**Statement of the Communications Authority**

**More Efficient Utilisation of the 8-digit Numbering Plan**

**24 June 2016**

## EXECUTIVE SUMMARY

S1. In light of the persistently high demand for mobile numbers and the finite amount of numbers in the 8-digit numbering plan, it is forecast that the 8-digit numbers available for allocation to mobile services will be used up by as early as November 2018. The Communications Authority ("CA") issued a consultation paper on 29 October 2015 for soliciting public views on five proposed measures and their implementation schedules, with a view to achieving a more efficient use of the existing 8-digit numbering plan and making available additional number resources for mobile services. The five proposed measures are –

(a) Measure 1 - Relocating some of the existing numbers for paging services and re-allocating some of the numbers in the "7(0-3)X" levels for mobile services;

(b) Measure 2 - Re-allocating numbers in the "4X" level for mobile services;

(c) Measure 3 - Re-allocating vacant numbers in the "8(1-3)X" levels for mobile services;

(d) Measure 4 - Raising the threshold of utilisation rate for allocation of additional numbers to operators; and

(e) Measure 5 - Releasing most of the Special Number Blocks[s1] for normal allocation.

These measures are devised with the objectives of keeping to the minimum the social and economic costs on the community whilst maximising the use of the existing 8-digit numbering plan by improving utilisation efficiency.

[s1] Special Number Blocks refers to number blocks in a special or easily recognisable pattern.

S2. The public consultation closed on 29 December 2015. Having reviewed the views and comments received from the industry and interested parties, the CA decides to adopt **all** five measures for implementation in three phases –

(a) Phase 1 to commence on 1 January 2017 (i.e. about six months from the issue of this CA statement ("this Statement")) and the following measure shall be implemented –

(i) Raising the threshold of utilisation rate for allocation of additional numbers to operators from 70% to 75% (under Part one of Measure 4).

(b) Phase 2 to commence on 1 July 2017 (i.e. about one year from the issue of this Statement) and the following measures shall be implemented –

(i) Releasing the currently vacant number blocks in the "7(0-3)X" levels for allocation to mobile services (under Part one of Measure 1);

(ii) Releasing numbers in the "4X" level for allocation to mobile services (under Measure 2);

(iii) Releasing vacant numbers in the "8(1-3)X" levels for allocation to mobile services (under Measure 3);

(iv) Raising the threshold of utilisation rate for allocation of additional numbers to operators from 75% to 80% (under Part two of Measure 4); and

(v) Releasing most of the Special Number Blocks for normal allocation (under Measure 5).

(c) Phase 3 to commence on 1 July 2021 (i.e. about five years from the issue of this Statement) and the following measure shall be implemented –

(i) Relocating some of the existing paging numbers to certain specific number blocks in the "7(1-3)X" levels and subsequently releasing the vacated number blocks in the "7(1-3)X" levels for allocation to mobile services (under Part two of Measure 1).

S3. Following full implementation of the above measures, a total of 15.72 million numbers will become available for allocation to mobile services and a considerable amount of numbers to other telecommunications services. The life span of the existing 8-digit numbering plan is expected to be extended by around 10 years to **2029**.

S4. The new number blocks made available in the above three phases will be released progressively for application by eligible licensees for allocation to telecommunications services. A fair, reasonable and transparent procedure would be put in place for the systematic release of number blocks with different leading digits, such that all those who are eligible to apply for new number blocks will be afforded equal opportunity to acquire number blocks of different leading digits put out for allocation.

S5. The CA will closely monitor market developments and the effectiveness of the new measures as and when they are introduced. The CA would, in due course, commission a consultancy study, and conduct consultation with stakeholders in order to prepare for the longer term development of the numbering plan and to explore various options, including any need to migrate to a longer digit numbering plan for meeting the future market demand.

## INTRODUCTION

Telecommunications numbers are finite public resources that are essential to the operation of telecommunications networks in Hong Kong. They are assigned to service users as their unique identifiers, in order that they may make/receive telephone calls to/from one another through telecommunications networks.

2. Hong Kong has since 1995 adopted an 8-digit telecommunications numbering plan. With the continuous development of telecommunications services in Hong Kong, the demand for telecommunications numbers has continued to rise. The expansion of mobile services is particularly phenomenal. With the growing popularity of pre-paid mobile services and the advent of future generation mobile services, such as the Internet of Things ("IoT")[1] and fifth generation ("5G") mobile services, it is expected that the consumption rate of mobile numbers would sustain in the years to come. It is forecast that the amount of 8-digit numbers available for allocation to mobile services may be used up in several years.

3. Against this background, the CA issued a consultation paper (the "Consultation Paper")[2] on 29 October 2015 and proposed five possible measures to deal with the foreseeable mobile number shortage with a view to making available additional number resources for mobile services through more efficient use of the existing 8-digit numbering plan. The general public was invited to give views on the proposed measures, and on the timeframe under which they should be implemented. The five proposed measures are –

(a) Measure 1 - Relocating some of the existing numbers for paging services and re-allocating some of the numbers in the "7(0-3)X" levels for mobile services;

(b) Measure 2 - Re-allocating numbers in the "4X" level for mobile services;

(c) Measure 3 - Re-allocating vacant numbers in the "8(1-3)X" levels for mobile services;

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[1] Internet of Things is defined as a global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving interoperable information and communication technologies (http://www.itu.int/en/ITU-T/gsi/iot/Pages/default.aspx).

[2] The Consultation Paper is available at: http://www.coms-auth.hk/filemanager/en/content_711/cp20151029_e.pdf

(d) Measure 4 - Raising the threshold of utilisation rate for allocation of additional numbers to operators; and

(e) Measure 5 - Releasing most of the Special Number Blocks for normal allocation.

4. By the close of the consultation on 29 December 2015, submissions were received from the following 20 respondents [3] –

Licensees

- China Mobile Hong Kong Company Limited ("CMHK")
- Hong Kong Telecommunications (HKT) Limited ("HKT")
- Hutchison Global Communications Limited and Hutchison Telephone Company Limited ("Hutchison")
- Kantone Paging Company Limited ("Kantone")
- New World Telecommunications Limited ("NWT")
- SmarTone Mobile Communications Limited ("SmarTone")
- Telecom Digital Data Limited ("Telecom Digital")
- Wharf T&T Limited ("Wharf T&T")

Individuals

- Alex Ng
- Ben Ben
- Citizen 1
- Citizen 2
- David Wong
- Trevor G Cooper
- Leung Tsz-wing
- Sam Luk
- KW Leung
- Mr. Cheng (鄭俊鴻)
- Mr. Lau (劉先生)
- Mr. Wong (黃先生)

5. Apart from the submissions received during the consultation period, the Office of the Communications Authority ("OFCA") also solicited the views of the Hospital Authority ("HA") on any impact on its medical and

[3] The submissions are available at: http://www.coms-auth.hk/en/policies_regulations/consultations/completed/index_id_350.html

healthcare operation should the proposed relocation of some existing numbers for paging services be implemented. In addition, OFCA briefed Members of the Legislative Council ("LegCo") Panel on Information Technology and Broadcasting ("ITB Panel") on the Consultation Paper at its meeting on 14 December 2015. [4]

6. Having carefully considered all the views and comments received on the issues under consultation, the CA sets out in this Statement its responses to the submissions and promulgates its decisions on the measures to be adopted as well as the timeframe of their implementation. For the avoidance of doubt, while the CA has given due consideration to the submissions received before promulgating its decision in this Statement, not all submissions or views and comments received are expressly addressed herein.

7. In coming to its decisions on the measures and the implementation schedule, the CA has given due regard to the following consideration –

(a) Additional Numbers Available Should be Released as Early as Possible

In order to ensure that adequate number resources are available in a timely manner so as to cope with the development of 5G mobile technologies and the ensuing rising new demand for numbers by around 2020, the CA sees the need to make ready all the available numbers from the five measures for release to mobile services as early as the operators can possibly make ready their networks to support using different leading digits, including "4", "7" and "8" as subscriber numbers for mobile services.

(b) Fair Share of Responsibility by All Operators Concerned

The measures are devised with the objective of improving the overall efficient use of the number resources in the existing 8-digit numbering plan for various kinds of telecommunications services. The CA considers that all telecommunications services operators, including fixed, mobile and paging services operators, should share out the responsibility in absorbing the impact arising from the implementation of the measures and contribute their

[4] The meeting minutes of the meeting of ITB Panel of the LegCo is available at: http://www.legco.gov.hk/yr15-16/english/panels/itb/minutes/itb20151214.pdf

parts to improving the efficiency of number utilisation. In deciding on the way forward with the measures and their implementation schedule therefore, the CA is mindful of the need to ensure the overall fairness to all the operators concerned and that each party should play a part in implementing the necessary changes.

(c) Sufficient Lead Time for Preparation and Implementation

In view of the need for operators to reconfigure their networks and adjust their business operations, the CA considers that sufficient lead time should be given, by way of, where appropriate, adopting a gradual and phased approach, before full implementation of the relevant measures.

## CA'S OBJECTIVES TO ACHIEVE MORE EFFICIENT UTILISATION OF THE EXISTING 8-DIGIT NUMBERING PLAN

8. Pursuant to section 32F of the Telecommunications Ordinance (Cap. 106), the CA is vested with the power in managing and administering the telecommunications numbering plan of Hong Kong. The CA has a statutory duty there under to promote the efficient and equitable allocation and use of numbers and codes for telecommunications services. In this connection, the CA has issued the *"Code of Practice Relating to the Use of Numbers and Codes in the Hong Kong Numbering Plan"* ("Code of Practice")[5], setting out the guiding principles and application procedures for the allocation and assignment of numbers and codes for different types of telecommunications services. Licensees are required to comply with the relevant principles and requirements as set out in the Code of Practice when they assign subscriber numbers to their customers.

9. Consistent with the statutory duty of the CA, the five measures proposed in the Consultation Paper to make available additional number resources for allocation to mobile services and other telecommunications services are devised with the objectives of keeping to the minimum the social and economic costs on the community whilst maximising the use of the existing 8-digit numbering plan by improving the utilisation efficiency.

[5] The Code of Practice is available at: http://www.coms-auth.hk/filemanager/statement/en/upload/320/cop20150415e.pdf

10. The CA notes that the licensees responding to the consultation are generally supportive of the CA's objective to release and make available new number blocks for allocation to mobile services so as to prolong the life span of the existing 8-digit numbering plan as far as possible. The industry also recognises that it is in the best interest of the industry and the general public to more efficiently utilise the existing number resources in order to avoid the social and economic costs that would otherwise ensue on the community in respect of the wholesale migration of the existing 8-digit numbering plan to a longer digit one.

## VIEWS AND COMMENTS RECEIVED AND CA'S RESPONSES AND DECISIONS

### The Future Demand for Mobile Numbers

11. In the Consultation Paper, the CA estimated that the 8-digit numbers available for allocation to mobile services might be used up by as early as November 2018. The estimate was made based on the past trend of mobile number allocation to licensees, at about 133,000 per month.[6] HKT commented in its submission that such a "worst case" monthly consumption rate was rather not convincing and that the CA should conduct and publish detailed sensitivity analysis of the various forecast demands of the number resources in order to provide a more realistic baseline of monthly consumption of mobile numbers.

12. The CA is aware that the actual consumption rate of mobile numbers could fluctuate from time to time in response to changes in market demands and technology developments. The estimated monthly demand of 133,000, albeit on the high side against the actual monthly mobile number consumption rates recorded in recent months, provides a reasonable upper bound for planning purpose. It is also the CA's observation that the persistently strong demand for mobile numbers correlates all along with the successive evolution of new generations of mobile networks and services, i.e. progressively from the first generation mobile networks to the fourth generation ("4G") ones at present. New services, contents, applications made available by each newer generation of mobile technology have sparked off new waves of market demands, thereby driving up the penetration rate of service subscriptions and hence the demand for mobile numbers.

[6] The mobile number consumption rate is taken as 133,000 per month based on the maximum monthly mobile number consumption rate averaged over a 24-month period from October 2012 to September 2015.

13. Looking ahead, the next breakthrough in mobile technologies is expected to be the emergence in the market of the 5G mobile technologies by the timeframe of 2020.[7] It is the general expectation that 5G mobile technologies will provide even faster mobile data services with greater capacity, enabling the connection of more and more devices to the mobile internet supporting person-to-person, person-to-machine and machine-to-machine communications[8], and IoT. This will likely drive up the penetration rate of mobile service subscriptions further. The CA is hence mindful of the need to ensure that adequate number resources are available in a timely manner so as to cope with the development of 5G mobile technologies and the ensuing rising new demand for numbers. In this consultation exercise, the CA considers it appropriate to adopt, and will continue to make reference to this consumption rate for the purpose of planning for measures to cope with the projected demand for mobile numbers in the coming years.

**Measure 1 – Relocating Some of the Existing Numbers for Paging Services and Re-allocating Some of the Numbers in the "7(0-3)X" Levels for Mobile Services**

14. Measure 1 consists of two parts, namely –

(a) Part one : Releasing the currently vacant number blocks in the "7(0-3)X" levels for allocation to mobile services; and

(b) Part two : relocating some of the existing numbers for paging services to a specific set of 28 10k number blocks[9] in the "7(1-3)X" levels and subsequently releasing the vacated number blocks in the "7(1-3)X" levels for allocation to mobile services.[10]

As mentioned in paragraph 20 of the Consultation Paper, if Measure 1 is fully adopted, it is estimated that a total of 3.2 million numbers will be released, and that would be able to meet the demand for mobile numbers for 24 months.

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[7] The tentative timeline for introduction into market of 5G is available at: http://www.3gpp.org/news-events/3gpp-news/1674-timeline_5g

[8] Machine-to-machine communications refers to the communications between machines/devices where data can be exchanged in an automatic or scheduled manner with little or no human intervention. It can be used for a wide range of industrial and commercial applications such as telemetry, remote control, remote monitoring, smart metering, fleet control, logistics support and tracking, home security, smart payment, etc.

[9] A 10k number block is a set of 10,000 numbers with a 4-digit prefix in the existing 8-digit numbering plan.

[10] These 28 10k number blocks in the "7(1-3)X" levels are designated by the paging operators according to (a) distribution of their customers across the "7(1-9)X" levels; and (b) their estimation of the number of active subscribers by 2020. For details, please refer to paragraph 16 of the Consultation Paper.

Views and Comments Received

15. Of the 20 respondents, six from the industry (viz. CMHK, HKT, Hutchison, NWT, SmarTone and Wharf T&T) and two individuals supported Measure 1. Seven individual respondents did not express their views, whereas the two paging operators (viz. Telecom Digital and Kantone[11]) and three individual respondents objected to Part two of Measure 1, concerning the relocation of some existing paging numbers.[12]

*Releasing the Currently Vacant Number Blocks in the "7(0-3)X" Levels for Allocation to Mobile Services (Part one of Measure 1)*

16. The proposed release of the currently vacant number blocks in the "7(0-3)X" levels for allocation to mobile services will not affect the existing paging service subscribers. The two paging operators, as with all the respondents to Measure 1, did not raise any objection to implementing Part one of Measure 1.

*Relocating Some of the Existing Numbers for Paging Services to Certain Specific Number Blocks in the "7(1-3)X" Levels and Subsequently Releasing the Vacated Number Blocks in the "7(1-3)X" Levels for Allocation to Mobile Services (Part two of Measure 1)*

17. Regarding Part two of Measure 1, the two paging operators submitted that the proposed relocation of paging numbers would not only have adverse impact on the public as paging service was being used in mission critical and emergency units, medical and healthcare services (e.g. hospitals, clinics and life-saving services), but also on the paging industry and their users because system modification work would be costly and paging service subscribers might encounter difficulty in notifying all the possible callers about the change of their paging numbers. They were of the view that implementation of the relocation of paging numbers would increase the churning rate of paging subscriptions and would adversely affect the already declining paging industry. They further pointed out that some of the paging service subscribers would need to change their paging numbers not once, but twice, first due to the proposed relocation, and again if the existing 8-digit numbering plan were to migrate to a longer digit one in the future. Kantone

[11] At present, only two paging operators remain in the market in Hong Kong, providing services to a total of 33,691 paging service subscribers as of 31 March 2016.

[12] Among the three individual respondents who rejected Measure 1, one of them rejected all five measures proposed by the CA because he considered that all the measures are short-term in nature and considered that the appropriate way to tackle the mobile number shortage is to migrate the numbering plan to a longer digit one.

considered that it was unfair for the paging operators and their customers to bear the costs of number re-allocation. The proposed relocation should be regarded as a last resort, when all the existing available mobile number blocks were allocated.

18. On the proposal of relocating some paging numbers (estimated to be around 20,000 by 2020) to the designated 28 10k number blocks in the "7(1-3)X" levels, HKT opined that it did not seem justified to preserve 0.28 million numbers just to serve less than 20,000 active numbers indefinitely for paging services. It proposed as an alternative to enhance and modify Part two of Measure 1 as a one-off change, such that all the remaining 20,000 active paging numbers would be re-located and concentrated into one single 100k number block of the "7(1-3)X" level by 2020, with a target utilisation rate of up to 20%. While it was understood that such an alternative proposal would likely affect almost all the paging numbers (except those numbers that happen to fall within the single specific 100k number block range), HKT considered that adopting one single 100k number block would simplify the network routing arrangements for most operators during both the dual access arrangement stage and the remaining usable life span of the 8-digit numbering plan.

19. Of the three individual respondents who objected to the proposal, two were strongly against relocation of paging numbers and expressed concerns that the arrangement would severely affect the existing paging service subscribers (including some who relied on paging services for providing medical and healthcare services) and the general public. The remaining one was of the view that all the active paging numbers in the "7X" levels should be kept intact.

20. Regarding the lead time needed by the industry to prepare for the relocation of active paging numbers and the related dual access arrangement, Kantone considered that the preparation work and dual access period should last for 24 to 30 months. CMHK, NWT and Wharf T&T were of the view that a lead time of 24 months, as suggested by the CA in the Consultation Paper, should be sufficient; while one individual respondent considered that a lead time of 24 months was apparently inadequate.

*Comments from Other Parties*

21. During the meeting at the LegCo ITB Panel on 14 December 2015, some LegCo Members expressed concern about the impact of the relocation of some existing paging numbers on those users engaged in mission critical systems such as hospital paging systems. A LegCo Member suggested

that the CA might look into other possible mitigating measures, such as the use of call forwarding function by operators to enable calls to the paging service subscribers in the "7(1-3)X" levels to continue to be routed to them after the relocation (hereafter referred to as the "Call Forwarding Solution"), such that the reallocation would have no impact on the affected pager service subscribers.

22. Since after the close of the consultation, OFCA has not received any submissions from the HA, OFCA took the initiative to consult the HA on any impact of the proposed relocation of paging numbers on its medical and healthcare services. In response, HA made a submission in February 2016, explain that paging services had been widely used to support its frontline healthcare operation and group call numbers had been implanted in its various computer systems over the past decades.[13] It submitted that there would be difficulty in updating and communicating the revised paging numbers to relevant parties as it had plenty of essential operational documents, procedures, guidelines and computer databases as well as developing a seamless migration plan with its paging service contractor. It further submitted that the migration process was meticulous and risky. The HA hence urged for consideration of other possible measures which would not affect the existing paging service subscribers.

Responses of the CA

23. Regarding the proposal to release the currently vacant number blocks in the "7(0-3)X" levels for allocation to mobile services, the CA notes from the submission received that no objection was raised. In fact, its implementation would only require operators to prepare their networks for supporting the relevant vacant number blocks accounting for additional 2.2 million numbers for mobile services. Implementing the proposal will not have any impact on the existing paging service subscribers. The CA concludes therefore Part one of Measure 1 should be implemented as soon as practicable.

24. Regarding Part two of Measure 1, which is the proposal to relocate the existing paging numbers to a limited amount of number blocks in the "7(1-3)X" levels, such that additional vacant number blocks can be released for allocation to mobile services, the CA fully acknowledges the concerns raised by the respondents and HA, regarding the impact of the relocation and the likely inconvenience that may be caused to the paging service subscribers and their callers, in particular for those paging service subscribers engaged in mission critical services or the medical and healthcare

[13] As of February 2016, there were still around 8,200 paging numbers actively in use in the HA.

sector. The difficulties identified by the respondents and HA however are not so insurmountable that a sufficiently long lead time for the necessary preparation work including provision of the dual access arrangement could not resolve. On the other hand, the CA is acutely mindful of the benefits brought by Part two of Measure 1, in vastly enhancing the utilisation of numbers in the "7X" level and in making available a large pool of number resources for allocation to mobile services. On balance, the CA considers that the pros far outweigh the cons and concludes that the relocation should proceed. In order to minimise the impact on the affected users, the relocation of the paging numbers in the "7X" levels will not be implemented until Phase 3, the last phase, with carefully planned implementation arrangements in place.

25. On the suggestion of implementing the Call Forwarding Solution to minimise the adverse impact of the proposed relocation on the affected users, the CA has a number of reservations despite that it is a technically feasible arrangement. Firstly, the Call Forwarding Solution is not an efficient network routing arrangement and additional capital expenditure and recurrent operating costs would have to be incurred in the context of (a) the establishment of additional trunks between networks of mobile network operators ("MNOs") and paging operators; (b) administration cost of subscriber databases of MNOs; and (c) software modification of paging systems etc. Such costs will need to be borne by the industry and further discussion is required among the various stakeholders on how such costs should be shared. Secondly, the "7(4-9)X" levels cannot be vacated under the call forwarding arrangement and hence it cannot be reserved for the possible migration to a longer digit numbering plan with "7" as the leading digit in the future. Thirdly, there will likely be a need for the Call Forwarding Solution to be maintained even after the future migration to a longer digit numbering plan. In overall terms, the CA is doubtful about the comparative merit of adopting the Call Forwarding Solution over our current proposal, in promoting the efficient and equitable allocation and use of numbers for telecommunications services.

26. The CA notes that the number of paging service subscribers has been declining over the last two decades, and it is expected that this downward trend will very likely continue in the coming years. The CA is also aware of the fact that paging services in many other economies have already been terminated as a result of market forces along with the significant drop in paging service subscribers.[14] As pointed out in the Consultation Paper, it is expected that the subscriber base of paging services in Hong Kong will drop to

[14] Economies that had already terminated their paging services include: Mainland China (in 2007), Japan (in 2007), Taiwan (in 2011) and Singapore (in 2012).

an even lower level as a result of natural market development and technology evolution. In fact, there are numerous alternatives in the market including mobile voice and short messaging services, instant messaging applications riding on smartphones, etc. that offer not only similar functions as paging services, but are also providing more advanced multimedia communications functions to end users.

27. In this regard, the later the proposed relocation of paging numbers is to be implemented, a smaller number of paging service subscribers will be affected. With a longer lead time, the existing paging service subscribers, whether they opt to continue using paging services, or choose instead other substitute communications services, will have sufficient time to make the necessary arrangements and notify parties calling them before the actual relocation. Taking also into account the likely demand for additional mobile numbers in coping with the emergence of 5G mobile technologies by around 2020, the CA considers it reasonable to allow a five-year lead time before implementation of Part two of Measure 1. This timeframe will also enable paging operators to make the necessary adjustments to their business plans and arrangements with their relevant customers regarding change of their paging numbers, as well as to enhance their systems for supporting any transitional arrangements where necessary.

28. With the above considerations, **the CA decides that Measure 1 shall be implemented in two phases. Part one of Measure 1, viz. releasing the currently vacant number blocks in the "7(0-3)X" levels for allocation to mobile services, shall be implemented about one year from the issue of this Statement, taking into account the need for operators to make the necessary changes to their networks and systems**. **Part two of Measure 1, viz. relocating some of the existing numbers for paging services to certain specific number blocks in the "7(1-3)X" levels and subsequently releasing the vacated number blocks in the "7(1-3)X" levels for allocation to mobile services, shall be implemented five years from the issue of this Statement, in 2021.**

29. After the issue of this Statement, OFCA will work with the industry to formulate the necessary technical and operational arrangements to effect the paging number relocation so as to minimise the impact on paging service subscribers and the general public. During the five-year period before the actual relocation, the CA will continue to monitor market developments, in particular the future demand for mobile numbers, the pace of development of 5G mobile technologies, rate of change of the number of paging service subscribers, etc. with a view to devising mitigating measure in regard to the relocation.

## **Measure 2** - Re-allocating Numbers in the "4X" Level for Mobile Services

30. Measure 2 refers to the proposed release of the vacant 10k number blocks in the "4X" level[15] for allocation to mobile services. As mentioned in paragraph 26 of the Consultation Paper, if Measure 2 is adopted, a total of around 5.6 million numbers in the "4X" level can be re-allocated for use as mobile numbers. This will be able to meet the demand for mobile numbers for 42 months.

Views and Comments Received

31. Of the 20 respondents, five from the industry (viz. CMHK, HKT, Kantone, Telecom Digital and Wharf T&T) and four individual respondents supported the proposed measure. The other three respondents from the industry (viz. Hutchison, SmarTone and NWT) had no objection and the other six individual respondents did not submit any comments. Two individual respondents objected to the proposal.

32. CMHK supported the measure provided that a feasibility study should be conducted before the implementation as numbers with leading digit "4" were currently used solely as network numbers. It preferred implementing the measure at a later stage so as to allow time for it to re-configure its network, and for the general public to gradually accept numbers with leading digit "4" for mobile services. HKT submitted that the implementation timeframe of the measure should be discussed and agreed within the industry to allow for necessary network reconfiguration to be undertaken by the fixed network operators ("FNOs") and MNOs. Hutchison had similar views and considered that the use of leading digit "4" should be deferred as long as possible, to at least December 2025, as the leading digit "4" might not be welcomed by the public due to the cultural issue.

33. SmarTone shared the concern that the public might not welcome the assignment of mobile numbers of leading digit "4". On the other hand, it considered that there was no need to restrict the assignment of numbers with leading digit "4" to mobile data services, pre-paid SIM services, etc. Without such a restriction, the industry would have more flexibility in fulfilling the market need and in turn to maximise the number utilisation. Regarding the estimated development lead time for the system enhancement work to support mobile numbers in the "4X" level, SmarTone considered that around five months should be adequate.

[15] At the current 8-digit numbering plan, numbers with leading digit "4" are generally used as network numbers.

34. Of the two individual respondents who objected to the proposal, one strongly disagreed to using numbers in the "4X" level for mobile services (including pre-paid SIM services) because of the ominous association of the pronunciation of "4" in Chinese. The other respondent considered that the measure was short-term and that migration to a longer digit numbering plan was preferred.

Responses of the CA

35. The CA notes from the submissions that the majority of the respondents were supportive of, or had no objection to the proposal to allocate the "4X" level to mobile services. The CA recognises the misgivings that some members of the general public might have over mobile numbers with leading digit "4". However, as pointed out in the Consultation Paper, with the increasing popularity of smartphones and their applications, service users these days are more accustomed to making calls or sending messages through phonebook dialling or instant messaging applications and as such people attach less importance to mobile numbers. In light of the foreseeable mobile number shortage and the need for more efficient utilisation of the existing number resources, the CA considers it not justifiable to continue to leave idle the scarce number resources and affirms accordingly the need to open up the "4X" level in the existing numbering plan, so as to release the 5.6 million numbers for allocation to mobile services.

36. In the Consultation Paper, the CA suggested that licensees providing mobile services may make use of the numbers in the "4X" level for pre-paid mobile services and those data-only service plans, such that numbers of other prefixes which have already been assigned to pre-paid mobile services can be gradually recycled for release to post-paid mobile services. The CA has no intention however to impose any restriction requiring that the numbers in the "4X" level be assigned only for pre-paid mobile services or data-only plans. The CA trusts that market forces will promote the most efficient assignment of the numbers in the "4X" level for different types of mobile services.

37. The CA recognises that numbers with leading digit "4" is currently used as network numbers for internal network routing purpose but not subscriber numbers. As such, sufficient lead time should be given to operators to prepare for and to make the necessary changes and re-configuration to their networks, as well as to conduct thorough testing before actual assignment of numbers with leading digit "4" for allocation to mobile services. With the above considerations, **the CA decides that Measure 2, viz. releasing numbers in the "4X" level for allocation to mobile services, shall**

**be implemented about one year from the issue of this Statement, taking into account the need for operators to implement the necessary changes to their networks and systems.**

## Measure 3 – Re-allocating Vacant Numbers in the "8(1-3)X" Levels for Mobile Services

38. Measure 3 refers to the proposed release of the vacant number blocks in the "8(1-3)X" levels for allocation to mobile services. As mentioned in paragraph 32 of the Consultation Paper, if the proposal is adopted, it is estimated that a total of 0.98 million numbers will be released, and that could meet the demand for mobile numbers for seven months.

Views and Comments Received

39. Of the 20 respondents, six from the industry (viz. CMHK, SmarTone, HKT, Wharf T&T, Kantone and Telecom Digital) and five individual respondents supported the proposed measure. Two respondents from the industry (viz. Hutchison and NWT) had no objection and six individual respondents did not submit any comment. One individual respondent objected to the measure.

40. HKT agreed with the proposed Measure 3 and considered that with competitive pricing/choices of mobile services (and porting of mobile numbers), it was generally accepted that mobile numbers would serve as the *de facto* "personal numbers" of most users. HKT considered that OFCA should release and re-allocate the vacant number blocks in the "8(1-3)X" levels progressively in a transparent and reasonable manner such that the number blocks would be allocated and assigned in an orderly and fair fashion to the operators and their subscribers. CMHK agreed that any adverse impact on the personal number service should be negligible as there had been no new personal number allocation in the past five years and that mobile numbers could be regarded as personal numbers in one way or another.

41. Wharf T&T supported Measure 3, but considered that it should be implemented as a low priority given that the numbers released would only be enough to meet demand for 7 months and it would close off any future revival of personal number service. NWT was minded that if Measure 3 was adopted, there would no longer be any spare numbers for personal number service, therefore rendering it not possible for any expansion or development in the personal number service in future. NWT also opined that Measure 3 should be ranked with lower priority in the implementation order and the situation should be subject to review before actual implementation.

Responses of the CA

42. The CA notes that majority of the respondents were supportive of the proposed arrangement. The CA wishes to point out that there has not been any allocation of new number blocks to personal number service for more than six years, and this is a trustworthy indication of the weak market demand for the service. Given there are other more popular substitute services in the market, future revival of market demand for personal number service appears to be unlikely. Having considered the views of the respondents, the CA affirms the need to implement Measure 3.

43. Similar to the implementation of Measures 1 and 2, sufficient time should be given for operators to prepare for and to make the necessary changes and reconfigurations of their networks to support opening of new numbers in the "8(1-3)X" levels for mobile services. **The CA decides that Measure 3, viz. releasing vacant numbers in the "8(1-3)X" levels for allocation to mobile services, shall be implemented about one year from the issue of this Statement, taking into account the need for operators to implement the necessary changes to their networks and systems**.

**Measure 4 – Raising the Threshold of Utilisation Rate for Allocation of Additional Numbers to Operators**

44. Measure 4 refers to raising the threshold of the number utilisation rate from 70% to 80% for additional number application. With a higher threshold than before, licensees have to use up a larger portion of the unused numbers they hold for assignment to their subscribers before they are eligible for seeking allocation of new number blocks from the CA. As mentioned in paragraph 37 of the Consultation Paper, based on the total amount of 24.23 million numbers being allocated to licensees for mobile services, if the threshold of the number utilisation rate is raised from 70% to 80%, licensees of mobile services are required to meet the demand for mobile numbers by using the 2.42 million numbers from their inventory of spare numbers before they can make any fresh applications to the CA for additional numbers. The use of these spare numbers will be able to meet the demand for mobile numbers for 18 months.

Views and Comments Received

45. Of the 20 respondents, the two paging operators (viz. Telecom Digital and Kantone), CMHK (see paragraph 46 below) and one individual respondent supported the proposed measure, while a number of FNOs and

MNOs (viz. HKT, Hutchison, NWT and Wharf T&T) and three individual respondents objected. SmarTone is neutral to the measure.

*Views from MNOs*

46. CMHK stated that under the current practice, it only counted those pre-paid SIM cards that had been sold to distributors and activated by subscribers in calculating the utilisation rate, that is to say, it took no account of those pre-paid SIM cards which had been sold but not yet activated. According to CMHK, about 25% of the pre-paid SIM cards fell into the latter category. CMHK considered that as the numbers for those 25% of pre-paid SIM cards could not be assigned to other SIM cards, they should be counted as utilised numbers as well if the threshold of utilisation rate was raised to 80%. Otherwise, there would not be enough numbers for operators to support the business of pre-paid SIM services after the threshold of utilisation rate was raised.

47. Hutchison opined that Measure 4 did not serve to prolong the life span of 8-digit numbering plan but to merely transfer numbers from operators to the CA and such measure would cause operational difficulties to them.

48. HKT opined that Measure 4 would merely move the buffer of spare numbers from the operators back to the CA. In particular, HKT stated that a large portion of the spare numbers currently held by operators had already been pre-assigned to pre-paid SIM cards that were not yet sold or activated, and such pre-assigned numbers would effectively hold up more than half of the 30% working buffer of spare numbers held by the operators. Further, according to HKT's experience, about 5% of the total allocated mobile numbers are frozen on an on-going basis as recently recovered numbers pending re-cycling. It considered that any immediate implementation of Measure 4 would drive down the remaining working buffer of spare numbers available to the operators to 5% or less, unless they were to reduce significantly the issue of new pre-paid SIM cards with pre-assigned numbers.

49. Regarding the deployment of dynamic or over-the-air method for assigning mobile subscriber numbers to pre-paid SIM cards at the time of activation (as mentioned in paragraph 38 of the Consultation Paper), HKT and CMHK considered that such method could only at best result in limited improvement in the efficiency of number utilisation but would likely cause huge inconveniences to both local customers and visitors to Hong Kong, and adversely affect competition. HKT considered that the implementation of dynamic number assignment systems was costly and would take considerable

time. HKT also considered that Measure 4 would cause operational difficulties to many operators, in particular the smaller mobile virtual network operators and resellers of pre-paid mobile services.

*Views from FNOs*

50. Wharf T&T found it not convincing that Measure 4 would bring about significant benefit in respect of fixed number resources as there was no pressing problem posed by the current levels of fixed number utilisation. It suggested that if Measure 4 was to be adopted for fixed numbers, the increase in threshold of number utilisation rate should be implemented gradually, e.g. 75% initially to be followed by a review to determine the next step.

51. HKT considered that there was no immediate urgency justifying any drastic change to the current rules of application of new number allocation of "2X" and "3X" levels for fixed services. It was of the view that raising the threshold of the utilisation rate would certainly affect the on-going operations of the licensees that provide fixed services. It further supplemented that there was consistently on-going demand for Direct-Dialling-In ("DDI") numbers for the provision of fixed voice services to both new and established business subscribers; and increasing the threshold of utilisation rate particularly for new DDI numbers application would require a significant increase in the manual efforts by FNOs to resolve the number assignment issues during the provisioning process.

Responses of the CA

52. The CA notes the MNOs' concern that, if Measure 4 is to be implemented, there would be certain impact on their commercial operation of pre-paid SIM services. The CA also notes the FNOs' view against the raising of the threshold of utilisation rate for fixed numbers.

53. The CA however remains unconvinced that the implementation of Measure 4 would severely affect the operation of the licensees that provide mobile services. According to OFCA's record, as of 31 May 2016, a total of 24.37 million of numbers were allocated to mobile services, 90% of which were allocated to the four MNOs. Using the current threshold of utilisation rate at 70%, MNOs are in fact holding a large amount of spare numbers at around 6.6 million, with the amount of spare numbers held by individual MNOs ranging from 0.79 million to 2.63 million. Even if the threshold of utilisation rate is raised to 80%, individual MNOs will still hold the spare mobile numbers in the range of 0.53 million to 1.75 million. If the pool of spare numbers in the hands of MNOs is reduced, albeit MNOs may need to

make some adjustments to their business process for the operation of pre-paid SIM services, this does not appear to pose an insurmountable problem provided that sufficient lead time is provided for MNOs to plan for and implement the necessary adjustments, including the implementation of any dynamic or over-the-air assignment method for pre-paid mobile subscribers as may be adopted by MNOs according to their own commercial decisions. Given the imminent shortage of mobile numbers, each licensee that provides mobile services should take up its fair share of responsibility to ensure a more efficient use of the allocated numbers.

54. In fact, according to HKT's submission, under its current operation, around one-sixth of the spare numbers (i.e. 5% of the total numbers allocated to HKT) are frozen on an on-going basis as recovered numbers pending re-cycling. Such numbers could have been counted as numbers in use under the existing Code of Practice.[16] In other words, HKT in fact adopts already an utilisation rate of 75%, with the amount of spare numbers equivalent to 30% of the allocated numbers minus the 5% of recovered numbers pending recycling. It is entirely possible, it seems, for HKT, as with other licensees that provide mobile services, to further streamline their business process such that they may operate at a higher utilisation rate of 80% before seeking allocation of additional number blocks.

55. As for the implementation of Measure 4 for fixed numbers, according to OFCA's records, in the past three years, when the relevant licensees applied for additional number blocks for DDI services, it was not uncommon that their number utilisation rates had already exceeded 80%. Also, to illustrate using the current utilisation rate at 70%, FNOs are in fact holding a large amount of spare numbers at around 3.48 million, with the amount of spare numbers held by individual FNOs ranging from 0.2 million to 2.68 million. In view of the stagnant demand for fixed services over recent years, the CA considers that FNOs should be able to meet their operational needs using the spare numbers they currently hold, and there should not be

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[16] According to the Code of Practice, the calculation method used by the CA in calculating the utilisation rate of mobile numbers already allocated to an applicant is as below:

$$\text{Utilisation Rate} = \frac{(A + B + C + D)}{T} \times 100\%$$

where A = Total capacity of originally allocated mobile numbers assigned to active customers at the time of application

B = Total capacity of originally allocated mobile numbers reserved for inactive customers for the last 6 months calculated from the date of application

C = Total capacity of ported-out mobile numbers under number portability at the time of application

D = Total capacity of originally allocated mobile numbers used for supporting call routing, including handover numbers, roaming numbers, global title numbers, etc. (i.e. not greater than 1% of the total capacity of originally allocated mobile numbers)

T = Total capacity of originally allocated mobile numbers

any significant problem if Measure 4 is applied across the board to all licensees providing fixed services and mobile services alike. It is also reasonable for the CA to adopt a unified utilisation threshold across all licensees on fairness and consistency ground.

56. In determining the timeline for implementation of Measure 4, the CA recognises that all licensees providing mobile services will need time to streamline their business process including service provisioning arrangements to prepare for a higher number utilisation rate. To facilitate such streamlining and gradual adjustment by the concerned licensees, the CA considers it appropriate to adopt a two-step implementation approach. As Part one of Measure 4, the threshold of utilisation rate will be raised from 70% to 75%, in about six months after the issue of this Statement. As Part two of Measure 4, the threshold of utilisation rate will be raised further from 75% to 80% in another six months' time. The CA will keep in view the demand of fixed numbers and mobile numbers after adopting Measure 4. In administration of number allocation, OFCA will exercise discretion and flexibility when dealing with applications for new number blocks from operators not being able to meet the new threshold of utilisation rate, for so long as they are able to provide justifications to the satisfaction of OFCA.

57. With the above considerations, **the CA decides that Measure 4 shall be implemented in two phases. Part one of Measure 4, viz. raising the threshold of utilisation rate for allocation of additional numbers to operators from 70% to 75%, shall be implemented in about six months from the issue of this Statement. Part two of Measure 4, viz. raising the threshold of utilisation rate for allocation of additional numbers to operators from 75% to 80%, shall be implemented after another six months**.

**Measure 5 – Releasing Most of the Special Number Blocks for Normal Allocation**

58. A list of Special Number Blocks has been previously reserved for possible special allocation to the industry and service subscribers. Measure 5 refers to the proposed release of most of the currently reserved Special Number Blocks for normal allocation to telecommunications services including fixed services and mobile services.[17]

[17] Please refer to Annex E of the Consultation Paper for the full list of Special Number Blocks that is currently under reserve, and Annex F1 of the Consultation Paper for the proposed list of Special Number Blocks to be kept in reserve continually under Measure 5.

59. As mentioned in paragraph 44 of the Consultation Paper, if Measure 5 is adopted, pending the adoption of Measures 1, 2 and 3, it is estimated that a total of 3.52 million numbers will be released for allocation to mobile services, which could meet the demand for mobile numbers for 26 months.[18]

Views and Comments Received

60. Of the 20 respondents, seven from the industry (viz. CMHK, HKT, NWT, SmarTone, Wharf T&T, Kantone and Telecom Digital) and three individual respondents supported the proposed measure. One respondent from the industry (viz. Hutchison) had no objection and eight individual respondents did not provide any comment. One individual respondent objected to the measure.

61. Respondents who had commented on the measure generally considered the adoption of Measure 5 would provide a large pool of number supply for meeting the demand from both fixed services and mobile services, thus extending the overall life span of 8-digit numbering plan. HKT considered that the release and re-allocation of the reserved numbers of the Special Number Blocks should proceed in a transparent and reasonable manner and that the released number blocks should be allocated and assigned orderly and fairly to operators and subscribers respectively.

Responses of the CA

62. The CA notes that the respondents in general gave support and did not raise any objection to the implementation of Measure 5. **The CA decides that Measure 5, viz. releasing most of the Special Number Blocks for normal allocation, shall be implemented about one year from the issue of this Statement, taking into account the need for operators to make the necessary changes to their networks and systems.**

## Order of Implementation of the Proposed Measures

63. The Consultation Paper proposed that, subject to the views and comments received, Measures 2, 3, 4 and 5 (except for the release of those Special Number Blocks in the "7X" level) could be implemented at an early timeframe as they should not require substantial changes or reconfigurations

[18] Please refer to Annex F2 of the Consultation Paper for the breakdown of the amount of numbers to be released under Measure 5 for allocation to fixed services and mobile services.

to the networks and systems of the relevant operators, while Measure 1, if adopted, should be implemented the last, such that its impact on paging service subscribers and the general public would be kept to the minimum.

Views and Comments Received

64. HKT supported that Measures 2, 3 and 5 should be implemented first, with Measure 1 at a later time. It did not see the urgency or necessity for implementing Measure 4. CMHK considered Measure 3 should be implemented first, while Measures 2 and 5 should take effect at the latest stage. Wharf T&T considered that Measure 3 should be implemented at a later stage after implementing Measures 2 and 5. Hutchison considered that Measures 3 and 5 should be implemented first, with Measure 2 to be implemented by December 2025.

65. As for the implementation of Measure 4, CMHK showed its support subject to certain condition (see paragraph 46 above) and considered that the measure should take effect at an early stage. SmarTone, while not opposing to Measure 4, had not indicated any preference as to when.[19]

66. For most of the respondents who supported the implementation of Measure 1 (including HKT, Hutchison, NWT and an individual), they considered that the measure should take effect at a later stage after the other measures had been implemented. Wharf T&T opined that Measure 1 should be implemented after Measures 2 and 5; while SmarTone and an individual respondent considered that Measure 1 should be implemented in parallel with other proposed measures.

Responses of the CA

67. Having considered the views and comments of the respondents, the CA remains of the view that Measures 2, 3, 4 and 5 could be implemented early so long as sufficient lead time is allowed for the operators to make the necessary changes to the networks and systems. These measures could be implemented more or less simultaneously. For Part one of Measure 1, the allocation of existing spare number blocks in "7(0-3)X" levels could also be implemented in parallel with other measures. **The CA decides to implement the five measures in three phases. Details are set out in paragraphs 77 – 81 below.**

[19] Those FNOs responding to the consultation either did not support the implementation of Measure 4 or expressed that the measure shall be adopted at the latest stage. As for MNOs, HKT and Hutchison did not support implementing the measure (please refer to paragraphs 46 to 49).

## Other Comments

Views and Comments Received

68. A number of respondents in giving their comments also made other suggestions to address the shortage of numbers, as set out below –

*Numbers with the Same Leading Digit be Used for Different Service Types*

69. CMHK submitted that in order to ensure more efficient utilisation of the existing 8-digit numbering plan, the CA should consider whether the guiding principle of using leading digits to differentiate service types should be changed, and if that was the case there would be no need to reserve buffer numbers for each service type. Four individual respondents considered that the existing numbers for personal number service should be converted to mobile numbers, while one respondent was of the further view that subscriber numbers for fixed services and paging services should be allowed to be ported to mobile services.

*Longer Digit Numbers for Mobile Services Only*

70. Three individual respondents were of the view that there was no need to maintain a unified digit length for all the subscriber numbers for telecommunications services. One respondent considered that newly assigned mobile numbers should be of 10 digits length (keeping the existing mobile numbers with 8 digits length); while the other two respondents opined that the length of mobile numbers should be of 10 digits, that of fixed numbers maintained at 8 digits.

*Longer Digit Numbering Plan*

71. CMHK considered that as there would be a one-off cost to the community irrespective of whether the migration was to a 9 or 10-digit numbering plan, it would prefer adopting a 10-digit numbering plan instead of a 9-digit one. On the other hand, HKT submitted that the CA should also conduct an early public discussion on the most logical and preferred next step for future migration to longer digit numbering plan upon the exhaustion of the existing 8-digit numbering plan, while Hutchison suggested, alongside with the adoption of Measures 3 and 5, that in two years before December 2025 (i.e. in late 2023), the CA should conduct another public consultation on whether consumers would prefer to move straight to a 10-digit numbering plan in December 2025. Five individual respondents considered that the CA's

proposed measures were temporary in nature and suggested direct migration to a 9-digit or 10-digit numbering plan.

Responses of the CA

*Numbers with the Same Leading Digit be Used for Different Service Types*

72. The design of the existing numbering plan is such that operators and service subscribers can distinguish from the leading digits of numbers the type of telecommunications service they support. If new number blocks to be allocated in the future make no such differentiation between different types of services such as fixed services and mobile services, it may cause confusion to the public. As the foreseeable shortage of numbers stems from the demand for mobile services, and the new number blocks to be made available after implementation of the above five measures are predominantly used for meeting the demand for mobile numbers, the proposed initiative may not represent material improvement to the utilisation of these new number blocks. For the existing vacant numbers blocks reserved for non-mobile services, they are still required to cater for the projected demand for the concerned services including fixed services. Therefore, the CA does not see a significant enhancement in efficiency of number utilisation in pursuing the initiative at this juncture. Nevertheless, the CA will keep in view and revisit it when the longer term development of the numbering plan is explored.

73. As for the request of several individual respondents of porting active subscriber numbers to other services (such as numbers of personal number service or fixed services or paging services to be ported to mobile services), the CA would like to point out that operators are already allowed to implement fixed-mobile number portability ("FMNP"), i.e. number portability between fixed networks and mobile networks on a voluntary basis, under the existing regulatory regime.[20] Regarding the porting of paging numbers to mobile services, it is worth noting that the paging operators are not obliged under their licences to implement number portability for paging numbers, or to port a paging number to mobile networks. There will be a significant impact on the number portability systems if such porting is permitted, and the CA does not find sufficient justification at this juncture to pursue mobile-paging

[20] In a statement issued by the former Telecommunications Authority in 2009 (http://tel_archives.ofca.gov.hk/en/tas/numbering/tas20090710.pdf), operators are allowed flexibility to implement FMNP on a voluntary basis. Such arrangement is to facilitate interested operators to implement FMNP in a flexible manner and to provide cross-platform number portability service based on their own business decisions, while not imposing unnecessary burden on the operators who do not wish to support FMNP. Although guiding principles have been set out in the statement, so far the industry has made no progress in the implementation of FMNP.

number portability in view of the small and declining number of paging service subscribers.

*Longer Digit Numbers for Mobile Services Only*

74. The CA understands the respondents' rationale of suggesting longer digit numbers for mobile services only so as to address the foreseeable shortage of mobile numbers. However, the CA notes that the existing numbering plan, which is designed with unified 8-digit long subscriber numbers for various types of services, has been used by the local community for more than two decades and is well accustomed to by the general public and their overseas counterparts. The suggested change will lead to confusion to the general public. Given that there are feasible measures to make available number resources under the existing 8-digit numbering plan for mobile services, the CA is of the view that there is no imminent need to have a fundamental change in the design of the numbering plan for mobile services at this juncture. The CA will keep in view this suggestion and revisit it when the longer term development of the numbering plan is explored.

*Longer Digit Numbering Plan*

75. It is well understood that the migration to a longer digit numbering plan is a possible way forward to ensure sufficient number resources are made available to meet demand in the coming decades. Nevertheless, as mentioned in the Consultation Paper, given the huge social and economic costs on the community, the CA remains of the view that unless there is concrete evidence that the 8-digit numbering plan is unable to cope with the current and future demand of the community and we have exhausted all possible measures for ensuring the efficient use of the existing 8-digit numbering plan, the option of migrating the existing 8-digit numbering plan to longer digit numbering plans should not be lightly pursued.[21]

## IMPLEMENTATION TIME TABLE FOR THE FIVE MEASURES

76. Summarising the CA's decisions for implementation of the respective measures mentioned in the paragraphs 28, 37, 43, 57, 62 and 67, the plan for implementation of all five measures will be divided into three phases as illustrated in the following paragraphs.

[21] Please refer to paragraph 13 of the Consultation Paper.

*Phase 1*

77. Phase 1 shall commence about six months after the issue of this Statement, i.e. **1 January 2017**. In this phase, Part one of Measure 4, viz. raising the threshold of utilisation rate for allocation of additional numbers to operators from 70% to 75%, will be implemented.

*Phase 2*

78. Phase 2 shall commence about one year after the issue of this Statement, i.e. **1 July 2017**. In this phase, the following measures shall be implemented –

(a) Releasing the currently vacant number blocks in the "7(0-3)X" levels for allocation to mobile services (under Part one of Measure 1);

(b) Releasing numbers in the "4X" level for allocation to mobile services (under Measure 2);

(c) Releasing vacant numbers in the "8(1-3)X" levels for allocation to mobile services (under Measure 3);

(d) Raising the threshold of utilisation rate for allocation of additional numbers to operators from 75% to 80% (under Part two of Measure 4); and

(e) Releasing most of the Special Number Blocks for normal allocation (under Measure 5).

79. Starting from Phase 2, the new number blocks made available will be released progressively for application by the eligible operators. In line with the existing practice for new number allocation, OFCA will make known the set of designated number blocks with different leading digits available for application in advance, and the exact number blocks allocated to eligible operators will be determined through a balloting mechanism to ensure a fair, reasonable and transparent process of allocation.

*Phase 3*

80. Phase 3 shall commence about five years after the issue of this Statement, i.e. **1 July 2021**. This phase will involve relocating some existing paging numbers to certain specific number blocks in "7(1-3)X" levels and then

releasing the vacated paging number blocks in "7(1-3)X" levels for allocation to mobile services under Part two of Measure 1. OFCA will work with the industry in advance before commencement of Phase 3 to prepare for the relocation and formulate necessary mitigation measures so as to minimise the impact on the paging service subscribers.

81. Following complete implementation of all the measures in the three phases, a total of 15.72 million numbers will become available for allocation to mobile services and a considerable amount of numbers to other telecommunications services. The life span of the existing 8-digit numbering plan will be extended by **around 10 years to 2029**. The following table summarises the amount of number resources made available in each of the three phases.

**Table – Additional Number Resources in Three Phases**

| Timeframe | Measures | Number blocks to be released for allocation to mobile services | Amount of numbers (in million) |
|---|---|---|---|
| Phase 1 (1 January 2017) | 4 (Part one) | Raising the threshold of utilisation rate to 75% | 1.21 |
| Phase 2 (1 July 2017) | 1 (Part one) | Vacant numbers in "7(0-3)X" levels | 13.43 |
| | 2 | "4X" level | |
| | 3 | Vacant numbers in "8(1-3)X" levels | |
| | 4 (Part two) | Raising the threshold of utilisation rate to 80% | |
| | 5 | Special number blocks in "4X", "5X", "6X", "7X", "8X" and "9X" levels | |
| Phase 3 (1 July 2021) | 1 (Part two) | Vacated number blocks in "7(1-3)X" levels after completing the relocation of some existing paging numbers | 1.08 |

## WAY FORWARD

82. To implement the decisions, the CA will amend the Code of Practice to reflect the above measures in the allocation and assignment of numbers under the existing 8-digit numbering plan. OFCA will follow up with operators in respect of the implementation of the necessary changes to their networks and systems to support the opening of the relevant number blocks.

83. For the longer term development of the numbering plan, the CA will closely monitor the development of telecommunications market and the demand for telecommunications numbers. Before the anticipated life span of the existing 8-digit numbering plan comes to an end, the CA will commission in time a consultancy study on the matter. Based on the outcome of the consultancy study, the CA will solicit the views of stakeholders and the general public before deciding on how the numbering plan of Hong Kong should further evolve, including any need for migration to a longer digit numbering plan, so as to meet the market demand for various telecommunications services in an efficient and sustainable manner.

**Communications Authority**
**24 June 2016**