CONSULTATION PAPER ISSUED BY THE
INFO-COMMUNICATIONS DEVELOPMENT AUTHORITY OF SINGAPORE

PROPOSED AMENDMENTS TO THE TELECOMMUNICATIONS (RADIO-COMMUNICATION) REGULATIONS

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PART I: INTRODUCTION AND OVERVIEW OF CONSULTATION

1. The Telecommunications (Radio-Communication) Regulations ("Regulations") set out the procedures and conditions under which radio frequencies in Singapore are allocated for use. There are broadly two main instruments by which radio frequency spectrum (or "spectrum" in short) is allocated – through the grant of spectrum rights or through the grant of network or station licences. The Regulations also include provisions on the conditions of use of radio frequencies, and the fees payable for the use of radio frequencies – such as the fees for station and network licences, the application and processing fees for radio frequency allocation and the annual fees for radio frequency use. Provisions relating to the penalties applicable for breaches of conditions of the spectrum rights and network or station licences are also included.

2. With consumers and businesses becoming increasingly reliant on wireless and mobile communications, the demand for radio frequency spectrum is expected to rise exponentially. The International Telecommunication Union ("**ITU**") had earlier reported that the demand for mobile data services has grown significantly, and that this growth is estimated to continue to be strong, with an increase of 2 to 4 times between 2015 and 2020[1]. IDA has also seen a growing demand for Singapore's spectrum resources, and estimates that between 1GHz and 2GHz of spectrum may be required to deliver commercial mobile services by 2020. Therefore, it is timely and essential to review and update the existing spectrum allocation and governing frameworks, to ensure that scarce spectrum resources continue to be allocated efficiently, used optimally to meet the growing and competing demands, and also protected from interference.

3. As part of the review, IDA is proposing amendments to the following segments of the Regulations:

a) Pricing frameworks for radio frequencies;
b) Shared use of radio frequencies; and
c) Amendments for consistency and reducing regulations.

4. IDA would like to seek views and comments on these proposals, as set out in detail below.

[1] According to the ITU M.2290-0 report, ITU estimates that the total spectrum requirement for International Mobile Telecommunications ranges between 1340 and 1960 MHz for the year 2020.

PART II: PRICING FRAMEWORKS FOR RADIO FREQUENCIES

Administrative Cost-based Pricing

Background

5. As radio frequency spectrum is a scarce resource, IDA needs to manage and regulate its use, to ensure that spectrum is allocated efficiently and used optimally to meet the increasing demands for wireless and mobile communication services and to maximise its benefits to the society. Under IDA's Spectrum Pricing Framework, IDA has adopted the following two approaches for the allocation of spectrum:

a) For spectrum with competing uses and where the demand for the spectrum exceeds the supply (e.g., the International Mobile Telecommunications bands), IDA currently allocates such spectrum through auctions. This allows the market to allocate the spectrum to the parties who value the spectrum the most; and

b) For spectrum where the supply exceeds demand or where auction is not considered appropriate, IDA currently allocates such spectrum administratively on a first-come-first-served basis, and imposes administrative fees for the allocation and use of the spectrum to cover the costs incurred in managing the spectrum[2], under the Administrative Cost-based Pricing ("**ACP**") framework.

6. IDA has reviewed the ACP framework to promote more efficient allocation and optimal use of spectrum, particularly for situations where the demand for spectrum exceeds supply but where auction is not considered appropriate.

Review of Pricing within the ACP Framework

7. The majority of spectrum in Singapore is currently allocated on an administrative basis, and the cost-based prices for such administrative allocation are prescribed within the Regulations and have remained largely unchanged since the introduction of the Regulations in 1994. In consideration of the changing demand for spectrum, IDA views it is timely to review the ACP framework, to ensure that it remains relevant in meeting IDA's policy objectives.

8. The ACP framework comprises two main components - an Annual Frequency Management Fee ("**AFM fee**") and a one-time Application & Processing Fee ("**A&P fee**")[3]. The current ACP framework varies the fees broadly based on the amount of spectrum allocated and whether the spectrum is for shared or exclusive use. See **Annex 1** for details on the fees. The fees do not make finer differentiation to take into account frequency re-usability within shared bands (e.g., frequency bands for wider area uses such as Public Mobile Radio ("**PMR**") and those for more localised fixed link

[2] These include costs for general spectrum management tasks such as planning, technical assessments, coordination within Singapore and at regional and international fora, and monitoring activities.

[3] Typically, the AFM fees are payable upon issue or annual renewal of licences, while A&P fees are payable upon application or modification of technical operational parameters unless otherwise specified by IDA.

uses), technology developments and spectrum characteristics to further promote more efficient use of spectrum.

9. Going forward, IDA believes that it is necessary for the ACP to adopt the following pricing principles:

a) Differentiation between spectrum in the higher and lower frequency bands
As the lower frequency spectrum below 1GHz provides better propagation and wider coverage area, there is a higher demand for frequency bands in such spectrum. While IDA will continue to adopt a cost-recovery principle in the overall pricing of administratively allocated spectrum, in terms of pricing the specific spectrum bands, there is a need to adjust the ACP framework to take into consideration the characteristics of the spectrum when deriving the AFM fees. This is to encourage the use of higher frequency bands especially for wide-band services deployment.

b) Differentiation between exclusive and shared use of spectrum
Currently, the ACP framework does not differentiate between the fees for exclusive and shared use of spectrum below 25kHz bandwidth. To encourage frequency sharing, IDA is of the view that there is a need for the fees for these two different modes to be further differentiated to better reflect the increased efficiency in the use of frequency spectrum.

c) Differentiation based on characteristics of spectrum and spectrum management effort
The current ACP framework does not differentiate between different characteristics of the spectrum, such as the propagation range and coverage area, and the resulting difference in resources needed to manage issues such as radio frequency interference. There is thus a need for the fees to differentiate between the different characteristics of the spectrum.

Revision to Pricing within the ACP Framework

10. IDA will maintain the concept of cost-based charging to recover the administrative costs that IDA incurs in managing the spectrum. IDA is proposing a revision to the charging formula or mechanisms to distribute the administrative costs incurred, which will better address the identified issues in paragraph 9. Under the revised framework, it is estimated that over 97% of licensees will see either a decrease or no change in fees payable.

11. Similar to the current ACP framework, there will be two fee components in the proposed new structure:

a) a one-time A&P fee set at a flat rate of $300 per application (see Table 1.1); and

b) an AFM fee to cover spectrum management[4] (see Tables 1.2 and 1.3).

[4] The AFM fees may be subject to minor variation, depending on timeline needed for the ACP framework to be gazetted.

12. The proposed revised ACP framework will continue to have the fees prescribed in the Regulations, but the AFM fees chargeable will vary depending on the following key components:

a) Fees will be charged proportionately to the quantity of spectrum allocated to licensees and will vary based on frequency bands. For instance, the fees will be lower for smaller spectrum bandwidth usage. Fees per MHz will also be lower at higher frequency bands to encourage the use of these bands due to fewer congestion issues;

b) Fees will be charged according to the level of reusability to further reflect the different efficiencies in the use of spectrum. Lower fees will be charged for spectrum bands that allow greater sharing of spectrum (e.g., for spectrum bands for localised use and that allow co-existence with other spectrum users), while higher fees will be imposed for exclusive use of spectrum (e.g., for island-wide coverage). For example, spectrum used to provide fixed link, point-to-point services will be charged at a lower rate compared to spectrum allocated for exclusive use island-wide; and

c) Fees will be charged according to the different characteristics of the spectrum, such as the propagation range and coverage area, which also represent the different levels of usage and effort involved in spectrum management such as radio monitoring and frequency interference management. For instance, spectrum allocated to provide wide area coverage will tend to result in greater exclusivity in usage and greater spectrum management effort, and thus will face higher charges.

The above factors will be taken together when determining the fees to be charged to a licensee when IDA assigns spectrum to the licensee for certain uses under the proposed ACP framework.

13. Based on the above pricing concept, the proposed revised ACP framework will comprise a flat rate for the A&P fee of $300 per application, and an AFM fee which will be varied with the following key parameters: (a) quantity of spectrum and frequency bands in which spectrum is allocated; (b) level of reusability; and (c) characteristics of spectrum. More details are shown in the following tables.

Table 1.1: Proposed A&P Fees under the Revised ACP Structure

Service Type	Frequency Band	A&P Fees (S$)				
		*Tier 1	*Tier 2	*Tier 3	*Tier 4	*Tier 5
All Services	All Bands	$300				

Table 1.2: Proposed AFM Fees under the Revised ACP Structure (Exclusive)

Service Type (Exclusive Usage)	Frequency Band	Fixed AFM Fees (S$)				
		*Tier 1	*Tier 2	*Tier 3	*Tier 4	*Tier 5
Broadcasting	All Bands	400	800	12,100		
Fixed		400	1,100	2,900	7,700	10,700
Private Mobile		400	500	9,200	29,800	44,500
Public Mobile		7,700 (per 5MHz channel or part thereof)[5]				
Open Category		400	1,100	15,100	29,800	44,500

Table 1.3: Proposed AFM Fees under the Revised ACP Structure (Shared)

Service Type (Shared Usage)	Frequency Band	Fixed AFM Fees (S$)				
		*Tier 1	*Tier 2	*Tier 3	*Tier 4	*Tier 5
Fixed	Below 10GHz	300	400	800	1,800	2,400
	10 – below 15.7GHz	300	400	500	900	1,200
	15.7 - 21.2GHz	300	400	500	700	900
	Above 21.2GHz	300	400	500	600	700
Radiodetermination (Non-Aeronautical)	Below 3GHz	300	400	1,800	3,200	4,700
	3 - 5.85GHz	300	400	1,000	1,800	2,500
	Above 5.85GHz	300	400	700	1,000	1,400
Satellite (GeoStationary Orbit)	All Bands	300	400	700	1,000	1,600
Satellite (Non-GeoStationary Orbit)		300	400	1,500	2,800	4,700
Private Mobile		300	400	2,500	7,600	11,300
Radiodetermination (Aeronautical)		300	400	2,100	4,000	5,800
Open Category		300	500	4,000	7,700	11,300

*Note: Definition of Tiers

Tier 1	Bandwidth ≤ 25kHz	Tier 4	10MHz < Bandwidth ≤ 20MHz
Tier 2	25kHz < Bandwidth ≤ 500kHz	Tier 5	Bandwidth> 20MHz
Tier 3	500kHz < Bandwidth ≤ 10MHz		

Question 1:
IDA invites views on the proposed revised ACP framework.

[5] For technical reasons, the channel allocation for Public Mobile services is usually based on a 5MHz channel bandwidth per lot.

Administrative Incentive Pricing

Background

14. Administrative Incentive Pricing ("**AIP**") is a radio frequency pricing methodology that aims to encourage more efficient use of radio frequency bands that are in high demand but assigned administratively. This methodology may be considered for spectrum bands where market-based allocation mechanism via auction is not appropriate due to larger national, public interests and social considerations, and/or the presence of international regulatory requirements and equipment standards. For example, certain spectrum bands, such as the private trunked radio bands, where there is substantial demand from both the public and private sector users for the provision of communication services that are mission critical, may not be suitable for allocation via an auction mechanism.

15. The AIP thus provides a means by which administratively assigned spectrum may be priced to reflect more closely the market value of the spectrum used. This means that if the spectrum is in heavy demand, even though the spectrum may be assigned administratively instead of via an auction, the AFM fee may be priced higher than the cost-based fees imposed for other administratively assigned spectrum. The objective is to reflect the opportunity costs associated with such spectrum, and send the appropriate signals to the users so that they will consider carefully the value of the spectrum they use and make decisions that optimise the use of the spectrum. In this way, AIP can help to reduce the hoarding of such spectrum and promote the efficient use of congested spectrum. IDA will consult the industry separately when the spectrum bands for AIP application are identified.

International Experience

16. In the United Kingdom ("**UK**"), AIP was introduced under the Wireless Telegraphy Act since 1998 with the objective of promoting greater efficiency in the use of spectrum. The prices set were based on the value of the "least cost alternative" approach[6]. This involves calculating the cost savings (or increase in cost) to a "typical" user from having access to more (or less) spectrum. The additional cost (or cost savings) depends on the application and is calculated as the estimated minimum cost of the alternative actions facing the user. AIP was initially applied to spectrum use in congested bands such as the fixed links and the Public and Private Mobile services. Since 1998, AIP has been extended to other services.

17. Besides the UK Office of Communications ("**Ofcom**"), there are other administrations using AIP for spectrum use in congested bands. For example, the Australian Communications and Media Authority has introduced AIP to the services in the 400MHz band.

[6] In 1996, Smith-NERA proposed a method called the "Smith-NERA" Method for calculating opportunity costs making use of the least cost alternative to emphasise the opportunity cost of assigning more or less spectrum to users. In addition, Smith-NERA suggested that mobile and fixed link prices could in-principle be used to set benchmark prices for other spectrum.

Application of AIP

18. IDA is recommending to apply the AIP to frequency bands[7] where:

a) The demand exceeds or is likely to exceed the supply of spectrum;

b) The spectrum is not appropriate for market-based allocation mechanism via an auction due to national, public interests and social considerations, and/or the presence of international regulatory requirements and equipment standards; and

c) Users are not severely constrained in their use of spectrum by policy or international regulation, e.g., for spectrum that are internationally allocated for aeronautical and maritime safety, the opportunity cost of spectrum is likely to be low or zero suggesting little merit in applying AIP.

19. Once AIP is implemented there are likely to be changes in the use and assignment of spectrum over time. Periodic assessment and recalculation of AIP may therefore be required to ensure the prices correctly reflect the opportunity costs. In general, periodic assessment includes reviewing the demand, degree of spectrum band congestion and feasibility of alternative uses over a certain timeframe.

Question 2:
IDA invites views on the proposed AIP framework, including the situations under which the AIP should be applied.

Methods of Establishing AIP

20. There are three ways to establish the AIP:

a) Using market benchmarks (e.g., auction values);

b) Using international benchmarks (AIP values or spectrum fees in other countries); and

c) Calculating the opportunity cost of the spectrum. This is the amount the marginal user (i.e. user at the point where demand equals supply) would be prepared to pay for the spectrum, which is either the net present value of the normal profits or the cost savings that accrue from buying an additional block of spectrum.

21. Should the opportunity cost method be adopted, the pricing of the spectrum could be estimated by the least cost alternative methodology or by deriving the annualised value of net profits from the use of spectrum[8]. The least cost alternative methodology involves calculating the cost savings that accrue from having access to an additional block of spectrum. These alternatives may include:

[7] AIP might be applied to spectrum originally auctioned, but that has expired and is renewed without an auction, for example, due to refarming of the spectrum bands.

[8] The derivation of the annualised value of net profits is based on rates typical of those used for business planning purposes in the telecommunications sector.

a) Investing in more/less network infrastructure to achieve the same quantity and quality of output with less/more spectrum;

b) Adoption of narrower bandwidth equipment;

c) Switching to an alternative band, service or technology;

d) Identifying the minimum amount of spectrum that could reasonably be added to/taken away from the user;

e) Calculating the additional costs incurred/cost savings if spectrum is reduced/increased; or

f) Calculating the ratio of change in costs to change in spectrum to give the value per MHz.

Question 3:
IDA invites views on the approaches to set AIP values. Please set out the reasons for your views, and any supporting evidence or analysis.

PART III: SHARED USE OF RADIO FREQUENCIES

22. This section discusses the sharing of radio frequencies between users, including licensees, spectrum rights holders and users of equipment which are exempt from licensing.

23. As mentioned in paragraph 5 of Part II, today, IDA adopts a multi-pronged approach in optimising the use of radio frequency spectrum. To recap broadly, in situations where demand for radio frequencies outstrips supply, IDA will adopt a market-based allocation mechanism such as spectrum auctions to allow the market to efficiently allocate scarce spectrum to those who value the spectrum most. In these situations, the frequency spectrum will be allocated via the grant of spectrum rights. In situations where demand is less than supply, IDA will administratively assign the radio frequencies to interested users on a first-come-first-served basis.

24. Increasingly, jurisdictions overseas are exploring measures to encourage shared use of radio frequencies, where feasible, to optimise the use of radio frequencies. For example, Hong Kong's regulator, the Office of the Communications Authority ("**OFCA**"), is reviewing the possibility of shared use of frequency bands, traditionally reserved for government, with the private sector. In the UK, the Ofcom has also recognised the need for a greater emphasis on exploring proactively new forms of spectrum sharing, extending sharing across new bands and studying coexistence challenges associated with changes in spectrum use.

25. With the increasing demand for spectrum, there have been more instances in which radio frequencies are required on a shared-use basis. IDA has already adopted such an approach, by implementing a shared use framework under which users are allowed to operate in the same spectrum bands without interfering with each other (e.g., Wi-Fi and TV White Space). The interference risk is managed either through regulating the equipment transmission power limits (e.g., in the case of licence-exempt operation at specified bands)[9] or licence conditions (e.g., to restrict the location of use in the case of licensed shared use)[10]. For spectrum rights grantees, the spectrum rights conditions indicate that grantees are to allow the shared use of the radio frequency spectrum assigned to them, with another operator for short term usage during national events, including the suspension and/or cessation of its operations during such events, to enable such shared use, where directed by IDA. Since the shared use of spectrum is already implemented in practice, it is proposed that Parts III, VI and IX of the Regulations be updated to clarify that IDA may require that radio frequencies assigned under spectrum rights, station/network licences or temporary use permits be shared with another person for short term usage[11]. Such requirements will only be imposed after careful consideration and assessment, to ensure that any impact to existing users, if at all, will be kept to a minimum.

[9] For example, the installation and operation of White Space devices is exempt from licensing, subject to the conditions of operation stipulated by IDA such as operating at specified radio frequency bands and within specified power limits.

[10] For example, IDA currently specifies in certain station/network licences for administratively assigned radio frequencies that the radio frequencies assigned are on a shared use basis.

[11] For example, for national events, and subject to that person obtaining the relevant station/network licence or temporary use permit, as the case may be.

Question 4:
IDA invites views on the proposal to clarify in Parts III, VI and IX of the Regulations that IDA may require that radio frequencies assigned under spectrum rights, network/station licences or temporary use permits be shared with another person for short term usage.

26. The Regulations state that IDA may determine the allocation process and conditions for grant of spectrum rights, and also state the types of conditions that IDA may impose on spectrum right holders[12]. The Regulations also state that a person granted a spectrum right may share or trade the allocated spectrum bands, subject to conditions imposed by IDA.

27. Regulation 12 of the Regulations gives IDA the powers to impose conditions for spectrum right holders to authorise another person to use the radio frequency spectrum assigned[13]. IDA may impose conditions when granting approval for such sharing. IDA will amend the Regulations to make it clearer that spectrum right holders will need to seek IDA's prior approval before sharing spectrum with another person. This will allow greater consistency with regulation 13(2)[14] where IDA's approval is required before spectrum rights holders engage in spectrum trading (for spectrum right holders to assign or deal with the rights and privileges granted under a spectrum right).

Question 5:
IDA invites views on the proposal to clarify in the Regulations that spectrum right holders will need to seek IDA's prior approval for spectrum sharing with another person.

[12] For example, the period of use, the types of services to be provided, the technical conditions related to radio emissions and the payment of charges.

[13] Regulation 12 of the RR states that "(1) Subject to such conditions as the Authority may generally or specifically impose, a person granted a spectrum right may authorise another person to use the assigned radio frequency spectrum, in accordance with the conditions of the grant, for the purpose of operating a station or network subject to that person obtaining a station (spectrum) licence, a network (spectrum) licence or a station (spectrum) class licence, as the case may be. (2) Any person authorised by a person granted a spectrum right to use the assigned radio frequency spectrum under paragraph (1) shall comply with the Act, these Regulations and such other requirements as the Authority may specify".

[14] Section 13(2) of the RR states that "No assignment of or dealing with the whole or any part of the rights and privileges granted under a spectrum right shall take effect until the Authority gives its approval in writing".

PART IV: AMENDMENTS FOR CONSISTENCY AND REDUCING REGULATIONS

28. As part of IDA's efforts to reduce administrative and compliance costs for licensees and to allow more effective use of resources, IDA proposes to further streamline the licensing processes for the Ship Station and Amateur Station Licences. In addition, IDA intends to align the Regulations with the Telecommunications Act ("**Act**") and to provide more clarity on existing regulations, such as clarifying the charging of fees for use of spectrum, decriminalisation of minor offences and alignment of financial penalty provision in the regulations and the Act.

Ship Station Licence

Background

29. The Ship Station Licence is issued by IDA to Singapore-registered ships[15] for the operation of maritime radio-communication equipment on the ships. This is to ensure that the operation of such equipment will be in accordance with the appropriate frequency bands allocated by the ITU for maritime radio-communication to prevent radio interference. Currently, under the Regulations, a Ship Station Licence may be granted by IDA if the following requirements are met:

a) the ship on which the radio station is to be carried has a valid internationally-recognised Safety Radio certificate[16];

b) the radio station is operated by an appropriate number and category of radio operators holding a Certificate of Competency [17] granted under the Telecommunications (Certificates of Competency for Ship Station Operators) Regulations or a competent foreign authority recognised by IDA, except where the vessel is used solely or principally for pleasure;

c) the ship has an Accounting Authority ("**AA**") acceptable to IDA; and

d) the ship complies with such other requirements as may be determined by IDA from time to time.

Streamlining of Licence Processes

30. Currently, under the Merchant Shipping (Safety Convention) Regulations administered by the Maritime and Port Authority ("**MPA**") of Singapore, the installation of radio equipment in all passenger ships and cargo ships of 300 gross tonnages and upwards is to be:

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[15] Applicants of ship station licence need to submit the Ship Registry Certificate issued by the Maritime and Port Authority of Singapore.

[16] Under the relevant requirements specified under the International Convention for the Safety of Life at Sea, the radio installation of all passenger ships and cargo ships of 300 gross tonnages and upwards must be surveyed and verified by officers of the flag State Administrations or Recognising organisations/surveyors nominated for the purpose in order to be issued certificates which establish their compliance with the requirements.

[17] A certificate issued or recognised by IDA for a qualified person to operate the radio installation on board the vessel.

a) surveyed by a qualified ship radio surveyor or an authorised organisation, and the Safety Radio certificate issued by MPA if the ship radio installation complies with the relevant requirements specified under the International Convention for the Safety of Life at Sea of the International Maritime Organisation; and

b) manned by a qualified radio operator.

31. Based on the above requirements, ship owners have to submit a copy of the Safety Radio Certificate to MPA for verification when applying for the registration of the ship under the Singapore flag. A Ship Registry Certificate will be issued by MPA for the ship registration. The ship owners also need to provide the relevant certificates of their ship crews' qualifications including the radio operators' Certificate of Competency when submitting the crew agreement[18] to MPA. The ship will not be allowed to set sail if the crew agreement is not submitted to MPA. As the two documents (Safety Radio Certificate and radio operator's Certificate of Competency) need to be submitted by the ship owners to MPA for verification, it is not necessary for IDA to duplicate the process by requiring such supporting documents for the application of the Ship Station Licence. IDA will therefore accept the licence application based on the Ship Registry Certificate issued by MPA.

32. A ship's AA[19] acts as a billing intermediary for ship radio traffic charges between a ship station and the coast station providing the telecommunication services. In the past, ships on international voyages sent their telecommunication traffic through the nearest coast stations that provide services to relay ship-to-ship and ship-to-land communications. As coast stations only recognise authorised AAs[20] for the settlement of ship radio traffic charges, ships on international voyages which needed the services from coast stations, would engage an AA to settle their maritime communication bills[21].

33. However, with advances in technology, ships on international voyages nowadays are installed with maritime satellite equipment. As a result, maritime communication charges are settled directly between the satellite service providers and the ship owners. Thus, such ships no longer require services from AAs. In addition, ships which are not on international voyages or do not need to make radio calls through coast stations, need not engage AAs for the settlement of their maritime communication charges[22]. In other countries such as the United States ("**US**"), Canada and Hong Kong, it is not a regulatory requirement for the ship to have an AA before a Ship Station Licence could be granted[23]. Thus, IDA proposes to remove from the Regulations the requirement for ships to have an AA before the grant of a

[18] A crew agreement states the terms between service of each seaman and the master of a Singapore ship. The agreement is required to be submitted to MPA together with the relevant qualifications of the crews who will be manning the ship.

[19] Currently, there are 22 ship accounting authorities registered with IDA for the accounting of radio traffic charges for Singapore-registered ships.

[20] The ship stations' details such as name of ship, call sign and their appointed AA are submitted by administrations in various countries to ITU for publication.

[21] For radio-communication between ship and shore.

[22] Based on the ITU recommendation for maritime communication billing, the charges for ship radio traffic can be billed to an AA, the ship owner directly, or a credit/charge card company designated by the telecommunication service provider.

[23] Applicants who wish to engage AA to settle their bills with coast stations can include the name of their AA in the application form for the ship station licence for IDA to notify ITU.

Ship Station Licence. This proposal will result in shorter processing time for the issuance of the licence and will reduce compliance cost for the industry.

34. IDA notes that other countries such as Australia, Canada, the UK and the US also do not require applicants to submit the Safety Radio certificate and radio operator's Certificate of Competency for the application of a Ship Station Licence. The proposal to remove these unnecessary requirements for the grant of a Ship Station Licence is therefore in line with the practices of these countries.

Amateur Station Licence

Background

35. Amateur Station Licences are currently issued to qualified persons interested in the operation of radio-communication equipment solely for pleasure and for the furtherance of radio-communication techniques and not for pecuniary gain. The amateur stations operate in the internationally-assigned frequency bands determined by the ITU. There are two types of licensees - General Class and Restricted Class. The General Class Licence allows licensees to operate in all amateur radio frequency bands (including High Frequency ("**HF**")/Very High Frequency ("**VHF**")/Ultra High Frequency ("**UHF**")) while the Restricted Class Licence allows licensees to operate in the VHF/UHF amateur radio frequency bands only. The licence period is one year and the licence fee is $50 for General Class and $25 for Restricted Class.

International Practices

36. In Australia, licensees are given the option to select a licence period ranging from one to five years. The UK has implemented an Amateur Station Licence with a licence period in perpetuity, but it is subject to revalidation (updating of particulars by the licensees) every five years.

Extension of Licence Period

37. Currently, the Amateur Station Licence issued by IDA does not require regular updates to the information submitted during the licence application; and it does not require any further allocation of frequency spectrum as the amateur operation frequency bands are determined by the ITU, i.e. the use of such frequency bands is fixed and restricted to amateur usage. These licences are automatically renewed upon payment of licence fees and require minimal intervention from IDA. IDA has reviewed the current regime and is of the view that these licences need not be renewed on a yearly basis and the current licence period of one year can be extended. However, IDA does not recommend implementing a licence with a licence period in perpetuity. This is because licensing records (such as equipment details, personal particulars, etc) would still need to be maintained and updated as these licensees are operating at high transmission power of 200 Watts.

38. IDA proposes that the licence period be extended from one year to five years[24], to streamline the administrative processes associated with licence renewals, which in turn will result in cost and time savings to licensees. Based on IDA's experience, 91%

[24] This is in line with the practice for converting the period of ship and aircraft station licences from one year to five years in 2006.

of the Amateur Station Licensees have been renewing their licences for more than 2 years, and will benefit from the amendment. In the same connection, existing one-year licences will be converted to five-year licences when they are due for renewal. The summary of the proposed five-year licensing scheme and the licence fees is shown in **Table 2** below.

Table 2: Summary of Proposal – 5-year Licensing Scheme

		Existing	Proposed
1	Amateur Station –	-Annual licence -Frequency Fee: N.A	-5-year licence -Frequency Fee: N.A
	a) General Class	-Station Fee: S$50 per year	a)-Station Fee: S$100 for 5 years
	b) Restricted Class	-Station Fee: S$25 per year	b)-Station Fee: S$50 for 5 years

Decriminalisation of Minor Offences

39. Under the Regulations, a station or network licensee is required to inform IDA of any change in its particulars as specified in its licence within 14 days[25],and ensure information on its radio-communication station/network[26] are up-to-date (see relevant regulations in **Annex 2**). A licensee that fails to do so shall be guilty of an offence.

40. IDA has reviewed the current requirement and is of the view that it would no longer be necessary to continue to make it an offence where licensees fail to provide their updated particulars. IDA thus proposes for these requirements to be decriminalised and instead, the requirements will be imposed as licence conditions, subject to administrative sanctions, such as financial penalties or licence suspension or revocation, in the event of breaches of licence conditions under Section 8 of the Act.

Alignment of Financial Penalty Provision in the Regulations and the Telecommunications Act

41. The Regulations provide that should a spectrum right holder be found to have contravened any provisions in the Act, the Regulations or any direction given by IDA, IDA may impose a financial penalty not exceeding S$1 million.

42. With the amendment of the Act in 2011, the Act now provides that the maximum penalty that can be imposed is either 10% of the annual turnover of that part of the person's business in respect of which the person is granted the spectrum right, as ascertained from the person's latest audited accounts, or S$1 million. Therefore, for consistency and clarity, IDA proposes to revise the maximum financial penalty provision in the Regulations, to align it with that in the Act.

Clarify the Charging of Fees for Use of Spectrum

43. Currently, most users of radio frequencies are required to pay IDA fees for such *radio frequency use*, notwithstanding exemptions allowed for under section 4(b) of the Act. To provide certainty and clarity, IDA will recommend to clarify in the Regulations that, notwithstanding the exemption under section 4(b) of the Act, any

[25] Regulation 64.
[26] Regulation 24(2), 24(3), 57(1) and 57(2)

persons authorised by IDA to use radio frequencies would be required to pay fees for such use of radio frequencies as specified by IDA.

Question 6:

IDA invites views on the proposals to reduce regulations and ensure consistency -

- *(i) Streamlining of the licensing processes for the Ship Station and Amateur Station Licences;*
- *(ii) Decriminalisation of minor offences;*
- *(iii) Alignment of the financial penalty provision in the Regulations and the Telecommunications Act; and*
- *(iv) Clarifying the application of radio frequency fees notwithstanding the exemption under section 4(b) of the Telecommunications Act.*

PART V: SUMMARY

44. In summary, this consultation seeks views and comments on the proposed amendments to the Regulations, as part of IDA's efforts to allocate spectrum more efficiently to serve the growing demand for wireless and mobile data connectivity. In particular, IDA would like to invite views on:

Pricing frameworks for radio frequencies

a) *The proposed revised Administrative Cost-based Pricing framework;*
b) *The proposed Administrative Incentive Pricing ("**AIP**") framework, including the situations under which the AIP should be applied; and*
c) *The approaches to set AIP values (with reasons and any supporting evidence or analysis).*

Shared use of radio frequencies

a) *Clarifying in Parts III, VI and IX of the Regulations that IDA may require that radio frequencies assigned under spectrum rights, network/station licences or temporary use permits be shared with another person for short term usage; and*
b) *Clarifying in the Regulations that spectrum rights holders need to seek IDA's prior approval for spectrum sharing with another person.*

Amendments for consistency and reducing regulations

a) *Streamlining of the licensing processes for the Ship Station and Amateur Station Licences;*
b) *Decriminalisation of minor offences;*
c) *Alignment of the financial penalty provision in the Regulations and the Telecommunications Act; and*
d) *Clarifying the application of radio frequency fees notwithstanding the exemption under section 4(b) of the Telecommunications Act.*

PART VI: INVITATION TO COMMENT

45. IDA would like to seek views and comments from the industry and members of the public on the proposed amendments to the Regulations, as set out in this document.

46. IDA will be conducting briefings for the industry during the period of consultation. More details will be put up on IDA's website.

47. Respondents may wish to organise their submission as follows: (a) cover page (including their personal/company particulars and contact information); (b) table of contents; (c) summary of major points; (d) statement of interest; (e) comments; and (f) conclusion. Supporting materials may be placed as an annex to the comments raised.

48. All views and comments should be submitted in soft copies (Microsoft Word and PDF formats), and should reach IDA by **12 noon, 19 January 2015**. All views and comments should be addressed to:

Ms Aileen Chia
Deputy Director General (Telecoms and Post)
Infocomm Development Authority of Singapore
10 Pasir Panjang Road
#10-01 Mapletree Business City
Singapore 117438

Fax: (65) 6211 2116

AND

Please submit your soft copies, with the email header "Public Consultation on Proposed Amendments to the Telecommunications (Radio-Communication) Regulations" via email to IDA_consultation@ida.gov.sg.

49. IDA reserves the right to make public all or parts of any written submission and to disclose the identity of the source. Respondents may request confidential treatment for any part of the submission that the respondent believes to be proprietary, confidential or commercially sensitive. Any such information should be clearly marked and placed in a separate annex. If IDA grants confidential treatment it will consider, but will not publicly disclose, the information. If IDA rejects the request for confidential treatment, it will return the information to the party that submitted it and will not consider this information as part of its review. As far as possible, parties should limit any request for confidential treatment of information submitted. IDA will not accept any submission that requests confidential treatment for all, or a substantial part, of the submission.

ANNEX 1

ADMINISTRATIVE COST-BASED PRICING FRAMEWORK GAZETTED IN THE REGULATIONS

Annual Frequency Management Fee ("AFM Fee")

Radio Frequency Spectrum	Fee payable per frequency per annum
1. Frequencies for Networks and Systems —	
(*a*) exclusive use[27] —	
(i) bandwidth of less than 1MHz	$300 per 25kHz of occupied bandwidth or part thereof
(ii) bandwidth of 1MHz or more	$12,000 for the first MHz of occupied bandwidth, and $300 per subsequent MHz of occupied bandwidth or part thereof
(*b*) shared use[28] —	
(i) bandwidth of less than 300kHz	$300 per 25kHz of occupied bandwidth or part thereof
(ii) bandwidth of 300kHz or more but less than 20MHz	$3,500
(iii) bandwidth of 20MHz or more	$6,200
2. Satellite Downlink Frequencies	$600 per band

[27] Exclusive frequencies are assigned to one licensee for island-wide usage.
[28] Shared frequencies are for localised usage, which could be coordinated and shared by different licensees.

Application and Processing Fee ("A&P Fee")

Category	Fee payable per frequency
1. Commonly Assigned Frequencies (for temporary or occasional use)	$100
2. All Other Frequencies —	
(a) bandwidth of 25kHz or less	$290
(b) bandwidth of more than 25kHz but less than 500kHz	$450
(c) bandwidth of 500kHz or more but less than 1MHz	$1,350
(d) bandwidth of 1MHz or more but less than 20MHz	$2,700
(e) bandwidth of 20MHz or more	$4,650
3. Satellite Downlink Frequencies	$750 per band

ANNEX 2

PROVISIONS IN REGULATIONS RELATED TO PROPOSED DECRIMINALISATION

Particulars and records of station (spectrum) licences and network (spectrum) licences

Regulation 24 (2) The licensee shall keep an up-to-date record of the radio-communication equipment comprised in the station or network.

Regulation 24 (3) The record referred to in paragraph (2) shall (a) contain such information; (b) be kept in such form; and (c) be submitted to the Authority at such intervals, as the Authority may, from time to time, require.

Records

Regulation 57 (1) A licensee of a network shall keep an up-to-date record of the radio-communication equipment comprised in the network.

Regulation 57 (2) The record referred to in paragraph (1) shall (a) contain such information; (b) be kept in such form; and (c) be submitted to the Authority at such intervals, as the Authority may, from time to time, require.

Notification of change of particulars

Regulation 64 A station (spectrum) licensee, network (spectrum) licensee, station licensee or network licensee, as the case may be, shall notify the Authority of any change in its particulars specified in a licence within 14 days of the change.

General penalties for the above offences (Telecommunications Act)

Section 65 Any person guilty of an offence under this Act or any regulations made thereunder for which no penalty is expressly provided shall, in addition to the forfeiture of any article seized, be liable on conviction to a fine not exceeding $10,000 or to imprisonment for a term not exceeding 3 years or to both and, in the case of a continuing offence, to a further fine not exceeding $1,000 for every day or part thereof during which the offence continues after conviction.