of this spectrum set-aside package, at an indicative reserve price of S\$40 million.

The new mobile operator will be held to certain obligations to ensure that it will offer services that will be in the consumers' interests. These include achieving nationwide coverage by end September 2018. The new mobile operator will also be required to meet IDA's QoS standards and resiliency requirements in phases. While the incumbent mobile network operators will not be required to offer mandated roaming access to the new entrant, they must provide interconnection and mobile number portability, as well as access to common antenna systems, to the new entrant.

In summary, IDA's proposed facilitation framework focuses on lowering the entry barriers for a new mobile network operator, and upon entry, the new entrant is expected to deploy its network quickly to compete in the market and provide quality, resilient services. IDA believes that this is a balanced and proportionate approach in facilitating the entry of a new entrant, while preserving incentives for the market players to invest and compete to bring about sustained benefits for consumers.

IDA also welcomes the entry of MVNOs, which can control and package their own service offerings, as they may also bring about sustained value and innovative services to benefit consumers. Therefore, IDA proposes to publish negotiation principles to facilitate mobile network operator-MVNO wholesale access negotiations. The principles broadly cover the technical and commercial service level agreement, and the pricing structure for wholesale access.

The public consultation will begin today, 7 July 2015, and will close on 12 August 2015.

ANNEX A

List of spectrum bands to be allocated in the next auction

		700 MHz	900 MHz	2.3 GHz TDD	2.5 GHz TDD
Long-term spectrum rights	Frequencies	703-748 MHz/ 758-803 MHz	890-915 MHz/ 935-960 MHz	2300-2330 MHz	2570-2615 MHz
	Amount of spectrum	90 MHz (2 x 45 MHz)	50 MHz (2 x 25 MHz)	30 MHz	45 MHz
	Expected start date of spectrum right	2018 at the earliest	1 April 2017		
Short-term spectrum rights²	Frequencies	-	882-887 MHz/ 927-932 MHz	-	-
	Amount of spectrum	-	10 MHz (2 x 5 MHz)	-	-
	Expected start date of spectrum right	-	1 April 2017	-	-

Spectrum set-aside for new mobile network operator (out of the list of spectrum bands in the table above)

² The frequencies in this band are part of the Extended GSM (“EGSM”) band. Given that the Singapore-Malaysia High Speed Rail (“HSR”) is considering a communication system that operates in part of the EGSM band, and that the long-term availability of the EGSM band is dependent on the mitigation of cross-border interference, IDA has decided to allocate the EGSM band on a short-term basis while awaiting the outcome of the above-mentioned activities.

		700 MHz	900 MHz	2.3 GHz TDD	2.5 GHz TDD
Spectrum set-aside	Amount of spectrum	20 MHz (2 x 10 MHz)	20 MHz (2 x 10 MHz)	20 MHz	-
	Expected start date of spectrum right	2018 at the earliest	1 April 2017		-