

TELECOMMUNICATIONS NUMBERING ADVISORY COMMITTEE**Short Codes for Value-added SMS (II)****Introduction**

The issue of access code allocation for value-added SMS was first addressed in NAC Paper No. 9/2003 and was discussed at the 51st NAC meeting NAC held on 27 November 2003. A working group meeting comprising interested members of the NAC and representative of the Wireless Technology Industry Association (representing the content service industry) was conveyed in December 2003 to review the related details. A copy of the notes of the working group meeting is attached as Annex. Taking into account the views collected at the meeting, this paper summarizes the findings, available options and proposes implementation approaches for the access codes for value-added SMS. Although the current issue stems from mobile services, OFTA is mindful that one of the fixed service operators is also providing short messages services. The regulatory framework on access code for value-added SMS would apply to the fixed service sector as well.

Code Options

2. The Working Group identified several options which may be feasible for allocation as value-added SMS access code. These options are summarized and described below:

- (a) "*" and "#" prefixed codes
- (b) "14" codes
- (c) "17" codes
- (d) "19" codes
- (e) "50" codes
- (f) "6" or "9" prefixed 8-digit mobile numbers
- (g) "900" codes

3. *"*" and "#" prefixed codes*. These codes are mainly deployed in the mobile networks for voice-type content services. Coordinated deployment of these codes is not necessary as they are usually used internally within a network

and are not routed across networks. However, it is noted that the industry is able to coordinate on the use of a set of common access codes whereby the users could access to a content service using the same access code from all mobile networks. The GSM Specifications governing the use of "*" and "#" prefixed codes (in Unstructured Supplementary Data Services) do not impose a limit on the digit length of these codes.

4. **"14" codes.** The number level "14" has been opened for allocation as network identifier (NI) of the fixed networks, including four NIs for Operator Number Portability (ONP) application. The number levels "14(0-7)" are allocated for NI application while the levels "14(8-9)" are vacant for allocation. The digit length of the unallocated "14(8-9)" codes is not yet specified in the numbering plan.

5. **"17" codes.** Currently, a unique "17" prefixed code is assigned exclusively to each mobile network operator for various mobile services like customer hotlines. The six 2G operators were assigned with 3-digit codes while the 3G operators and the MVNOs (who are eligible for number allocation) were assigned with 5-digit "17" prefixed codes. According to the specifications of the numbering plan, the digit length of "17" codes is limited to 7 or less. These codes are universally accessible from any networks.

6. **"19" codes.** These codes are commonly used as internal network test codes, routing codes or feature access codes by both the mobile and fixed network operators. They may be used differently among operators in accordance with their operational needs. There is no coordinated use of these codes in the industry. There is no limit on the digit length of "19" codes. The "19" codes are universally allocated to all operators and are not passed across networks in general.

7. **"50" codes.** In the numbering plan, telecommunications numbers with prefix "5" are reserved for future migration of the numbering plan to longer digits, and level "5" has not been opened for allocation to any telecommunications services. However, mobile operators are now using some "5X" codes¹ for value-added SMS without proper numbering assignment. Some mobile operators are of the view that level "50" may not be needed for future

¹ "5X" codes currently being used by mobile operators include those with leading digits "50", "51", "52", "53", "55", "56" and "57", among which the "50" codes are mostly used.

migration as the current "0" prefixed numbers would unlikely be mapped to "50" numbers during the process of migration to longer digit length, and it may therefore be deployed for value-added SMS.

8. ***"6" or "9" prefixed 8-digit mobile numbers.*** These are mobile subscriber numbers currently used for provision of both voice and short message services. Each operator operates a certain range of number exclusively. The digit length of "6" and "9" prefixed numbers is 8 digits. In considering the deployment of these numbers for value-added SMS, there is a concern that wrong dialling may cause nuisance to other SMS users as it is likely that a large amount of calls would be routed to those numbers deployed for value-added SMS.

9. ***"900" codes.*** At present, "900" levels are allocated to fixed network operators, who are in turn delegated to assign individual "900" codes for various content applications. Customers of fixed networks may retrieve information contents by dialling the concerned "900" codes. Each fixed network operator is allocated a unique "900SX" or "900SXY" level, where "S" is the service indicator as defined in the Hong Kong Numbering Plan². The levels "900S4(1-9)", "900S5(1-9)", "900S6", "900S7", "900S8" and "900S9" are all now vacant. As regard the digit length, "900" numbers for mass calling are of 8 digits while numbers for information access are of 11 digits.

Considerations for SMS access code

10. In selecting access codes for value-added SMS, the mobile operators and content service providers (CSP) consider that the following attributes are preferred:

- (a) relatively short digit length
- (b) common code accessible from different network operators
- (c) portable across operators

The suitability of deploying various types of access codes for value-added SMS are described below.

² Sponsored services are coded by S=0, information service for children by S=2, mass calling by S=3, interactive information services by S=4, general information services by S=6, special information services by S=9.

11. The SMS access code should be one that is readily implemented by the operators. Given that the use of "*" and "#" in an SMS address has never been implemented in the networks and such implementation may need corresponding network patching, this option may not be viable in the short term. In addition, at least one mobile network operator considered that such deployment is not in line with the relevant GSM specifications.

12. To minimize the negative impact of wrong dialling, such as nuisance to other SMS users, access code for value-added SMS should be distinctly different from other SMS addresses commonly accessed by consumers. Numbers with prefixes "6" and "9" may not be desirable in this regard. By the same token, other numbers within the ranges of fixed and mobile telephone numbers, such as "2" and "3" prefixed numbers, may also be undesirable as access codes for value-added SMS.

13. Noting that SMS is routed on a platform different from that for voice telephony communication or other feature service access, short codes already in use for various applications can still be applied as access codes for value-added SMS. However, for those codes that are already used by the public at large for various feature services, adoption of them as access codes for value-added SMS may possibly cause confusion. Accordingly, "17" codes and "19" codes may not be desirable in this regard.

14. As regards "50" codes, their deployment for value-added SMS violates the Hong Kong Numbering Plan. The level "5" has been reserved for future migration of numbering plan and it is not yet open for any telecommunications service at present. Although there is no impending need to preclude such option for the moment, the feasibility of deploying "50" access codes for value-added SMS must be considered in conjunction with the future migration of numbering plan.

Available Options

15. In evaluating the various options for SMS access code, with regards to the above considerations and the availability of sufficient resources to meet the market demand, the options of allocating "900" codes, "14" codes and "50" codes are considered feasible. The proposed structure of these codes is described below.

16. **"900" codes.** Assignment of 11-digit "900" codes for value-added SMS is consistent with the numbering plan design of using "900" numbers for content services. There are ample resources in the vacant levels of "900S4(1-9)", "900S5(1-9)", "900S6", "900S7", "900S8" and "900S9". If these codes are also assigned for value-added SMS, fixed and mobile operators will share the currently vacant "900" resources for such application.

17. In deploying "900" codes for value-added SMS, there may be two coding schemes, depending on the need to differentiate the service types as in the case of existing "900" information services.

- If service types differentiation is required, the current "S" field designation of the "900-S-XY-ABCDE" structure may be followed. (In the foregoing example, "XY" represents operator code; "ABCDE" represents the code for a specific service offered by a CSP or the operator.)
- If there is no such need, one of the spare digits, say "8", for the "S" field may be deployed to denote value-added SMS. The structure of the code would become "900-8-XY-ABCDE"

18. **"14 Codes"**. Currently, the "14(8-9)" levels are now fully vacant. Further resources in the 14(0,1,3) levels may also be deployed for such purposes should there be strong demand for the services. The format of a 10-digit code may be 14-N-XY-ABCDE or 14-N-S-XY-ABCD, where "N" is a digit of the spare sub-levels (0,1,3,8 and 9), "S" is the digit for service type, if required.

19. **"50" Codes.** As regards the level "50", if the allocation of such level for value-added SMS is in line with the long-term numbering plan, it may be considered as a viable option. Nevertheless, in any case the mobile operators' existing usage of "5X" codes that are scattered over the "50-59" range rather than limiting to "50" must be rationalized. The format of a 9-digit code in such case may be 50-XY-ABCDE or 50-S-XY-ABCD, where "S" is the digit for service types, if required.

Implementation

20. Once the numbering range for SMS access codes is set by the TA, the operators concerned should arrange for migration of existing deployment of "5X" codes to the appropriate numbering levels. A 'grace period' of 6 to 12 months is proposed for such migration process, after which the TA would take enforcement action as appropriate to ensure that no more value-added SMS is offered access through those unauthorized levels.

21. Regarding the deployment of SMS access code, two implementation approaches were raised at the 51st NAC meeting for discussion. These approaches included settlement through a single host operator along with inter-operator agreements in place, and alternatively separate agreements with multiple operators for network connection. Having considered the views of the members of the working group and the current mode of operation in the value-added SMS market, the following implementation approach is proposed:

- (a) the access code resources shall be allocated to fixed network operator, mobile network operators, and MVNO (who are eligible for number allocation) that offer SMS service. Each operator is to be allocated a designated range of access codes.
- (b) CSP may apply to any of the operators that are allocated the access code resources for use of a certain SMS access code not yet assigned. The same SMS access code may also be used in the network of other operators if the CSP choose to connect with these operators, as they should have never assigned the code.
- (c) CSP may choose to connect its content server with a single host operator or each of the connected operators, subject to the terms of routing and settlement arrangements. It is therefore up to commercial settlement among the CSP and the operators.
- (d) CSP who is assigned a certain SMS access code should be allowed to port the code to other operator. In other words, operators who are allocated SMS access code resources are subject to number portability obligations in this regard.

Advice Sought

22. Members are invited to give their comments and views on the above issues, in particular,

- (a) Range of access codes for value-added SMS (as described in paragraphs 15-19);
- (b) Need for an "S" field to differentiate the service type in the access code for value-added SMS (as described in paragraph 17);
- (c) Migration arrangement for existing "5X" codes in use (as described in paragraph 20); and
- (d) Implementation approach (as described in paragraph 21).

Office of the Telecommunications Authority
February 2004

Notes of the 1st Meeting of the Working Group on Short Codes for Value-added SMS

Date/Time: 11 December 2003 (Thursday) 2:30 p.m.

Venue: OFTA Conference Room 2907

Present:	Mr P H Ma	OFTA (Chairman)
	Mr L H Ting	OFTA (Secretary)
	Mr Isaac Ip	OFTA
	Mr T L Or	SmarTone (Representative of Mobile as a group)
	Mr P F Ma	New World PCS
	Mr Raymond S C Chan	New World PCS
	Mr Wilson Pang	Hutchison Telecommunications
	Mr Carlson Leung	Hutchison Telecommunications
	Mr K L Ho	Hong Kong CSL
	Mr Jack H W Lam	Peoples
	Mr W L Cheung	Sunday
	Mr Eric W K Leung	Sunday
	Mr Andy C W Tam	PCCW
	Mr Eric K C Ng	Wharf T&T
	Mr Desmond K L Chan	Wharf T&T
	Mr Daniel Lo	Hong Kong Broadband Network
	Mr Mathew Wong	Hong Kong Broadband Network
	Mr Kenneth Kwok	Reach (Representative of External FTNS as a group)
	Ms Ruby Healey	Reach
	Mr Raymond C M Leung	CITIC Telecom 1616
	Mr Chris K K Wong	CITIC Telecom 1616
	Mr Norman Chan	Wireless Technology Industry Association
	Mr Kam Poon	ETS Society (Representative of ETS as a group)
	Mr Simon Chan	Hong Kong Telecommunications Users Group
	Dr Victor Hung	Consumer Council
	Mr Ronald Chiu	Ad personam

1. The Chairman welcomed members to the working group on short codes for value-added SMS and said that the purpose of the first working group meeting was to solicit members' initial views on the various options and implementation scenarios described in the

NAC Paper NO. 9/2003. He said that the working group was established under the Telecommunications Numbering Advisory Committee (NAC) and the working group was tasked to review the numbering issues concerning value-added SMS. In this connection, the Terms of Reference of the working group were confined to numbering issues, and other issues like call routing and charge settlement would not be addressed by the working group. The findings of the working group would be presented to the NAC for further deliberation.

2. Mr T L Or opined that access codes for SMS were distinct from telephone numbers in the numbering plan. He considered that the use of “5” prefixed SMS codes would not affect telephone numbering even though the level “5” had been reserved for future migration of numbering plan. The Chairman responded that the prefix “5” numbers had not been allocated by the Telecommunications Authority for any telecommunications services. In addition, the use of unallocated numbers would also lead to confusion to the users. Hence, these numbers should not be freely used for the routing of short messages.

3. Mr T L Or opined that, from a technical point of view, the reservation of specific numbering range for value-added SMS might consume unnecessary numbering resources since routing of short messages and telephone calls were handled by separate platforms. Mr K L Ho pointed out that the “508618” short code was currently not routed across networks, and sought clarification on whether the short codes in question were expected to be passed across networks. The Chairman said that the short code “508618” was not subject to any routing requirement as it was not an allocated code. On the other hand, the routing of short codes allocated for value-added SMS would depend on the implementation approaches that were to be discussed later.

4. The Chairman invited members’ comment on each of the short code options proposed in paragraph 10 of the NAC Paper No. 9/2003, as follows:

- (a) “*” and “#” prefixed codes
- (b) “19” short codes
- (c) “17” short codes
- (d) “14(8-9)” short codes
- (e) “6” or “9” prefixed 8-digit mobile numbers

5. Concerning “*” and “#” prefixed codes, Mr T L Or advised members that they were commonly used for access to value-added services by customers and maintenance purposes by mobile handset manufacturers. Mr Wilson Pang added that specific use of “*” and “#” prefixed codes had already been set out in GSM specifications and their deployment for short messages routing might not be feasible for all the mobile networks. The mobile operators reported that “*” and “#” prefixed codes had never been used for SMS so far.

6. For “19” short codes, Mr T L Or advised members that the “19” short codes were allocated for inter-network operations and would not be passed among networks. In order that the customers could access via different mobile networks to a content service, it was necessary to use a common code on all mobile networks. Mr Or said that, since the mobile operators deployed the “19” codes in accordance with their own operational needs, it might not be feasible for the mobile operators to make available sufficient number of common codes to suit the need of the content providers. Mr K L Ho said that “19” short codes were used by CSL for voice mail service and by other mobile operators for different purposes. Mr Ho opined that using “19” codes for SMS might cause confusion to its customers. Mr Desmond Chan said that such “19” codes were also used by fixed network operators for testing or routing purposes and he considered “19” code was not a good option for SMS. Mr Ronald Chiu opined that the choice of “19” codes as short codes for SMS might only be considered as secondary since some of them had already been used for internal applications by network operators. Rounding up, the Chairman asked operators to identify those “19” codes already assigned and reported to OFTA for further consideration.

7. Concerning “17” short codes, Mr T L Or advised members that they were also allocated differently among mobile operators, as in the case of “19” short codes. It might therefore be difficult to identify common “17” short codes suitable for value-added SMS access.

8. As for “14(8-9)” short codes, Mr T L Or considered that “148” codes had been planned for fixed number porting purpose and therefore might not be suitable for SMS if confusion with telephone numbering was to be avoided. Mr Isaac Ip clarified that all fixed network operators except one had already used “4x” numbers exclusively for number porting, so there were numbering resources in the “148” level available for other

applications. The Chairman supplemented that the maximum digit length for “14” codes were 11 according to the Numbering Plan, and there would be 20,000 numbers available for SMS even if the access codes were limited to a length of 7 digits.

9. In response to Mr T L Or's inquiry on why prefix “14” numbers was considered more suitable than prefix “5” numbers for SMS, the Chairman responded that level “5” had been reserved for future migration while a considerable amount of “14” prefix codes were still available. Mr T L Or opined that level “50” might not be needed in future migration, and asked OFTA to consider allocation of “50” short codes for value-added SMS. The Chairman agreed to consider whether “50” short codes might be taken as one of the options for value-added SMS.

10. Concerning the use of 8-digit numbers starting with ‘6’ or ‘9’ for SMS, the mobile operators considered that it would result in different access numbers among operators, as each operates a certain range of numbers exclusively. Mr Ronald Chiu suggested mobile operators consider the technical feasibility of a common 8-digit number among all operators for SMS. Mr K L Ho advised members that content provider looked for short codes rather than 8-digit codes. He also considered 8-digit access codes for SMS not desirable as a wrong dialling might cause nuisance to another mobile phone user. Considering that value-added SMS might generate large traffic volume, Dr Victor Hung expressed concern on the potential inadvertent nuisance that might be caused by wrong dialling if 8-digit numbers were used as SMS access code.

11. In response to the concern of Dr Hung, the Chairman said that the deployment of a specific number range distinct from normal customer telephone numbers would avoid the potential nuisance problem. He suggested members consider prefix “900” numbers as another viable options for value-added SMS, noting that “900” numbers had already been allocated to fixed network operators, also for content services. Mr Ronald Chiu supported the use of “900” numbers for SMS. Mr Norman Chan said that the content provider industry would welcome the use of “900” numbers as alternative numbering resources for SMS.

12. Mr K L Ho considered that content providers asked for short codes while the digit length of “900” numbers was too long. He opined that content providers might even quit the

local market if there were no satisfactory choices of access codes available to them, and that “900” numbers were even less desirable than “17” codes in this regard. Mr Ronald Chiu noted that fixed network operator had also offered SMS lately and might therefore offer value-added SMS. Mr Andy Tam supported the use of “900” codes for SMS. Mr Eric Ng also supported it, noting that the “900” level was a dedicated number range and portable across network operators. In response to Mr T L Or, Mr Desmond Chan said that “900” numbers for mass calling were of 8 digits while numbers for information access were of 11 digits maximum. Mr Chris Wong opined that the long digit length of “900” codes might limit its applicability for value-added SMS as sometimes suffix digits were added in sending such short messages. The Chairman noted there were different views on the proposed use of “900” numbers for value-added SMS and the feasibility of this option might need to be further explored.

13. The Chairman invited members’ view on the party eligible for SMS short code allocation. In response to the inquiry of Mr T L Or on existing mechanism for allocating “900” numbers, the Chairman stated that “900” levels were allocated to fixed network operators, who were in turn delegated to assign individual “900” codes to content providers. Concerning short codes for SMS, Dr Victor Hung noted that content providers were not licensees and therefore might not be eligible for code allocation. Mr Norman Chan considered that content providers would prefer a code portable across network, whether the code was assigned directly by the Telecommunications Authority or assigned by the operator. The Chairman noted and said that OFTA would consider the views of members on the eligibility for SMS short code allocation.

14. The Chairman invited members’ view on the implementation approach, drawing reference to the two scenarios described in the NAC Paper No. 9/2003. Mr T L Or reported that over the past the local industry follow scenario A, i.e. the content providers dealt with each mobile operator individually. He considered that the working group should seek the views of the content providers in considering the implementation issues. Mr Norman Chan noted that content providers sought to have common codes among all mobile operators for value-added SMS, and the problems faced by them was the difficulty in obtaining a desired common code from all mobile operators. A single host operator (i.e. scenario B) might therefore solve the problem. Mr K L Ho advised that it was the current practice for the

content providers to approach each mobile operator individually, apart from numbering issue, for settling the technical, and charging arrangements. For the single host scenario, the settlement of the relevant technical charging arrangements among mobile operators would be even more time consuming and tedious.

15. Dr Victor Hung suggested OFTA consider the numbering issues concerning value-added SMS on a broader horizon, noting that it was related to the content industry which would be a potential big market. The Chairman noted. Ms Ruby Healey considered that SMS short codes for access to content was analogous to country code in telephone numbering plan, and therefore accessibility from all networks would be required. Dr Victor Hung expressed a different view, noting that the SMS in question was not a type of people-to-people communication and therefore SMS access code for content might not be analogous to country code.

16. The Chairman thanked members for their views and said that OFTA would consider members' comments with a view to drawing up a draft framework on short codes for value-added SMS. He welcomed any further comments on this issue.

Office of the Telecommunications Authority

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